2018 ANNUAL REPORT

Whirlpool Facility
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1 Introduction

On behalf of Whirlpool Corporation (Whirlpool), Ramboll US Corporation (Ramboll) has prepared this 2018 Annual Report (Report) for the former Whirlpool facility on Jenny Lind Road in Fort Smith, Arkansas (Site) (see Figure 2-1). This Report summarizes the investigation, maintenance and remediation efforts by Whirlpool under the oversight of the Arkansas Department of Environmental Quality (ADEQ) in 2018. The work in 2018 was performed and this report was prepared in accordance with the Revised Groundwater Monitoring Plan (RGWMP) approved by the ADEQ in September 2016; the Remedial Action Decision Document (RADD) issued by ADEQ on December 27, 2013, and revised in November 2015 (Revised RADD); and ADEQ comment letters and Ramboll/Whirlpool responses to previous quarterly monitoring reports.

The investigation, maintenance and remediation efforts performed at the site in 2018 consisted of:

- Investigation near the southwest property boundary in April 2018;
- Investigation near the northeast boundaries of the north plume in April 2018;
- In-situ chemical reduction (ISCR) was performed in July and August 2018 at the southwest boundary of the south plume, northeast boundary of the north plume and at the southeast property boundary; and
- Annual groundwater monitoring event and well rehabilitation in November 2018.

The investigations in April 2018 were summarized in the 2018 Semi-annual Report and the findings from these investigations were used to prepare the Work Plan for the ISCR effort in June 2018. The summary of the ISCR effort performed in July and August 2018 is provided in Attachment H. This report presents the results of the 2018 groundwater monitoring event, summarizes the well rehabilitation efforts and briefly discusses the ISCR injection efforts as well as the results of the groundwater monitoring post-ISCR (i.e. 90 day monitoring event).

Monitoring at the site will continue in accordance with the RGWMP with the next groundwater monitoring event planned to occur in the Spring of 2018.

2 Site Setting

The Whirlpool facility is located at 6400 Jenny Lind Road on the south side of Fort Smith, Sebastian County, Arkansas (Figure 2-1). The Site formerly consisted of approximately 153 acres of which the developed portion of the property consists of the former manufacturing facility [approximately 1,175,000 square feet (ft^2)], a former warehouse (approximately 622,000 ft^2) and ancillary buildings north of the former manufacturing building including the boiler room and water treatment plant. Whirlpool sold the warehouse and surrounding property on the southern portion of the Site in September 2014 to Spartan Logistics and Whirlpool sold the former manufacturing building and surrounding property (approximately 93 acres) in February 2017 to Phoenix Investors LLC.

Approximately 21 acres on the southwestern portion of the property consists of undeveloped vegetated areas (Figure 2-2). Concrete driveways and concrete and asphalt parking areas surround the structures.

Residential areas are located to the north of the property beyond Ingersoll Avenue and commercial industrial properties are located to the south, east and west. The expansion and reconstruction of Jenny Lind Road and Ingersoll Avenue bordering the site on the east and north boundaries, respectively, were completed in mid-2018.

Groundwater is not used as a potable source in the area. In addition, as of 2015, all of the residential properties north of the Site have groundwater use restrictions in place as part of property damage claims settled amicably by Whirlpool and the residents. Attachment G provides a figure depicting all properties in which damage claims have been settled by Whirlpool.

Additional information regarding the site setting is presented in the 2015 Two Year Technical Review Report dated January 28, 2016, which includes further discussion of:

- Site history including discussion of the sequence of site investigations and regulatory history;
- Site topography;
- Site hydrology;
- Site and regional geology;
- Site hydrogeology; and
- Discussion of fate and transport.

3 Groundwater Monitoring and Onsite Activities

The annual groundwater monitoring event was performed during the week of November 12, 2018. This annual event included measuring water levels on November 13, 2018, from 124 wells followed by the collection of groundwater samples from 85 wells. The 85 wells sampled included 63 wells denoted as plume boundary, onsite or offsite wells according to the RADD and RGWMP (Table 2), 18 temporary monitoring wells (TMW series of wells)[1] and four shallow wells (used for assessment of vapor intrusion).

Groundwater monitoring activities included collection of groundwater samples for analysis of volatile organic compounds (VOCs) via EPA Method 8260 in accordance with the RGWMP for all wells monitored and geochemical and monitored natural attenuation (MNA) parameters for select wells. Constituents of concern (COCs) monitored in groundwater are defined within the RGWMP. Table 1 of the plan lists the wells sampled during the annual event (63 wells are included in the annual groundwater monitoring event). The COCs and additional geochemical parameters were analyzed to assess previous and recent remediation activities as well as natural degradation of site-related chlorinated compounds in groundwater to continue to assess the effectiveness of MNA as the remedy for the groundwater impacts at the Site.

The following sections describe the groundwater monitoring activities completed during the annual event.

3.1 Well Inspection/Rehabilitation and Static Water Level Measurements

During the weeks of November 5, 2018, and November 13, 2018, existing well deficiencies or necessary repairs documented during previous monitoring events were corrected, as appropriate (i.e. well rehabilitation), photograph documentation of significant well rehabilitations is provided in Attachment G Photolog and a summary of repairs is provided in Table 2B. Well rehabilitations included abandonment and replacement of TMW-22 and MW-183 which were damaged during the August 2018 ISCR event and the Jenny Lind Road and Ingersoll Avenue road construction projects respectively, flush mount concrete pad and protective cover repairs and replacements, flush mount protective cover bolt replacements and well cap (i.e. J-plug) and lock replacements.

Prior to initiating well replacement work for TMW-22 and MW-183 and installation of TMW-34 (new well), both Arkansas One-Call Utility Locating Services and a private utility locator were contacted to identify underground utilities and other potential obstructions in the work areas.

A Geoprobe 7722DT direct push drilling rig was used to complete well installations. This drill rig is capable of drilling with hollow stem augers for well installation and completion of soil probes using direct push technology (DPT). TMW-22R, MW-183R[2] and TMW-34 were installed using

[1] The TMW refers to temporary monitoring well. The "temporary" designation refers to ultimately re-designating wells in the RGWMP for future monitoring. The temporary wells were installed as permanent wells in accordance with ADEQ requirements.
[2] The "R" designation used for monitoring wells indicates a well that has been installed to replace a previous well either due to damage or conversion of historic temporary wells constructed with one-diameter or less well casings.

hollow stem augers and continuous soil sampling was conducted to observe the stratigraphic profile. Soil cores were screened with a PID. The borings were logged by a Ramboll geologist using USCS classification.

TMW-22R, MW183R and TMW-34 were installed to total depth targeting the top of the shale at the base of the Basal Transmissive Zone at depths of 18.5 feet below ground surface (bgs),18 feet bgs and 26 feet bgs, respectively. The wells were constructed with 10 feet of 2 inch diameter, 0.01 inch slot PVC screen and 2 inch diameter, solid flush threaded schedule 40 PVC riser pipe to the surface. A sand pack was installed in the well annulus around the PVC screen to approximately 2 feet above the top of the screen followed by one foot of annular seal consisting of hydrated bentonite chips above the top of the sand pack. The remainder of the annular space was pressure grouted with a bentonite/cement grout mixture. The well was completed with an expandable, locking well cap and covered with a steel cover flush with the ground surface. Well construction logs are provided in Attachment F. Following installation, the wells were developed by purging a minimum of four well casing volumes followed by stabilizing pH, conductivity, dissolved oxygen (DO), oxidation reduction potential (ORP) and an observed decrease in visual turbidity.

Former monitoring wells TMW-22 and MW-183 were abandoned by over-drilling with hollow stem augers to remove well construction materials. Following over-drilling, borings were sealed by pressure grouting with a bentonite/cement grout mixture.

Following installation, the wells were surveyed by an Arkansas licensed surveyor.

The soil cuttings generated from the well replacement work and soil sampling activities were collected and containerized in 55 gallon drums and staged on the former Whirlpool manufacturing facility property. Water generated from decontamination, well development, purging and sampling activities was also containerized for disposal.

On November 13, 2018, monitoring wells were visually inspected and static water levels and well depths were measured in a total of 124 monitoring wells. Prior to taking water level measurements, monitoring wells were opened the day prior to gauging on November 12, 2018, to allow water levels to equilibrate to atmospheric conditions. Water levels were measured to the nearest 0.01 foot with an accuracy of 0.02 feet per the manufacturer's specification. The electronic water level meters were calibrated in the field prior to measuring water levels[3]. The water level meter probe and tape (i.e. the only non-dedicated sampling equipment) were decontaminated prior to use at each well by spraying and scrubbing the probe and tape with Alconox detergent mixed with distilled water and then rinsing the probe and tape with distilled water prior to being wiped dry.

[3] Electronic water level meters were calibrated in the field by measuring the depth to water within the same well with each water level meter. Following the measurements, one water level meter was selected as the control and the differences in measurements from the other water level meters were applied to the depth to water measurements following the monitoring event.

The annual event static water level measurements are presented in Table 3 along with the previous six events of water level measurements recorded from project wells.

3.2 Monitoring Well Sampling

After static water level measurement activities were completed, low flow sampling was performed at each well via the use of a peristaltic pump and dedicated polyethylene tubing. The tubing was placed at a depth within the well approximately equal to the midpoint of the well screen. The wells were then purged, via the USEPA low stress (low flow) purging procedures (USEPA 1996); at a rate generally less than 0.1 liter (L) per minute to minimize the amount of drawdown in the well and to reduce the likelihood of elevated turbidity. Flow rates and drawdown were checked continuously during purging. Purge water was then placed into a container prior to transfer to the onsite water holding tank for ultimate proper disposal.

Water quality parameters were measured via a water quality probe and flow thru cell. Instruments were calibrated daily prior to the start of sampling. All instruments were calibrated at a minimum of once per day. Calibration logs are included as Attachment A. Readings were recorded approximately every five minutes until the parameters stabilized. Stabilization was considered obtained when three consecutive rounds of parameter readings met the following:

- Turbidity: +/- 10% for values greater than 10 Nephelometric Turbidity Unit (NTU), or less than 10 NTU;
- DO: +/- 10% for values greater than 0.5 milligrams per liter (mg/L);
- Specific conductance: +/- 3%;
- Temperature: +/- 1°C;
- pH: Within +/- 0.1 standard units; and
- ORP: Within +/- 10 millivolts (mV).

Table 4 presents a summary of results for measured field parameters for the 2018 annual event.

The groundwater samples were obtained by directly filling the laboratory provided sampling bottles from the peristaltic pump discharge. VOCs were collected in three 40 milliliter (mL) glass vials that contained hydrochloric acid as a preservative per standard procedures. Samples for assessing quality assurance/quality control (QA/QC) metrics were collected by alternately filling investigative and QA/QC sample bottles for each parameter. VOC sample bottles for both the investigative and the QA/QC sample were completely filled, purged of headspace and sealed. Hach Test Kits (all verified with valid expiration dates) were used to measure ferrous iron in the field. Groundwater samples for analysis of dissolved hydrogen concentration were collected by the Microseeps gas stripping procedure (Microseeps 2014).

A total of 85 groundwater samples, nine field duplicate samples, four matrix spike/matrix spike duplicate (MS/MSD) samples and six equipment blanks were collected during the 2018 annual event. Duplicate samples were taken at a frequency of one duplicate sample per 10

groundwater monitoring samples. Duplicate samples were collected from MW-26, MW-24, MW-55R, MW-58R, MW-61R, MW-192, TMW-12, TMW-20 and TMW-23.

Because monitoring wells contain dedicated or new tubing, the only equipment transferred and used from well to well is the water level meter used to monitor well water levels during purging and stabilization prior to sampling and tube weights. Equipment rinsate blanks were collected after water level meters used during the monitoring event were decontaminated to evaluate field decontamination procedures. Equipment rinsate blanks were collected by pouring ASTM Type II deionized water over the decontaminated water level meter probe and tape into the appropriate sample containers. The rinsate blanks were collected after decontamination procedures at MW-91 (EB-01-201811 at 17:21, MW-23 (EB-02-201811 at 10:53), ITMW-20 (EB-03-201811 at 17:00), MW-46R (EB-04-201811 at 17:40), TMW-30 (EB-05-201811 at 17:10) and MW-86 (EB-08-201811 at 10:30). The preservation and analysis of the equipment rinsate blanks was identical to those of the associated environmental samples.

Sample containers were labeled and packed on ice in insulated coolers before being shipped under chain of custody via overnight courier or FedEx to Pace Analytical Services in Lenexa, Kansas (VOC and MNA parameters), via FedEx to Microseeps in Pittsburg, Pennsylvania, and via FedEx to Microbial Insights in Knoxville, Tennessee (microbial parameters). Chain-of-custody procedures were followed from the point of sample collection through completion of analysis. The laboratories used infrared thermometers to take sample temperatures upon sample receipt in accordance with USEPA Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth Edition.

3.3 Other Site Monitoring Activities

In accordance with the RGWMP, groundwater monitoring was performed for shallow monitoring wells in the north plume consisting of MW-175, MW-176, MW-178 and MW-179. These wells are screened to monitor shallow perched water and this data is used to assist in evaluating the potential for vapor intrusion from groundwater. Due to slow recovery rates, low-flow sampling techniques were not used at the shallow wells. If excessive drawdown occurred, these wells were purged dry once, then allowed to recover prior to collection of the sample within 24 hours of purging dry.

The data from these shallow wells is presented in Attachment B, Annual 2018 Soil Vapor Monitoring and Vapor Intrusion Assessment Report.

4 Annual Monitoring Event Results

The following sections present a discussion of the hydrogeology, analytical methods, the results of the laboratory analyses and an assessment of data quality and usability.

4.1 Hydrogeology

Gradient

Water levels from 124 wells at the Site were collected during the annual event (Table 3) as discussed in Section 2.1. These wells were monitored during this event to provide a current potentiometric surface so groundwater flow direction could be determined at the Site for the monitoring event.

Figure 1 shows the contours of the groundwater elevations based on the monitoring well static water level measurements completed November 13, 2018. Based on the current potentiometric maps, the hydraulic gradient, as an indication of the likely direction of groundwater flow, is generally consistent with historical conditions. The groundwater gradient divide (hydraulic divide) trends west to east, in the immediate vicinity north of the former manufacture facility building. In the vicinity of the hydraulic divide (north of the facility building), the hydraulic gradient is near zero. North of Jacobs Avenue the hydraulic gradient is directed to the north/northeast. South of the hydraulic divide and beneath the southern portion of the former manufacture facility building, the hydraulic gradient is directed to the south, southeast then begins to trend to the southwest along the south boundary of the property.

The installation of eight additional (sentinel) wells to the south in September 2015 and subsequent additional investigations in 2016 through 2018 have refined the understanding of the southern flow regime. The groundwater data collected since installation of the additional wells continues to indicate a second hydraulic gradient divide beneath the former manufacture facility, the axis of which trends from northwest to southeast. The gradient(s) steepen to the east, northeast east of the former manufacturing building and southwest beyond the extent of the former manufacturing building.

A linear interpolation of the gradient between six groups of wells was completed in order to assess the groundwater flow direction and gradients as follows:

- South plume southeast flow direction from MW-25 to MW-192 results in a gradient of 0.002 feet/foot;
- South plume southwest flow direction from MW-182 to MW-186 results in a gradient of 0.012 feet/foot;
- South plume southwest flow direction from ITMW-7 to MW-186 results in a gradient of 0.008 feet/foot;
- Northeast plume northeast flow direction from MW-87 to MW-183R results in a gradient of 0.016 feet/foot;

- North plume northeast flow direction from MW-58R to MW-61R results in a gradient of 0.020 feet/foot; and
- North plume easterly flow direction from MW-56R to MW-194 results in a gradient of 0.004 feet/foot.

Although the gradient remains relatively flat beneath the former manufacture building (i.e. 0.002 feet/foot), the gradient steepens somewhat towards the southwest at the southwest corner of the building and towards the northeast. The gradient increases from 0.008 feet/foot to 0.012 feet/foot towards the southwest based upon the November 2018 water level measurements. The northeast gradient(s) range from 0.004 feet/foot to 0.020 feet/foot based upon the November 2018 static water level measurements.

Shallow Monitoring Wells

Groundwater elevations from shallow groundwater wells (MW-174 through MW-176) located along the north side of Jacobs Avenue and MW-178 (located immediately south of Ingersoll Avenue) were used to evaluate the shallow horizontal gradient. Static water elevations along Jacobs Avenue decrease from west to east; from a high of 467.47 feet at MW-177 to a low of 458.69 feet at MW-174. The calculated shallow groundwater gradient west to east based on these two wells is 0.012 feet/foot. Static water elevations in the deeper Basal Transmissive Zone wells also generally decrease from west (MW-70, 463.26 feet) to east (MW-63R, 459.35 feet) with a resulting gradient of 0.005 feet/foot. The highest shallow groundwater elevations were measured in the most up-gradient shallow well MW-178 (471.37 feet). These results suggest that the shallow groundwater horizontal flow gradient generally mimics the deeper groundwater flow gradient to the east/northeast based on the number and location of shallow groundwater monitoring wells available.

Groundwater elevations from shallow groundwater wells MW-174 through MW-176 and MW-178 were also compared to groundwater elevations from nearby deeper monitoring wells to evaluate vertical gradient. MW-175 is located approximately at the midpoint between deeper groundwater monitoring wells MW-46R and MW-56R allowing the comparison of groundwater elevations at MW-175 to the average of the groundwater elevations at MW-46R and MW-56R. The vertical gradients are summarized in Table 5. Based on this evaluation observations are as follows:

- Downward vertical gradient (-0.49 feet/foot) at the most up-gradient (southwestern) well grouping MW-178/MW-83;
- Slight upward gradient (0.001 feet/foot) at MW-176/MW-46R;
- Slight downward (-0.06 feet/foot) at MW-175/MW-46R and MW-56R; and
- Upward gradient (0.12 feet/foot) at the eastern most well pairing, MW-174/MW-63.

A comparison of gradients based upon the April and November 2018 water level measurements is shown on Figure 1B. Vertical gradients were generally consistent with historical gradients. The difference in vertical gradient in MW-176/MW-46R decreased from 0.01 feet/foot to 0.001

feet/foot, representing the biggest difference in gradients from April to November 2018. The static water level elevations increased in all of the deeper wells ranging from increases of 0.34 feet (MW-46R) to 1.13 feet (MW-63R).

4.2 Groundwater Analytical Results

All VOC analytical data from all wells were subjected to data validation in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Review (August 2014). The laboratory analytical reports for the samples are presented in Attachment C. Summaries of analytical results (i.e. detected compounds) for samples collected during the annual event are presented in Table 6. This table includes data qualifiers that may have been assigned from validation. A discussion of the field and laboratory analytical results for this event is presented below.

4.3 VOC Results

This section presents an evaluation of the VOC data that were collected from the Site during the annual event. TCE results for the annual event are presented on Figures 2A and 2B. Similar to the groundwater monitoring well classifications presented in the RADD, the groundwater monitoring wells included in the RGWMP have been organized into groups consisting of the plume "boundary" wells, offsite wells and onsite wells. Table 2A summarizes the wells in each group.

Plume Boundary Wells

Twenty-nine monitoring wells are identified as plume boundary wells to be sampled during the annual monitoring event (Table 2) at the Site. VOC concentrations were detected above the RADD remedial action levels (RALs) (Table 1) in eight of the 29 samples collected from the plume boundary wells. Tabulated VOC concentrations measured in these wells during the annual event are presented in Table 6.

Notable results from the annual sampling event for wells at or near the plume boundaries include:

North Plume

- MW-55R: TCE concentration of 23.1 micrograms per liter (µg/L) (vs. RAL of 5 µg/L);
- MW-61R: TCE concentration of 7.7 µg/L (vs. RAL of 5 µg/L); and
- MW-194: TCE concentration of 10.7 µg/L (vs. RAL of 5 µg/L).

Northeast Plume

- MW-99: TCE concentration of 8.1 µg/L (vs. RAL of 5 µg/L).

South Plume

- MW-189: TCE concentration of 670 µg/L (vs. RAL of 5 µg/L) (TMW-19 is down-gradient of MW-189 and the TCE concentration was 0.97 µg/L); and

- TMW-32: TCE concentration of 32 µg/L (vs. RAL of 5 µg/L) at the southwest plume boundary (offsite delineation on the neighboring property is pending).

Southeast Area

- MW-185: TCE concentration of 11.7 µg/L (vs. RAL of 5 µg/L).

The occurrence of TCE concentrations exceeding the RAL at the plume boundary at MW-55R are mitigated due to down-gradient wells MW-50R and MW-60R, and these wells exhibit little or no TCE impact. TCE concentrations will continue to be monitored at this location due to the concentration variations observed since November 2010.

ISCR treatment areas were completed in the summer of 2018 to address TCE impacts in groundwater at plume boundary wells located north (MW-61R and MW-194), east (MW-185) and southwest (TMW-32). These actions are discussed in the 2018 In-Situ Chemical Reduction Event Report in Attachment H.

The TCE impacts at MW-189 are not present to south at TMW-19 located between MW-189 and the south property boundary. This is a transitional area where the groundwater gradient is very flat and the gradient is dividing to the east and west. The groundwater elevation to the south at TMW-19 (459.71 feet) is higher than at MW-189 (459.50 feet) which may effectively be reducing migration to the south, and as indicated above the gradient splits with lower elevation east (MW-190, 459.38 feet) and west (MW-188, 459.46 feet). The groundwater gradient may be influenced by the shale bedrock surface. The shale bedrock elevation map provided in the June 2018 Revised Action Plan indicates a low or trough trending west/southwest from the former TMW-17 and TMW-189 towards TMW-16, TMW-26, TMW-27 and TMW-32. This low is bounded to the south/southwest by a higher shale elevation extending southwest from MW-189 to the highest point at MW-188 indicating a west/southwest direction as the preferential pathway for TCE migration.

The TCE concentration at MW-99 has ranged from below detection limits (less than 0.17 µg/L) to the current concentration of 8.1 µg/L. This is the first time TCE levels have exceeded the RAL in MW-99. Down-gradient well MW-184 (less than 0.17 µg/L) indicates TCE impacts are limited down-gradient in this area. Monitoring will continue in accordance with the RGWMP.

Consistent with historical analytical results for the Site, all other plume boundary well VOC results were reported as non-detect or at concentrations less than RALs.

Offsite Wells

Eleven monitoring wells are identified as offsite wells to be sampled during the annual monitoring event (Table 2). The offsite wells include those installed at offsite properties to the north and northeast of the Whirlpool northern property boundary that are not otherwise identified as plume boundary wells. Tabulated VOC concentrations measured in the eleven offsite monitoring wells during the annual event are presented in Table 6.

During the annual event, the highest concentration of TCE detected in groundwater samples from the offsite wells was 902 µg/L collected from MW-56R. This is an increase from 815 µg/L at MW-56R in October 2017. Concentrations are lower up gradient at MW-46R at 603 µg/L. We expect variations in TCE concentrations within the north plume and while we will continue to monitor MW-56R, we have sufficient down-gradient monitoring locations to evaluate conditions and there is down-gradient treatment at the North Plume Permeable Reactive Barrier (PRB) (see Section 5 for further discussion).

Onsite Wells

Twenty-three monitoring wells are identified as onsite wells to be sampled during the annual monitoring event (Table 2A). Onsite wells include certain wells that are located along the perimeter of the former Whirlpool manufacturing facility, within the source area, or south of the source area which includes wells immediately adjacent to the former Whirlpool manufacturing building. Tabulated VOC concentrations measured in onsite wells during the annual event are presented in Table 6.

VOCs were detected above the RADD RALs in 19 of the 23 groundwater samples collected from onsite wells. VOCs detected at concentrations exceeding the respective RALs consist of:

- TCE in 18 wells;
- 1,1-dichloroethane (1,1-DCA) in ITMW-9, MW-25 and MW-86;
- 1,1-dichloroethene (1,1-DCE) in ITMW-9, MW-38, MW-86, MW-93 and MW-95;
- cis-1,2-dichloroethene (cis-1,2-DCE) in ITMW-9, MW-25, MW-38, MW-86, MW-93 and MW-95;
- trans-1,2-dichloroethene (trans-1,2-DCE) in MW-86;
- methylene chloride in MW-25 and MW-86;
- 1,1,2,2-tetrachloroethane (1,1,2,2-TCA) in ITMW-19, MW25, MW-86, MW-93 and MW-95;
- Tetrachloroethene (PCE) in MW-25, MW-86 and MW-95; and
- Vinyl chloride (VC) in MW-25, MW-38, MW-86, MW-93 and MW-95.

During the annual event, the maximum onsite TCE concentration measured was 188,000 µg/L at MW-86. MW-86 is located near the former linear drainage feature within the source area. The current TCE concentration at MW-86 (188,000 µg/L) is second highest detected concentration at this well but remains less than half of the highest detected concentration of 533,000 µg/L detected in May of 2014. Following May 2014, TCE concentrations at MW-86 are generally seasonally higher during fall and winter events compared to spring and summer events.

Northeast Corner Wells

Nine wells were monitored during the annual event to delineate TCE impacts at or near the northeast corner of the Site. MW-96, MW-97, MW-98, MW-99 and MW-184 are plume boundary

wells, MW-183R (replaces well MW-183 and was installed during the week prior to the annual event) is an offsite well and MW-87, MW-89 and MW-91 are onsite wells. Analytical results from these wells are included in Table 6.

During this event, MW-91 exhibited a TCE concentration of 437 µg/L which is the lowest concentration since January 2016 and has exhibited stable TCE concentrations since May 2016 with TCE concentrations ranging from 530 µg/L to 605 µg/L (Table 8 indicates TCE concentration trend is increasing in MW-91). Overall, monitoring event concentrations have ranged from 317 µg/L (January 2015) to 605 µg/L (April 2017). MW-87 and MW-89 exhibited historical low concentrations of 397 µg/L and 9.7 µg/L, respectively.

TCE concentrations in MW-99 located east of Jenny Lind Blvd. increased to 8.1 µg/L as discussed above in the Plume Boundary Well discussion.

TCE concentrations in MW-96, MW-97 and MW-184 on the Boys and Girls Club property continue to be below detection limits (MW-184 since April 2017) and the result for MW-98 were slightly above detection limits at 0.29 µg/L. MW-183R was installed during the week prior to the annual sampling event. The TCE concentration at MW-183R during the annual event was the lowest historical concentration at 1.1 µg/L.

Temporary Wells

In accordance with the action plans presented in the 2016 Annual Report and subsequent revised action plans, 18 temporary monitoring wells (consisting of TMW-10, TMW-11, TMW-12, TMW-14, TMW-16, TMW-19, TMW-20, TMW-21, TMW-22, TMW-23, TMW-24, TMW-25, TMW-26, TMW-27, TMW-29, TMW-30, TMW-32 and TMW-34) have been installed on the southern portion of the former Whirlpool property and in the north plume area.

As shown on Figure 2A, temporary wells in the north were installed to delineate the northeastern edge of the plume. TCE concentrations in north plume temporary wells TMW-10, TMW-11, TMW-12, TMW-14, TMW-20, TMW-21, TMW-22, TMW-23, TMW-24 and TMW-29 in the north plume area ranged from below detection limits (less than 0.17 µg/L) at TMW-20 and TMW-29 to 540 µg/L at TMW-24.

As shown on Figure 2B, temporary wells were installed southwest of the former manufacturing building to delineate the plume. TCE concentrations in temporary wells TWM-16, TMW-19, TMW-25, TMW-26, TMW-27, TMW-30 and TMW-32 on the southern portion of the former Whirlpool property ranged from below detection limits (less than 0.17 µg/L) at TMW-27 to 368 µg/L at TWM-16.

4.3.1 MNA Results

Thirteen wells were monitored for laboratory and field natural attenuation parameters in accordance with the RGWMP. This section presents the evaluation of the VOC results (see Section 3.2.1) as they relate to MNA field and laboratory data collected from the Site during the 2018 annual sampling event. Tabulated results of the field parameters collected from 85

monitoring wells are presented in Table 4 (which includes the 18 temporary monitoring wells consisting of TMW-10, TMW-11, TMW-16, TMW-19 through TMW-27, TMW-29, TMW-30, TMW-32 and TMW-34).

The USEPA documents Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater (USEPA 1998) and An Approach for Evaluating the Progress of Natural Attenuation in Groundwater (USEPA 2011) provides a framework for presenting the lines of evidence that natural attenuation of chlorinated solvents is occurring. The three recognized lines of evidence include:

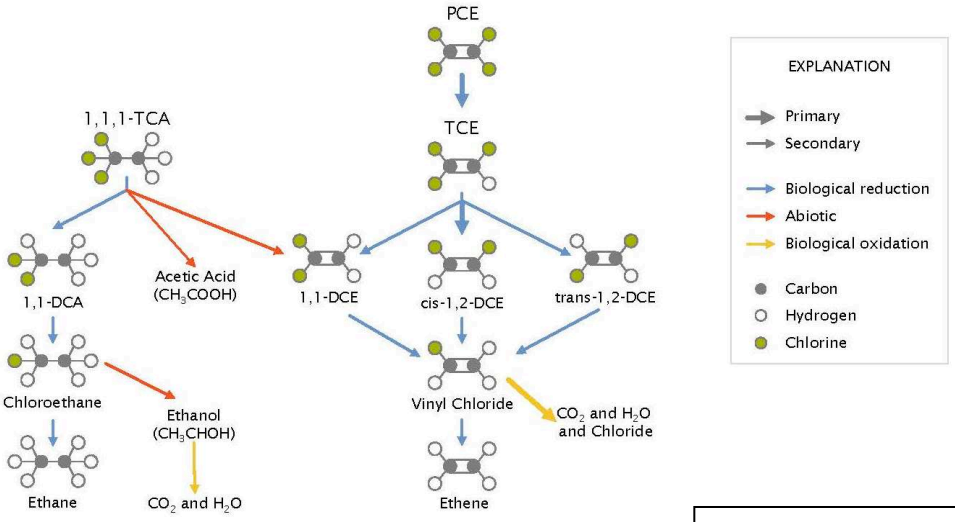
- Historical groundwater and/or soil chemistry data that clearly demonstrate a trend of decreasing contaminant mass and/or concentration over time at appropriate monitoring points (USEPA 1998);
- Hydrogeologic and geochemical data that can be used to establish indirectly the type(s) of natural attenuation processes occurring at the site and the rate at which the processes will reduce contaminant concentrations to the cleanup goal (USEPA 1998); and
- Data from field or microcosm studies which directly demonstrate the occurrence of a specific natural attenuation process at the site and its capacity to degrade the contaminants of concern (USEPA 1998).

The MNA assessment evaluates predominant electron acceptors, the variability of these electron acceptors, major nutrients, general groundwater quality, key microbial population and enzyme activities and dissolved gasses. The assessment uses this data to determine the types of organisms that will be able to effectively flourish in the aquifer, how the geochemistry and chemistry of the aquifer impacts MNA processes, how the indigenous microbial population is being supported, the availability of microbial populations and the presence of reductive dechlorination occurring in the aquifer. Although evidence of reductive dichlorination is present in the three plumes (north, northeast and south plumes), the microbial population is too low to support meaningful reductive dichlorination. The reductive dichlorination is essentially occurring via abiotic means.

4.3.1.1 Chemical Lines of Evidence

The occurrence and progress of natural attention in reducing COC concentrations is provided by evaluating the presence and effectiveness of the transformation pathways for chlorinated ethenes. Chlorinated ethenes are degraded by both biological and abiotic (non-biological) mechanisms. The graphic below shows the biological (anaerobic) and abiotic transformation pathways for chlorinated ethenes. This graphic does not include other chemically induced aerobic [e.g. ISCO] and anaerobic [e.g. zero-valent iron (ZVI)] pathways that can promote degradation of chlorinated compounds.

Abiotic and Biotic Pathways for Chlorinated Ethenes and Ethanes



Source: Vogel et al. 1987.

Tables 4 and 6 present a summary of field parameters and analytical results for VOCs in groundwater, respectively. These data provide lines of evidence that natural attenuation of TCE is continuing to occur primarily via abiotic mechanisms in both onsite and offsite groundwater. Groundwater sample results continue to show elevated levels of cis-1,2-DCE in groundwater in each of the three plumes. Of all of the monitoring wells sampled, only 18 wells exhibited TCE concentrations where the cis-1,2-DCE concentrations was below detection limits. The TCE concentrations in these 18 wells ranged from 0.24 µg/L to 13.8 µg/L and TCE concentrations were less than 5 µg/L in 14 of these 18 wells. The consistent detection of cis-1,2-DCE in groundwater provides evidence that degradation of TCE is occurring. Table 6 also includes the laboratory MNA analytical results and the microbial data (noting microbial populations are limited).

Sampling MNA parameters at locations where TCE is below 5 µg/L does not provide valuable data when evaluating MNA processes. When TCE concentrations are below 5 µg/L the remedial action level [maximum contaminant level (MCL)] has already been achieved and due to the low concentration further significant reduction in contaminants is not expected within a relatively brief timeframe.

4.3.1.2 Geochemical Lines of Evidence

The occurrence and progress of natural attenuation in reducing COC concentrations is provided by evaluating geochemical parameters along with the results of conventional chemical and microbial analyses. The detection of cis-1,2-DCE in groundwater samples from this Site is evidence that conditions likely are favorable for active reductive dechlorination processes. Key parameters used to assess the progress of reductive dechlorination include: temperature, concentration or presence of electron acceptors (DO, nitrate, iron, manganese and sulfate), presence and amount of nutrients (e.g. concentrations of nitrogen and phosphorus),

bioavailable carbon source to sustain microbial population, concentrations of COCs and pH.

Tables 4 and 6 present the groundwater field parameters for MNA assessment for the annual event. A summary of the key items on Tables 4 and 6 are discussed below:

- The groundwater during this sampling event was generally considered to be under bulk anaerobic conditions, with 57 of the 85 wells measured showing DO concentrations less than 1 mg/L (see Table 4). In addition, 18 wells displayed microaerophilic conditions with DO less than 2.0 mg/L. DO levels were relatively low in both the northern and southern plumes. DO levels in the northeast plume are relatively low onsite, but DO levels increase in monitoring wells beyond the site boundary.
- The ORP of the groundwater samples ranged from a low of -555.70 mV in TMW-30 to a high of 449.70 mV in ITMW-19. This is consistent with previous ORP readings at these locations. The measured ORP levels were less than 500 mV in all Site monitoring wells, which indicates that the groundwater is under manganese to iron reducing conditions. In general, ORP readings are lower in areas impacted by ISCR (see Section 5.0 for further discussion), and ORP readings are higher in areas where in-situ chemical oxidation (ISCO) was performed in 2014 and 2015 (i.e. Areas 1, 2 and 3 and the neck area).
- The pH of the groundwater ranged from a low of 4.24 in MW-24 to a high of 12.68 in MW-190, which is consistent with the prior sampling event. In general, pH levels are in the range of 5 to 7.
- The temperature of the groundwater ranged from about 6.5° to 23.1°Celsius (C), with many of the temperatures around 15-19°C, which is a range that would support microbial growth in groundwater.

The chemical and geochemical data from the 2018 annual event are similar to the previous monitoring events from 2014 through 2018 with wells within zones of recent ISCR injections showing increased reducing environments. The VOC results demonstrate that reductive dechlorination is occurring in multiple locations within the plumes.

4.3.1.3 Abiotic Degradation

Abiotic reactions are non-biological (as described above) and bring significant contribution to natural attenuation processes for degradation of TCE. Abiotic agents that may enhance the reductive dechlorination of chlorinated ethenes include zero-valent metals and sulfide minerals.

Sulfide and acetylene were retained for MNA evaluation purposes in the revised Groundwater Monitoring Plan. Sulfide results were below detection limits (i.e. less than 50 µg/L) in all samples except TMW-11 (96 µg/L). The result for TMW-10 was an estimated (J) 43 µg/L (flagged as estimated due to the reporting limit of 50 µg/L).

Acetylene is a break down constituent from the abiotic degradation of cis-1,2-DCE (acetylene then degrades to ethylene or ethene). Acetylene results were below detection limits (i.e. less than 0.50 µg/L) in all samples except MW-25 and MW-86 where concentrations were 6.0 µg/L and 3.6 µg/L respectively. Since cis-1,2-DCE can degrade directly to vinyl chloride (VC) without

generating acetylene, the assessment of abiotic processes based upon acetylene concentrations is limited. Ethene data is provided on Table 6 and indicates generally low concentrations of ethene for most wells (i.e. ethene concentration less than 2 µg/L)[4]; with the exception of MW-38 (16 µg/L), TMW-16 (18 µg/L) and MW-186 (6.6 µg/L).

MNA is occurring is through abiotic processes in each of the three plumes. The southern plume is characterized by decreasing to stable trends in TCE concentrations; the northern plume is characterized by decreasing to stable trends in TCE concentrations; and, the northeast plume is characterized by stable TCE concentrations (see Section 4 for further discussion of Plume Stability). Historical groundwater data continues to demonstrate a trend of decreasing contaminant concentrations over time; and, hydrogeologic and geochemical data demonstrates that conditions support natural attenuation processes occurring at the site and the rates support decreasing to stable concentrations; but, data from field or microcosm studies demonstrate limited occurrence of any specific natural attenuation process at the site to degrade the contaminants of concern.

Future monitoring will continue to assess abiotic processes.

4.3.2 Groundwater Data Quality Assessment

All field and analytical data were reviewed by Ramboll. Validation findings are summarized in the following. The detailed validation report is included in Attachment C.

4.3.2.1 Field Data

Field data was collected and validated according to the RADD, work plan and associated standard operating procedures (SOPs) and USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Review (August 2014). The field data and documentation were evaluated against the following criteria, as appropriate:

Samples were collected at the specified locations identified in the RGWMP approved by ADEQ in September 2016.

- Field instrumentation calibration and QA/QC checks on equipment were conducted on a daily basis, prior to field work; and
- Sample documentation protocol and chain-of-custody protocols were followed per Ramboll field procedures.

4.3.2.2 Laboratory Analytical Data

All VOC (SW846 5030B/8260B) analytical results for the plume boundary, onsite and offsite wells received data validation by Ramboll. During the data validation process, data validation

[4] The detection of breakdown constituents is unlikely at monitoring locations where MNA analysis is performed where TCE concentrations are low (i.e. typically less than 5 µg/L to 100 µg/L) since the concentrations of breakdown constituents will be two to three orders of magnitude less than the TCE concentrations depending upon the rate of TCE degradation.

qualifiers were assigned to the results per USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (August 2014), as necessary, to indicate potential limitation on use of the data. In addition, data qualifier codes were added to the results to indicate the reason(s) for qualification and the associated bias direction, if discernible.

5 Plume Stability

This section includes discussion of trends for individual wells, trends for groups of wells, plume boundaries, a summary of plume stability and estimates of the quantity of TCE in the respective plumes. The discussion and assessment of the plume area are based upon a macro-analysis of the entire plume versus a single well analysis to categorize the plume stability. Individual wells will inherently exhibit variability and fluctuations that will influence perception, inference or modeling of plume boundaries at the time of any given monitoring event. The macro-analysis of the entire data set minimizes the over weighting of any particular well or data set from a well. Monitoring wells installed after the 2013 RADD was issued by ADEQ are only included in this analysis if they have been sampled a sufficient number of times to establish temporal trends (statistical trend analysis typically requires data from at least four sampling events).

Table 7 presents a historical summary of TCE and degradation products, cis-1,2-DCE and VC, concentrations in groundwater samples. These values are used for the analysis of trends described in the remainder of this section.

5.1 Lines of Evidence

Several analytical tools or “lines of evidence” were used to evaluate plume stability conditions including:

- **Statistical Methods**. Mann-Kendall nonparametric test (Gilbert 1987; USEPA 2000) to calculate the temporal trend in individual well analyte concentrations over time.
- **Isoconcentration Maps.** Qualitative method to evaluate temporal trends by comparing representations of plume concentration and extent for certain periods over the duration of monitoring.

5.1.1 Statistical Analysis of Temporal Trends

The Mann-Kendall test (Gilbert 1987) is a non-parametric test for linear trend, based on the idea that a lack of trend would be represented by a time series plot fluctuating randomly about a constant mean level, with no visually apparent upward or downward pattern. Because Mann-Kendall is a non-parametric test, it is not dependent upon the magnitude of data, the distribution of the data (does not have to have a normal distribution), missing data from a particular sampling event, or irregularly spaced monitoring events. Mann-Kendall assesses whether a time-ordered data set exhibits an increasing or decreasing trend, at a predetermined level of significance.

The Mann-Kendall statistic is computed by looking at all possible pairs of measurements in the data set and scoring each pair as follows:

- An earlier value lower in magnitude than a later one is assigned a value of 1;
- An earlier value higher in magnitude than a later sample is assigned a value of –1; and
- Two identical values are assigned 0.

The scores from all of the pairs are added together to get the Mann-Kendall statistic (S), a positive value of S indicates that a majority of the differences between earlier and later measurements are positive, which suggests an increasing trend over time. Conversely, a negative value for S implies that a majority of the differences between earlier and later values are negative, indicating a decreasing trend. A value near zero indicates a roughly equal number of positive and negative results. This indicates the values have randomly fluctuated around a constant mean with no apparent trend. If the Mann-Kendall test indicates that there is not a statistically significant trend a second test, coefficient of variation (COV), is performed to determine if the trend is stable (COV is less than 1, little variation above and below the mean value) or if no trend exists (COV is greater than 1, high variation above and below the mean value).

The applicable outcomes of the temporal trend analysis are as follows:

- **Increasing**. Statistically significant increasing trend for concentrations (>90% confidence);
- **Stable.** No statistically significant trend for concentrations along with low variability for results (coefficient of variance <1);
- **No Trend**. No statistically significant trend for concentrations along with high variability for results (coefficient of variance >1);
- **Decreasing**. Statistically significant decreasing trend for concentrations (>90% confidence);
- **Practical Quantitation Limit (<PQL).** All sample results have a "J" qualifier (estimated result greater than the method detection limit but less than the reporting limit) or a mixture of non-detects and results with "J" qualifiers; and
- **Not Detected (ND).** Constituent has not been detected at the well during the time period analyzed.

The trend analysis performed for groundwater concentrations from 2009 (when installation of the last of the current wells used for monitoring in accordance with the RADD was complete) through the 2018 annual event are summarized in Table 8. Only monitoring wells included in the RGWMP are included in the temporal trend analysis[5]. The following is the list of wells in each category (this list is only presented for evaluation of plume stability):

- **Northern Plume Wells (28 wells)**. MW-24, MW-27, MW-28, MW-39/39R, MW-40/40R, MW-46R, MW-50/MW-50R, MW-55/55R, MW-56/MW-56R, MW-57/57R, MW-58/58R, MW-60/60R, MW-61/MW61R, MW-62/62R, MW-63/63R, MW-68, RW-69, IW-73, IW-77, IW-78, MW-82, MW-83, MW-84, MW-194, MW-195,MW-196, TMW-10 and TMW-11.

[5] Trend analysis was performed for the network of monitoring wells in the ADEQ approved RGWMP. Trend analysis utilizing old data from monitoring wells not in the ADEQ approved RGWMP is not appropriate. Monitoring wells not currently monitored as part of the ADEQ approved RGWMP still exist and could be utilized in the future, if warranted.

- **Northeast Corner Wells (nine wells)**. MW-87, MW-89, MW-91, MW-96, MW-97, MW-98, MW-99, MW-183/MW-183R and MW-184.
- **Southern Plume Wells (29 wells)**. ITMW-1, ITMW-2, ITMW-5, ITMW-7, ITMW-9, ITMW-10, ITMW-16, ITMW-18, ITMW-19, ITMW-20, ITMW-21, MW-22, MW-24, MW-25, MW-26, MW-29, MW-38, MW-86, MW-93, MW-95, MW-182, MW-185, MW-186, MW-187, MW-188, MW-189, MW-190, MW-191 and MW-192.
- **Source Area Wells (seven wells)**. ITMW-18, ITMW-19, MW-25, MW-38, MW-86, MW-93 and MW-95.

Contaminant concentration trends as established during the annual monitoring event are summarized below:

- **Northern Plume Wells (28 wells).** The Mann-Kendall trend analysis utilizes data from all wells associated with the 2018 annual groundwater monitoring event for the northern plume (Table 8). As described in more detail below, our determination that a majority of the wells exhibit little or no TCE or a decreasing or stable TCE concentration trend is based on the fact that 75% (21 of 28 wells) of these wells exhibit either little or no TCE or a decreasing or stable TCE concentration trend.

  The trend analysis for the 28 wells associated with monitoring the northern plume indicates the following:

  - Two wells exhibit a stable trend for TCE concentrations (MW-46R and MW-194).
  - Eleven wells exhibit a decreasing trend for TCE concentrations (MW-24, MW-28, MW-58/58R, MW-63/63R, RW-69, IW-73, IW-77, IW-78, MW-83, TMW-10 and TMW-11).
  - Six wells exhibit no trend regarding TCE concentrations according to the statistical test (MW-27, MW-39/39R, MW-62/62R, MW-68, MW-82 and MW-84). TCE concentrations in five out of six of these wells consisting of MW-27, MW-39/39R, MW-62/62R, MW-68 and MW-84 have been non-detect or TCE has been detected at very low concentrations (less than a concentration of 1.5 µg/L since September 2014). MW-82 is the sixth well exhibiting no trend and TCE concentrations have ranged from approximately 4 µg/L to 60 µg/L during the last three years of monitoring.
  - Three wells exhibit TCE concentrations below detection limits or below reporting limits (MW-40, MW-195 and MW-196).
  - Six wells exhibit an increasing trend for TCE concentrations (each of which is discussed below) (MW-50/MW-50R, MW-55/55R, MW-56/MW-56R, MW-57/57R, MW-60/60R, MW-61/MW61R). However, two of these six wells (MW-50R and MW-60R) exhibit TCE concentrations less than 1 µg/L.

  TCE concentrations in eight of the 28 northern plume wells (29%) have been non-detect or less than a concentration of 1.5 µg/L since September 2014 and 13 of the 28 wells (46%) have exhibited decreasing or stable trends; therefore, 21 of the 28 northern plume

wells (75%) exhibit either little or no TCE or a decreasing or stable TCE concentration trend. We believe that this supports our plume stability conclusions.

As noted, TCE concentration trends are increasing in six of 28 (21%) of the wells (MW-50R, MW-55R, MW-56R, MW-57R, MW-60R and MW-61R). Further, of the six wells located in the northern plume with increasing TCE concentration trends:

- As noted above, TCE concentrations in MW-50R and MW-60R are less than 1 µg/L.
- The TCE concentration of 7.7 µg/L at MW-61R is the highest concentration since November 2015 (sixth highest concentration overall). Further monitoring at this location is needed to fully evaluate effectiveness of the August 2018 ISCR effort within this area. ISCR injections were conducted up-gradient of MW-61R but were not conducted within the radius of influence of MW-61R (See Section 5 or Attachment H). Additionally, a significant decrease in TCE concentrations was observed at up-gradient well TMW-10 as a result of the ISCR effort. The improved conditions at TMW-10 suggest that reducing conditions and lower TCE concentrations are anticipated to migrate towards MW-61R.
- The TCE concentration at MW-55R has increased to 23.1 µg/L. The concentration has increased since January 2016. This location will continue to be monitored to assess if the plume boundary is potential at risk for expansion.
- The TCE concentration at MW-56R of 902 µg/L is a historical high concentration slightly higher than the previous historical high of 815 µg/L during October 2017. MW-56R exhibits the highest TCE concentration in the north plume. Additional wells are located down-gradient to monitoring groundwater conditions (TMW-14, TMW-24) and an ISCR treatment zone established east of TMW-24 to reduce TCE concentrations to maintain the plume boundary. TCE concentrations and trends will continue to be monitored at the wells.
- The TCE concentration at MW-57R of 286 µg/L is the lowest concentration since April 2015. TCE concentrations and trends will continue to be monitored at this well.

- **Northeast Corner Wells (nine wells).** Three wells (MW-87, MW-89 and MW-91) located on Whirlpool property in the area of the northeast corner plume and six wells (MW-96 through MW-99, MW-183 and MW-184) located on Boys and Girls Club property further to the northeast have been sampled at least eight times between June 2014 and November 2018.

  The overall TCE concentration trends are increasing at MW-91 with concentrations ranging from 234 µg/L to 605 µg/L. The current concentration of 437 µg/L is the lowest since January 2016. TCE concentrations and trends will continue to be monitored at this well. TCE concentrations in MW-87 and MW-89 are stable and decreasing, respectively. Although, the TCE concentrations in MW-87 are reported to be stable (according to the Mann-Kendall statistical test) the TCE concentrations have been consistently decreasing from 948 µg/L in November 2016 to the current 397 µg/L concentration.

TCE concentrations in MW-96 through MW-98 and MW-184 on the Boys and Girls Club property continue to be below detection limits (i.e. less than 0.17 µg/L) except low concentrations of 0.45 µg/L during April 2017 at MW-184 and an estimated 0.21 µg/L and 0.29 µg/L at MW-98 during April 2017 and the annual event, respectively. The TCE concentration trend is stable at MW-183R with concentrations ranging from 1.0 µg/L during the annual event to 5.3 µg/L in November 2016 (first and only exceedance of 5 µg/L). TCE concentrations and trends will continued to be monitored at this well.

The overall TCE concentration trends are increasing at MW-99 with concentrations ranging from below detection limits (less than 0.17 µg/L) to the current concentration of 8.1 µg/L. Up-gradient and down-gradient monitoring locations are available in order to sufficiently continue to monitor TCE trends at this well.

- **Southern Plume Wells (29 wells).** As described in more detail below, our determination that a majority of the wells exhibit little or no TCE or a decreasing or stable TCE concentration trend is based on the fact that 20 of 29 (71%) of the southern wells exhibit either little or no TCE or a decreasing or stable TCE concentration trend. The trend analysis for the 29 wells associated with monitoring the southern plume indicates the following:
  - Four wells exhibit a stable trend for TCE concentrations (MW-25, MW-38, MW-93 and MW-95).
  - Nine wells exhibit a decreasing trend for TCE concentrations (ITMW-1, ITMW-7, ITMW-16, ITMW-18, ITMW-19, ITMW-21, MW-24, MW-86 and MW-182).
  - Four wells, consisting of ITMW-9, ITMW-20, MW-191 and MW-192 exhibit no trend regarding TCE concentrations; although TCE concentrations at three of the wells (ITMW-20, MW-191 and MW-192) have been non-detect or less than an estimated 0.3 µg/L since October 2011. The concentration of 1,390 µg/L at ITMW-9 is the second event of a substantial single increase in concentration both of which have occurred in November. Following the November 2016 event TCE decreased from 2,550 µg/L to 193 µg/L. TCE concentrations and trends will continue to be monitored at this well.
  - Six wells exhibit TCE concentrations below reporting limits (ITMW-2, MW-22, MW-29, MW-187, MW-188 and MW-190).
  - Six wells (ITMW-5, ITMW-10, MW-26, MW-185, MW-186 and MW-189) exhibit increasing TCE concentration trends (see further discussion below). However, MW-26 has not exceeded TCE concentrations of more than 1 µg/L since November 2010.

  As noted, TCE concentration trends are statistically increasing in six of the 29 (21%) southern plume wells (ITMW-5, ITMW-10, MW-26, MW-185, MW-186 and MW-189) and of these wells the following observations can be made:
  - The TCE concentration at ITMW-5 of 2,250 µg/L is a historical high concentration. The previous historical high was 1,590 µg/L during April 2018. TCE concentrations and trends will continue to be monitored at this well.

  - As noted above, MW-26 has not exceeded TCE concentrations of more than 1 µg/L since November 2010.
  - The TCE concentration in ITMW-10 is currently 45.0 µg/L and is the historically lowest detected TCE concentration since (excluding concentrations prior to April 2009). The current TCE concentration is significantly lower than the May 2016 TCE concentration of 743 µg/L and January 2016 concentration of 761 µg/L. TCE concentrations and trends will continue to be monitored at this well.
  - The TCE concentration of 11.7 µg/L in MW-185 is slightly lower than the historical maximum concentration of 12.7 µg/L in October 2017. TCE trends will continue to be monitored at this well. ISCR remediation was conducted in the vicinity of this well and is discussed in Attachment H.
  - The TCE concentration of 10.2 µg/L in MW-186 is lower than the previous April 2018 event concentration of 14.2 µg/L. ISCR remediation was conducted in the vicinity of this well and is discussed in Attachment H.
  - The TCE concentration of 670 µg/L in MW-189 exceeded the historical maximum concentration of 385 µg/L. TCE concentrations in this well have increased since installation in September 2015. It is bordered on the south at the property line by TMW-19 (current TCE concentration of 0.97J µg/L) where concentrations continue to be well below 5 µg/L. TCE concentrations and trends will continue to be monitored at this well.

- **Source Area Wells (seven wells).** The source area wells showed predominantly decreasing or stable concentration trends for TCE. Three wells (ITMW-18, ITMW-19, MW-86) exhibited decreasing TCE concentrations and four wells (MW-25, MW-38, MW-93, MW-95) exhibited stable TCE concentrations. In addition, cis-1,2-DCE concentrations in three wells exhibited decreasing concentrations (ITMW-18, ITMW-19, MW-93), two wells exhibited stable cis-1,2-DCE concentrations (MW-38 and MW-95), no cis-1,2-DCE concentration trend in one well (MW-25) and an increasing cis-1,2-DCE concentration in one well (MW-86).

5.1.2 Isoconcentration Maps

Figures 2A and 2B show isoconcentration lines at the northern, northeastern and southern plumes for the 2018 annual event. Notable changes in the north plume boundaries on Figure 2A consist of:

- TCE concentration of 7.7 µg/L at MW-61R causing the 5 µg/L TCE isoconcentration line to extend further north;
- TCE concentration of 22.1 µg/L at TMW-21 restricting the 100 µg/L TCE isoconcentration line from extending to TMW-21 since April 2018 when the concentration was 340 µg/L; and
- TCE concentration of 34.2 µg/L in MW-83 (increase from 4.8 µg/L).

Section 5 discusses the in-situ chemical reduction performed in the vicinity of MW-61R and TMW-21 which impacted the TCE concentrations at these locations.

Notable changes in the northeast plume boundaries on Figure 2A consist of:

- TCE concentration of 1.1 µg/L at MW-183R noting this is the lowest TCE concentration measured since TCE was detected at 5.3 µg/L in November 2016; and
- TCE concentration of 8.1 µg/L at MW-99 causing the 5 µg/L TCE isoconcentration line to extend further east.

The TCE concentration at MW-99 has essentially been non-detect since October 2014 when the well was installed; however, TCE was detected at 1.3 µg/L in April 2018 and increased to 8.1 µg/L in November. This well will continue to be monitored.

Notable changes in the south plume boundary on Figure 2B consist of:

- The CE concentration of 368 µg/L at TMW-16 decreased from 1,030 µg/L in April 2018 which removed the 1,000 µg/L TCE isoconcentration line that was previously mapped and restricted the 100 µg/L TCE line from extending beyond MW-182 (shifted the line northeast away from the site boundary). Section 5 discusses the in-situ chemical reduction performed in the vicinity of TMW-16 which impacted the TCE concentration at this location.
- The TCE isoconcentration line near the southeast site boundary east of MW-185 was refined with the addition of data collected from TWM-34 at the southeast property boundary (TMW-34 is approximately 15 feet east of PRB treatment zone installed August 2018).
- TCE concentration of 1,390 µg/L in ITMW-9 has moved the 1,000 µg/L TCE isoconcentration line further east in the vicinity of the former manufacturing building near the central portion of the site. Since May 2016, increases and decreases in TCE concentrations have been observed at ITMW-9 and the maximum TCE concentration detected at ITMW-9 has been 2,550 µg/L in November 2016.

5.2 Summary of Plume Stability

The overall groundwater conditions at the Site exhibit decreasing to stable characteristics in a predominant number of wells based upon statistical analysis of temporal concentration trends. Overall, the southern plume exhibits decreasing average TCE concentrations, the northern plume exhibits decreasing to stable average TCE concentrations, and the northeast plume is beginning to exhibit stable concentrations (acknowledging that MW-99 exhibited an increasing TCE concentration and MW-91 is beginning to exhibit a stable to decreasing TCE concentration since April 2017). The aerial extent for the north and northeastern plumes remain predominantly within the bounds of the historical maximum plume extent with slight extension of the plume at MW-61R and MW-99. The aerial extent of the southern plume remains predominately within historical bounds (since installation of temporary wells) with slight expansion east of MW-185 since the installation of TMW-34.

The site-wide groundwater conditions can be categorized as three separate plumes with distinct characteristics (i.e. the southern plume, the northern plume and northeastern plume).

The southern plume is characterized by:

- A relatively flat south, southeast potentiometric gradient with a southwestern gradient in the southern section of the plume;
- Source area (Area 1) TCE concentrations greater than 10,000 µg/L;
- An aerial extent of approximately 1,226,800 ft^2 (predominately located under the footprint of the Whirlpool building); and
- Decreasing to stable trends in TCE concentrations.

The northern plume is characterized by:

- A north/northeast potentiometric gradient that is flat in the south portion of the north plume but steepens to north/northeast;
- TCE concentrations generally between 100 and 900 µg/L;
- An aerial extent of approximately 478,700 ft^2 located north of the Whirlpool property (containing the manufacturing building) and extending to the residential area to the north-northeast; and
- Decreasing to stable trends in TCE concentrations.

The northeast plume is characterized by:

- An east, northeast potentiometric gradient.
- TCE concentrations generally between 5 and 450 µg/L.
- An aerial extent of approximately 259,900 ft^2 located northeast of the Whirlpool building and extending to property owned by the Boys and Girls Club. Offsite groundwater TCE concentrations in monitoring wells are below the RALs (excluding the TCE concentration detected at MW-99 during the November 2018 monitoring event).

5.3 TCE Mass Estimate

Estimated average minimum and maximum quantities of TCE in groundwater were calculated for the Site using the results of the annual event (north, northeast and south plumes). The distinction between the north and south groundwater plumes is identified based upon the consistent groundwater divide north of the Whirlpool manufacturing facility and south of Ingersoll Avenue and the reduction or elimination of TCE in groundwater near the hydraulic barrier. The quantity of TCE calculations are based on separating the northern and southern plumes at the hydraulic divide at the location of MW-24 (see Figures 2A and 2B). The quantity of TCE in the northeast plume is also included in the calculations.

The estimated quantities of TCE included calculation of the volume of groundwater based upon the distinct areas within the plumes (i.e. area of plume within the isoconcentration lines on

Figures 2A and 2B), average saturated thickness and total porosity (i.e. area x average saturated thickness x porosity = volume of water). The volume of water and minimum and maximum TCE concentrations based upon the plume boundaries were used to calculate the mass of TCE within each section of the plume. The volume of TCE was then determined based upon the specific gravity of TCE. Parameters used in the calculation of TCE quantities are presented below. Calculations are presented in Attachment E.

Northern plume parameters:

- Plume area of approximately 478,700 ft^2 consisting of 245,800 ft^2 for the portion of the plume with TCE concentrations ranging from 5 µg/L to 100 µg/L; 232,900 ft^2 for the portion of the plume with TCE concentrations ranging from 100 µg/L to 1,000 µg/L; and no portion of the plume exhibiting TCE concentrations greater than 1,000 µg/L; (the northern plume delineation has been refined to reflect additional data resulting from the installation of temporary monitoring wells TMW-12 through TMW-15) and TMW-20, TMW-21, TMW-22A, TMW-22, TMW-23, TMW-24 and TMW-29;
- Average saturated thickness of 3.7 feet;
- Total porosity of 0.4; and
- TCE specific gravity of 1.465.

Southern plume parameters:

- Plume area of approximately 1,226,800 ft^2 consisting of approximately 560,900 ft^2 for the portion of the plume with TCE concentrations ranging from 5 µg/L to 100 µg/L; 323,000 ft^2 for the portion of the plume with TCE concentrations ranging from 100 µg/L to 1,000 µg/L; 313,600 ft^2 for the portion of the plume with TCE concentrations ranging from 1,000 µg/L to 10,000 µg/L; and 29,300 ft^2 for the portion of the plume with TCE concentrations greater than 10,000 µg/L, (the southern plume delineation has been refined to reflect additional data resulting from the installation of temporary monitoring wells TMW-16 through TWM-19) and (TMW-25 through TMW-28,TMW-30, TMW-32 and TMW-34);
- Average saturated thickness of 8.3 feet;
- Total porosity of 0.4; and
- TCE specific gravity of 1.465.

Northeastern plume parameters:

- Plume area of approximately 259,900 ft^2 consisting of an estimated 174,400 ft^2 for the portion of the plume with TCE concentrations ranging from 5 µg/L to 100 µg/L; 85,500 ft^2 for the portion of the plume with TCE concentrations ranging from 100 µg/L to 1,000 µg/L;
- Average saturated thickness of 4.4 feet;
- Total porosity of 0.4; and

- TCE specific gravity of 1.465.

Based on the plume information listed above, the following ranges of the quantities of TCE distributed throughout the respective plumes were calculated:

PLUME LOCATION	CALCULATED MINIMUM VOLUME	CALCULATED MAXIMUM VOLUME
Northern Plume	Less than 1 gallon	2 gallons
Southern Plume	11 gallons	34 gallons
Northeastern Plume	Less than 1 gallon	1 gallon

The total average minimum and maximum quantities of TCE in groundwater associated with the Site are approximately 11 to 37 gallons of TCE.

6 ISCR Remedial Effectiveness

This section summarizes the results for the ISCR injection effort conducted in July and August 2018 at the northeast corner of the north plume in the vicinity of MW-61R (see Figure 5). During this event, the ISCR reagent consisting of ProvectIR™ (antimethanogenic ISCR Reagent), ZVI, nutrient, hydrolyzed kelp, calcium propionate, sodium sulfite, yeast extract, vitamins and red yeast rice was injected into the contaminated groundwater bearing zone at the northeast portion of the North Plume, along the southwest and southeast portions of the South Plume and supplemental injections near MW-61R (i.e. the area of the 2015 ISCR pilot test).

The total injected reagent contained 18,254 pounds of ZVI; 1,310 pounds of nutrient; 8,266 pounds of hydrolyzed kelp; 25,882 pounds of calcium propionate; 1,310 pounds of sodium sulphite; 34,184 pounds of Provect-IR; 1,310 pounds of yeast extract; 2,176 grams of Vitamin B12; 15,155 grams of Vitamin B2; and 32,250 grams of Red Yeast Rice suspended in water to create approximately 21,874 gallons of treatment solution consisting of ISCR reagent and potable water (municipal source for water) that was injected into the saturated zone at 133 temporary injection points (65 in the northeast, 64 in the southwest and four in the southeast).

Table 10 presents the laboratory analytical results for VOCs and various natural attenuation parameters. Results in Table 10 indicate that the initial ISCR injection promoted a significant increase in total iron, manganese, sulfate, alkalinity, ammonia, phosphate, total organic carbon (TOC) and volatile fatty acids (VFA), acetate, propionate and butyrate in comparison to the baseline data for MW-61R, TMW-10 and TMW-11. The increases in total iron, ferric iron and ferrous iron were due to the ZVI material associated with the ProvectIR-40™ product. Likewise, the ISCR injection also resulted in a significant increase in TOC, which was subsequently utilized by the indigenous and bio-augmented microbial populations to produce VFA which also promoted the production of hydrogen, which is used as the electron donor for reductive dechlorination of VOCs.

Dissolved gases concentrations of methane, ethane and ethene are present at concentrations indicating geochemistry is ideal for the reductive process to continue. Conditions at TMW-10, which was not directly affected by the initial injections in 2015, reflects a significant change in progress towards reductive conditions 90 days after the Phase II injections (increases in total iron, sulfate, TOC and VFA, propionate and butyrate, hydrogen). The increases in total iron, ferric iron and ferrous iron were due to the ZVI material associated with the ProvectIR™ product. Likewise, the ISCR injection also resulted in a significant increase in TOC, which was subsequently utilized by the indigenous and bio-augmented microbial populations to produce VFA which also promoted the production of hydrogen, which is used as the electron donor for reductive dechlorination of VOCs.

Hydrogen was also detected at TMW-11. The molecular analysis was not positive at TMW-10 or TMW-11 (not measured in MW-61R). The lack of positive results for the molecular analysis is contrary to the accompanying data that indicate positive geochemical conditions for the reductive process to continue.

Table 11 shows the TCE concentrations for MW-61R, TMW-10 and TMW-11 over time and the percent TCE reductions. Current concentrations indicate a 53% reduction in MW-61R, 93% reduction in TMW-10 and 99% reduction in TMW-11 indicating significant reduction of TCE continues near these wells. The cis-1,2-DCE and ethene results in Table 10 demonstrate reductive dechlorination in the groundwater near these wells.

A summary of the field and analytical monitoring data is discussed below:

- Field water quality parameters, field observations and analytical data indicate that the ISCR injections impacted the majority of monitoring wells within the radius of influence of the ISCR injections as indicated during injection work and the 90 days following ISCR injections.
- For the majority of monitoring wells, during injection activities, the ORP levels decreased and specific conductivity levels increased; both of which indicate the ISCR treatment solution reached or impacted the groundwater at the respective monitoring wells.
- Significant increases in concentrations of total iron, sulfate, TOC, DOC, methane and VFA (acetate, propionate, butyrate and pyruvate) occurred in the ISCR monitoring wells (directly affected by the injections) 90 days following ISCR injections compared to the baseline data collected during the 2018 ISCR injection event indicating geochemistry is ideal for the reductive process to continue.
- The increase in cis-1,2-DCE concentrations in the majority of monitoring wells in comparison to baseline levels indicate that the ISCR injection enhanced reductive dechlorination in the groundwater.
- In the MW-61R treatment zone, the TCE concentration at TMW-11 decreased from 91.1 µg/L to 14.3 µg/L (84% decrease). MW-61R was the only monitoring well that had a marginal increase in TCE concentration 90 days after ISCR injections; however, the increased reductive conditions now present up-gradient of MW-61R are anticipated to reduce TCE concentrations in MW-61R during the next monitoring event (March/April 2019).
- TCE concentration reductions in the north plume treatment zone ranged from 20% to 96% 90 days after ISCR injections which appears to be due to enhanced reductive dechlorination in the groundwater. The sum of TCE concentrations decreased by 63% in this area 90 days after ISCR injections compared to baseline concentrations.
- TCE concentration reductions in the south plume treatment zone ranged from 42% to 81% 90 days after ISCR injections which appears to be due to enhanced reductive dechlorination in the groundwater. The sum of TCE concentrations decreased by 62% in this area 90 days after ISCR injections compared to baseline concentrations.
- The success of the ISCR injection efforts are anticipated to be further evident after receipt and assessment of the 2019 Semi Annual Event groundwater monitoring data.

7 Summary and Conclusions

Ramboll performed investigation, maintenance and remediation efforts at the Site in 2018 consisting of:

- Investigation near the southwest property boundary in April 2018;
- Investigation near the northeast boundaries of the north plume in April 2018;
- ISCR was performed in July and August 2018 at the southwest boundary of the south plume, northeast boundary of the north plume and at the southeast property boundary; and
- Annual groundwater monitoring event and well rehabilitation in November 2018.

The investigations in April 2018 were summarized in the 2018 Semi-annual Report, the findings from these investigations were used to prepare the Work Plan for the ISCR effort in June 2018 and the ISCR effort was implemented in July and August 2018.

The ISCR effort included injection of approximately 22,000 gallons of ISCR reagent solution consisting of ProvectIR™ (antimethanogenic ISCR Reagent containing ZVI, nutrient, hydrolyzed kelp, calcium propionate, sodium sulfite, yeast extract, vitamins and red yeast rice. Injections were performed in the northeast portion of the North Plume, along the southwest and southeast portions of the South Plume and supplemental injections near MW-61R (Attachment H).

The 2018 Annual Groundwater Monitoring Event was completed in November 2018. The results of the annual groundwater monitoring event indicate the following:

- The direction of the hydraulic gradient continues to be influenced by a hydraulic divide located just north of the Whirlpool building with groundwater flow directions predominantly to the northeast and south on either side of the general divide.
    - Groundwater north of the divide is flowing in a northeasterly direction; and
    - Groundwater south of the divide is flowing in a southern/southeasterly direction with another divide trending southwesterly and southeasterly/south of the former manufacturing building.
- The site-wide groundwater conditions can be categorized as three separate plumes with distinct characteristics (i.e. the southern plume, the northern plume and northeastern plume).
    - The southern plume is characterized by:
        - A relatively flat south, southeast potentiometric gradient with a southwestern gradient in the southern section of the plume;
        - Source area (Area 1) TCE concentrations greater than 10,000 µg/L;
        - An aerial extent of approximately 1,226,800 ft^2 (predominately located under the footprint of the former Whirlpool building); and

    - Decreasing to stable trends in TCE concentrations.
  - The northern plume is characterized by:
    - A north/northeast potentiometric gradient that is flat in the south portion of the north plume but steepens to north/northeast;
    - TCE concentrations generally between 100 and 900 µg/L;
    - An aerial extent of approximately 478,700 ft^2 located north of the former Whirlpool property and extending to the residential area to the north-northeast; and
    - Decreasing to stable trends in TCE concentrations.
  - The northeast plume is characterized by:
    - An east, northeast potentiometric gradient.
    - TCE concentrations generally between 5 and 450 µg/L.
    - An aerial extent of approximately 259,900 ft^2 located northeast of the former Whirlpool building and extending to property owned by the Boys and Girls Club. Offsite groundwater TCE concentrations in monitoring wells are below the RALs (excluding the most recent TCE concentrations detected at MW-99).
- The combination of chemical and geochemical data from 2018 are similar to the data generated from 2014 through 2017. The VOC results demonstrate that reductive dechlorination is occurring in multiple locations in the plume.

Groundwater monitoring results in the vicinity of the ISCR injection locations (90 day post ISCR injection) indicate the following:

- The sum of TCE concentrations in the north plume treatment area decreased by 63% 90 days after ISCR injections compared to baseline concentrations.
- The sum of TCE concentration in the south plume treatment area decreased by 62% 90 days after ISCR injections compared to baseline concentrations.
- The TCE concentration at TMW-11 in the MW-61R treatment decreased from 91.1 to 14.3 at TMW-11) (84%) (a marginal increase in TCE concentration was observed at MW-61R).
- The success of the ISCR injection efforts are anticipated to be further evident after receipt and assessment of the 2019 Semi-annual Event groundwater monitoring data.
- Vapor intrusion monitoring continues to identify that risk estimates for vapor intrusion from groundwater in the neighborhood are below ADEQ's risk management limits of 10-4 and 1 for cumulative cancer risk and non-cancer hazards, respectively (see Attachment B).
- Indoor air and sub-slab vapor monitoring was recommended for the former Whirlpool manufacturing building after the building has been renovated to assess whether, under

the actual circumstances, a potential complete exposure pathway would exist due to vapor intrusion and, if so, the significance of the potential exposure pathway and the need for remedial or protective measures, if any. Building renovation is continuing and indoor air and sub-slab vapor monitoring may occur in the first half of 2019, if building renovations are complete.

The investigation and monitoring activities at the site have not identified any complete exposure pathways (i.e. direct exposure, consumption or vapor intrusion). Given the current deed restrictions for the Whirlpool property and impacted offsite properties, there is no unacceptable risk to human health or the environment. Whirlpool has completed settlement agreements with the property owners where groundwater impacts have been characterized and these settlement agreements include: deed restrictions precluding the use of groundwater; a financial settlement; and, an access agreement to facilitate future investigation or monitoring, if required.

Monitoring at the site will continue in accordance with the RGWMP with the next groundwater monitoring event planned to occur in the spring of 2019.

A five year technical review is appropriate following or coinciding with the 2020 Annual Report (i.e. five years after implementation of the RGWMP in 2016). The five year technical review should assess the current conceptual site model, update fate and transport concepts; and, assess investigation and remediation efforts summarized in the respective annual reports from 2016 through 2020.

8 References

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Tables

TABLE 1
CONSTITUENTS OF CONCERN AND RADD GROUNDWATER REMEDIAL ACTION LEVELS
Whirlpool Facility - Fort Smith, Arkansas

Constituent of Concern	Remedial Action Level (µg/L)[1]
Acetone	12,000[2]
Benzene	5.0
Bromodichloromethane	80
Bromoform	80
Bromomethane	7.0[2]
2-Butanone	4,900[2]
Carbon Disulfide	720[2]
Carbon Tetrachloride	5.0
Chlorobenzene	100
Chloroethane	21,000[2]
Chloroform	80
Chloromethane	190[2]
Dibromochloromethane	80
1,1-Dichloroethane	2.4[2]
1,2-Dichloroethane	5.0
1,1-Dichloroethene	7.0
cis-1,2-Dichloroethene	70
trans-1,2-Dichloroethene	100
1,2-Dichloropropane	5.0
1,3-Dichloropropene	0.41[2]
Ethylbenzene	700
2-Hexanone	34[2]
4-methyl-2-pentanone	1,000[2]
Methylene chloride	5.0
Styrene	100
1,1,2,2-Tetrachloroethane	0.066[2]
Tetrachloroethene (PCE)	5.0
Toluene	1,000
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5.0
Trichloroethene (TCE)	5.0
Vinyl chloride	2.0
Xylenes (total)	10,000

Notes:
RADD = Remedial action decision document
µg/L = Micrograms per liter
(1) = Maximum Contamination Level (USEPA, May 2013)
(2) = USEPA Tapwater Screening Level (MCL and Maximum Contaminant Level Goal Unavailable)

TABLE 2A
GROUNDWATER MONITORING WELL NETWORK SAMPLED
FOR ANNUAL EVENTS
Whirlpool Facility - Fort Smith, Arkansas

Plume Boundary Wells				
ITMW-20	ITMW-21	MW-26	MW-29	MW-39R
MW-40R	MW-50R	MW-55R	MW-60R	MW-61R
MW-63R	MW-68	MW-96	MW-97	MW-98
MW-99	MW-183	MW-184	MW-185R	MW-186
MW-187	MW-188	MW-189	MW-190	MW-191
MW-192	MW-194	MW-195	MW-196	
Offsite Wells				
MW-46R	MW-56R	MW-57R	MW-58R	MW-62R
MW-82	MW-182	RW-69	IW-73	IW-77
IW-78				
Onsite Wells				
ITMW-1	ITMW-2	ITMW-5	ITMW-7	ITMW-9
ITMW-10	ITMW-16	ITMW-18	ITMW-19	MW-22
MW-24	MW-25	MW-27	MW-28	MW-38
MW-83	MW-84	MW-86	MW-87	MW-89
MW-91	MW-93	MW-95		

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TABLE 2B
MONITORING WELL INSPECTION (NOVEMBER 2018)
Whirlpool Facility - Fort Smith, Arkansas

Well ID	April 2018 Well Condition & Notes	November 2018 Rehabilitation Conducted
ITMW-01	no issues	NA
ITMW-02	missing bolts	replaced bolts (no photo)
ITMW-03	difficult to open/crowbar required	no repair needed
ITMW-04	no issues	replaced lock (photos 1 and 2)
ITMW-05	half of well pad missing, lid broken	well pad replaced, lid adjusted (photos 3 and 4)
ITMW-06	Damaged	unable to repair due to inaccessible location caused by construction debris
ITMW-07	no issues	NA
ITMW-09	missing lock	replaced lock (photos 5 and 6)
ITMW-10	missing lock, needs new cover	stickup protective cover and lid intact, unable to replace lock (latch for connecting lock damaged)
ITMW-11	no issues	NA
ITMW-12	no issues	NA
ITMW-13	no issues	NA
ITMW-14	broken well pad, crooked lid	replaced well pad, adjusted lid (photos 7 and 8)
ITMW-15	no lid	inserted replacement well cover (photos 9 and 10)
ITMW-16	no issues	NA
ITMW-17	no issues	replaced lock (photo 11)
ITMW-18	no issues	NA
ITMW-19	no issues	replaced lock (photo 12)
ITMW-20	well box lid separated/severed	temporarily attached lid (photo 31)
ITMW-21	no issues	replaced lock (photo 13)
IW-72	water in well box	no repair needed
IW-73	water in well box	no repair needed
IW-74	water in well box	no repair needed
IW-75	water in well box	no repair needed
IW-76	water in well box	no repair needed
IW-77	no issues	NA
IW-78	one crooked bolt	no repair needed
IW-79	water in well box	no repair needed
IW-80	no issues	NA
MW-22	no issues	NA
MW-23	no issues	NA
MW-24	missing bolts	replaced bolts (no photo)
MW-25	bumper post crooked	no repair needed
MW-26	no issues	NA
MW-27	well cap stained black	no repair needed
MW-28	missing bolts	replaced bolts (no photo)
MW-29	no issues	NA
MW-30	no issues	NA
MW-34R	no issues	NA
MW-35R	missing bolts	replaced bolts (no photo)
MW-36R	no issues	NA
MW-37	no issues	NA
MW-38	no issues	NA
MW-39R	one bolt missing	replaced bolts (no photo)
MW-40R	no issues	NA
MW-41R	water in well box	no repair needed
MW-46R	missing one bolt	replaced bolt (no photo)
MW-50R	no issues	NA
MW-55R	no issues	NA
MW-56R	water in well casing	no repair needed
MW-57R	missing one bolt	replaced bolt (no photo)
MW-58R	no issues	NA
MW-60R	no issues	NA
MW-61R	no issues	NA
MW-62R	no issues	NA
MW-63R	missing all bolts	replaced bolts (no photo)
MW-65R	missing all bolts, water in wellbox	replaced bolts (no photo)
MW-68	missing all bolts, water in wellbox	replaced bolts (no photo)
MW-70	missing all bolts	replaced bolts (no photo)
MW-71	missing all bolts	replaced bolts (no photo)
RW-69	no issues	NA
MW-81	water in well box	repair not needed

Well ID	Well Condition & Notes	November 2018 Rehabilitation Conducted
MW-82	missing all bolts	replaced bolts (no photo)
MW-83	no issues	NA
MW-84	no issues	NA
MW-85	no issues	NA
MW-86	no issues	NA
MW-87	water in well box	no repair needed
MW-88	missing two bolts	replaced bolts (no photo)
MW-89	water in well box	no repair needed
MW-90	missing one bolt	replaced bolt (no photo)
MW-91	water in well box	no repair needed
MW-92	no issues	NA
MW-93	no lid	replaced lid (no photo)
MW-94	broken lid (small hole in lid)	unable to replace lid (current lid provides adequate protection)
MW-95	missing one bolt	replaced bolt (photo 34)
MW-96	no issues	NA
MW-97	no issues	NA
MW-98	no issues	NA
MW-99	no issues	NA
MW-172	missing all bolts	replaced bolts (photo 14)
MW-173	water in well box, missing one bolt	replaced bolt (no photo)
MW-174	water in well box	no repair needed
MW-175	missing one bolt	replaced bolt (no photo)
MW-176	missing one bolt	replace bolt (no photo)
MW-177	no issues	NA
MW-178	water in well box	no repair needed
MW-179	water in well box	no repair needed
MW-180	water in well box	no repair needed
MW-181	no issues	NA
MW-182	no issues	NA
MW-183	well box destroyed	abandoned MW-183 and installed replacement well MW-183R (photos 15 and 16)
MW-184	no issues	NA
MW-185	missing bolt	replaced bolt (photos 17 and 18)
MW-186	no issues	NA
MW-187	no issues	NA
MW-188	no issues	NA
MW-189	no issues	NA
MW-190	no issues	NA
MW-191	no issues	NA
MW-192	no issues	NA
MW-193	no issues	NA
MW-194	no issues	NA
MW-195	no issues	NA
MW-196	no issues	NA
IW-115	likely surface water leak	replaced well cap (no photo)
TMW-10	no issues	NA
TMW-11	no issues	NA
TMW-12	no cap, water in well box	converted to stickup well (photos 19 and 20)
TMW-14	no issues	NA
TMW-16	well pad damaged	replaced concrete pad and installed PVC protective stickup cover (photos 21 and 22)
TMW-19	lid does not fit, missing all bolts	replaced well pad and protective cover (photos 32 and 33)
TMW-20	no issues	NA
TMW-21	no issues	NA
TMW-22	pad filled with water, well damaged	abandoned TMW-22 and installed replacement well TMW-22R (photos 23 and 24)
TMW-23	pad filled with water	adjusted well pad (photos 25 and 26)
TMW-24	pad filled with water	replaced concrete pad and protective cover (photos 27 and 28)
TMW-25	no issues	NA
TMW-26	no issues	NA
TMW-27	cement around well casing	busted out cement around well casing (no photo)
TMW-29	well casing set into cement	replaced concrete pad and protective cover (photos 29 and 30)
TMW-30	no issues	NA
TMW-32	no issues	NA

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TABLE 3
SUMMARY OF MONITORING WELL STATIC WATER LEVEL MEASUREMENTS
Whirlpool Facility - Fort Smith, Arkansas

Location	Well Coordinates		TOC Elevation (ft)	Ground Surface (ft)	Top of Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Screen Length (ft)	Top of screen Depth	Bottom of screen Depth	Screened Interval (ft)	Maximum Static Water Elevation (Since Oct 2012)	Maximum Elevation Date	Minimum Static Water Elevation (Since Oct 2012)	Minimum Elevation Date	Static Water Level Elevation (ft)											
	Easting (ft)	Northing (ft)													1/6/2016		5/2/2016		11/7/2016		4/25/2017		10/23/2017		4/17/2018		11/13/2018	
															DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation
ITMW-1	591383	368913	476.93	NA	460.43	446.68	13.75	16.50	30.25	16.50 - 30.25	463.92	10/5/2015	460.26	4/17/2018	13.89	463.04	14.19	462.74	15.72	461.21	16.40	460.53	15.93	461.00	16.67	460.26	16.40	460.53
ITMW-2	591189	369021	474.97	NA	462.22	447.77	14.45	12.75	27.20	12.75 - 27.20	465.92	10/14/2013	461.87	4/25/2017	10.72	464.25	10.99	463.98	12.72	462.25	13.10	461.87	12.61	462.36	12.97	462.00	12.59	462.38
ITMW-3	591306	369075	474.72	NA	464.07	449.27	14.80	10.65	25.45	10.65 - 25.45	467.17	10/14/2013	460.27	1/12/2015	11.07	463.65	11.33	463.39	12.90	461.82	13.47	461.25	NA	NA	13.59	461.13	13.18	461.54
ITMW-4	591251	368208	478.19	NA	459.99	445.99	14.00	18.20	32.20	18.20 - 32.20	466.85	1/12/2015	459.49	11/13/2018	15.43	462.76	15.66	462.53	18.18	460.01	18.33	459.86	18.50	459.69	18.69	459.50	18.70	459.49
ITMW-5	590982	368205	478.93	NA	459.03	449.28	9.75	19.90	29.65	19.90 - 29.65	463.22	10/5/2015	454.77	4/22/2013	16.26	462.67	16.52	462.41	18.82	460.11	19.14	459.79	19.28	459.65	19.40	459.53	19.45	459.48
ITMW-6	590923	367970	483.04	NA	461.39	446.89	14.50	21.65	36.15	21.65 - 36.15	466.20	1/12/2015	454.06	4/22/2013	20.55	462.49	20.76	462.28	23.03	460.01	23.37	459.67	23.55	459.49	23.53	459.51	23.60	459.44
ITMW-7	590546	368323	481.95	NA	460.05	445.05	15.00	21.90	36.90	21.90 - 36.90	463.65	7/20/2015	457.98	10/14/2013	18.47	463.48	18.60	463.35	20.82	461.13	20.52	461.43	20.91	461.04	20.31	461.64	20.42	461.53
ITMW-9	591256	368146	481.90	NA	461.95	448.45	13.50	19.95	33.45	19.95 - 33.45	463.29	10/5/2015	455.60	4/22/2013	19.23	462.67	19.49	462.41	22.01	459.89	22.20	459.70	22.37	459.53	22.54	459.36	22.58	459.32
ITMW-10	590978	368157	480.84	NA	458.19	447.24	10.95	22.65	33.60	22.65 - 33.60	463.17	7/20/2015	457.64	4/22/2013	18.20	462.64	18.43	462.41	20.73	460.11	21.05	459.79	21.20	459.64	21.31	459.53	21.36	459.48
ITMW-11	590978	369040	474.07	NA	458.82	445.37	13.45	15.25	28.70	15.25 - 28.70	465.82	10/1/2012	459.11	1/12/2015	9.24	464.83	9.54	464.53	11.23	462.84	11.71	462.36	11.81	462.26	11.33	462.74	10.86	463.21
ITMW-12	590998	369007	476.67	NA	461.67	446.67	15.00	15.00	30.00	15.00 - 30.00	466.49	1/12/2015	462.07	4/25/2017	12.10	464.57	12.40	464.27	14.18	462.49	14.60	462.07	13.93	462.74	14.22	462.45	13.82	462.85
ITMW-13	591047	369052	477.79	NA	463.79	448.79	15.00	14.00	29.00	14.00 - 29.00	465.10	7/20/2015	462.09	4/25/2017	13.25	464.54	13.57	464.22	15.30	462.49	15.70	462.09	15.14	462.65	15.38	462.41	14.94	462.85
ITMW-14	591098	369056	477.30	NA	462.50	447.80	14.70	14.80	29.50	14.80 - 29.50	468.88	10/14/2013	461.08	1/12/2015	12.90	464.40	13.13	464.17	14.90	462.40	15.31	461.99	14.76	462.54	15.03	462.27	14.62	462.68
ITMW-15	590944	369043	474.50	NA	459.50	444.50	15.00	15.00	30.00	15.00 - 30.00	465.41	10/1/2012	462.36	4/25/2017	9.65	464.85	9.92	464.58	11.75	462.75	12.14	462.36	11.50	463.00	11.70	462.80	11.22	463.28
ITMW-16	590967	369100	478.79	NA	461.79	446.79	15.00	17.00	32.00	17.00 - 32.00	468.22	1/12/2015	462.49	3/25/2014	14.03	464.76	14.30	464.49	16.06	462.73	16.27	462.52	16.12	462.67	16.06	462.73	15.64	463.15
ITMW-17	590864	369051	477.90	NA	461.90	446.90	15.00	16.00	31.00	16.00 - 31.00	466.20	10/14/2013	462.17	4/25/2017	13.23	464.67	13.57	464.33	15.33	462.57	15.73	462.17	15.62	462.28	15.31	462.59	14.92	462.98
ITMW-18	590976	368955	473.55	NA	458.55	443.55	15.00	15.00	30.00	15.00 - 30.00	465.03	7/20/2015	458.99	1/12/2015	9.04	464.51	9.37	464.18	11.10	462.45	11.52	462.03	11.96	461.59	11.17	462.38	10.76	462.79
ITMW-19	590890	368961	476.25	NA	460.25	445.25	15.00	16.00	31.00	16.00 - 31.00	465.94	1/12/2015	462.15	4/25/2017	11.66	464.59	11.99	464.26	13.66	462.59	14.10	462.15	13.43	462.82	13.73	462.52	13.28	462.97
ITMW-20	590370	369042	477.87	NA	463.87	448.87	15.00	14.00	29.00	14.00 - 29.00	465.23	7/20/2015	462.80	11/7/2016	12.93	464.94	13.09	464.78	15.07	462.80	14.92	462.95	14.97	462.90	14.47	463.40	14.35	463.52
ITMW-21	590629	368898	476.52	NA	460.52	445.52	15.00	16.00	31.00	16.00 - 31.00	465.12	7/20/2015	461.27	4/22/2013	11.74	464.78	11.92	464.60	13.84	462.68	13.78	462.74	13.70	462.82	13.35	463.17	13.17	463.35
MW-22	591853	368913	473.93	NA	459.93	444.93	15.00	14.00	29.00	14.00 - 29.00	464.24	10/5/2015	460.57	4/17/2018	10.56	463.37	10.84	463.09	12.37	461.56	12.75	461.18	12.63	461.30	13.36	460.57	13.07	460.86
MW-23	590892	369238	475.80	NA	461.80	446.80	15.00	14.00	29.00	14.00 - 29.00	465.50	1/12/2015	462.40	4/25/2017	10.96	464.84	11.25	464.55	13.01	462.79	13.40	462.40	12.83	462.97	12.97	462.83	12.62	463.18
MW-24	590876	369134	476.39	NA	458.39	443.39	15.00	18.00	33.00	18.00 - 33.00	465.35	7/20/2015	462.41	4/25/2017	11.60	464.79	11.86	464.53	13.67	462.72	13.98	462.41	13.42	462.97	13.57	462.82	13.20	463.19
MW-25	590743	369006	476.89	NA	459.89	444.89	15.00	17.00	32.00	17.00 - 32.00	465.37	7/20/2015	462.46	4/25/2017	12.02	464.87	12.35	464.54	14.10	462.79	14.43	462.46	13.94	462.95	14.04	462.85	13.65	463.24
MW-26	590566	369230	478.05	NA	459.55	444.55	15.00	18.50	33.50	18.50 - 33.50	465.56	7/20/2015	463.10	4/25/2017	12.82	465.23	13.03	465.02	14.87	463.18	14.95	463.10	14.76	463.29	14.48	463.57	14.25	463.80
MW-27	591077	369226	475.42	NA	460.42	445.42	15.00	15.00	30.00	15.00 - 30.00	465.33	7/20/2015	462.39	4/25/2017	10.63	464.79	10.89	464.53	12.72	462.70	13.03	462.39	12.72	462.70	12.67	462.75	12.25	463.17
MW-28	591324	369209	470.49	NA	457.49	442.49	15.00	13.00	28.00	13.00 - 28.00	465.20	7/20/2015	458.86	1/12/2015	6.00	464.49	6.31	464.18	7.90	462.59	8.33	462.16	7.77	462.72	8.10	462.39	7.68	462.81
MW-29	590181	368371	474.91	NA	458.91	443.91	15.00	16.00	31.00	16.00 - 31.00	468.30	1/12/2015	461.94	11/7/2016	10.40	464.51	10.41	464.50	12.97	461.94	11.97	462.94	12.73	462.18	11.57	463.34	11.84	463.07
MW-30	590579	368432	478.99	NA	457.99	442.99	15.00	21.00	36.00	21.00 - 36.00	467.41	1/12/2015	461.81	11/7/2016	14.89	464.10	15.09	463.90	17.18	461.81	16.90	462.09	17.11	461.88	16.58	462.41	16.61	462.38
MW-31[4]	590824	369286	476.03	NA	458.53	448.53	10.00	17.50	27.50	17.50 - 27.50	464.73	10/13/2014	460.52	1/12/2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-31R	590823	369288	475.73	NA	455.73	445.73	10.00	20.00	30.00	20.00-30.00	465.13	7/20/2015	463.93	4/13/2015	11.12	464.61	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-32[1,4]	590909	369279	475.68	NA	458.68	448.68	10.00	17.00	27.00	17.00 - 27.00	464.74	10/13/2014	462.59	3/25/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-32R	590908	369282	475.50	NA	455.00	445.00	10.00	20.50	30.50	20.50-30.50	465.09	7/20/2015	463.94	4/13/2015	10.89	464.61	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-33[1,4]	590994	369276	474.88	NA	459.08	449.08	10.00	15.80	25.80	15.80 - 25.80	464.76	10/13/2014	462.50	3/25/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-33R	590993	369277	474.60	NA	455.60	445.60	10.00	19.00	29.00	19.00 - 29.00	465.19	7/20/2015	463.97	4/13/2015	9.99	464.61	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-34[1,4]	590932	369336	474.29	NA	454.79	444.79	10.00	19.50	29.50	19.50 - 29.50	464.81	10/13/2014	462.68	3/25/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-34R	590911	369339	474.23	NA	452.73	445.73	7.00	21.50	28.50	21.50-28.50	465.43	7/20/2015	462.48	4/25/2017	9.32	464.91	9.62	464.61	11.38	462.85	11.75	462.48	11.21	463.02	11.35	462.88	10.92	463.31
MW-35R[3]	590994	369333	473.87	NA	454.37	444.37	10.00	19.50	29.50	19.50 - 29.50	465.32	7/20/2015	462.33	4/25/2017	9.09	464.78	9.33	464.54	11.15	462.72	11.54	462.33	10.96	462.91	11.22	462.65	10.69	463.18
MW-36[1,4]	591079	369329	473.30	NA	461.30	446.30	15.00	12.00	27.00	12.00 - 27.00	464.85	10/13/2014	462.71	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-36R	591078	369328	472.98	NA	452.98	443.98	9.00	20.00	29.00	20.00-29.00	465.27	7/20/2015	462.25	4/25/2017	8.25	464.73	8.51	464.47	10.40	462.58	10.73	462.25	10.12	462.86	10.35	462.63	9.88	463.10
MW-37	590972	369028	473.57	NA	458.57	443.57	15.00	15.00	30.00	15.00 - 30.00	465.39	7/20/2015	462.37	4/25/2017	8.72	464.85	9.04	464.53	10.79	462.78	11.20	462.37	10.50	463.07	10.83	462.74	10.42	463.15
MW-38	590960	369040	474.60	NA	459.60	444.60	15.00	15.00	30.00	15.00 - 30.00	465.39	7/20/2015	462.35	4/25/2017	9.77	464.83	10.09	464.51	11.85	462.75	12.25	462.35	11.64	462.96	11.86	462.74	11.35	463.25
MW-39[1,4]	590833	369421	475.46	NA	455.96	445.96	10.00	19.50	29.50	19.50 - 29.50	465.00	1/12/2015	461.61	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-39R	590840	369429	474.72	NA	450.22	445.22	5.00	24.50	29.50	24.50-29.50	465.41	7/20/2015	462.43	4/25/2017	9.88	464.84	10.16	464.56	11.84	462.88	12.29	462.43	11.69	463.03	11.88	462.84	11.44	463.28
MW-40[1,4]	590998	369622	473.35	NA	455.60	445.60	10.00	17.75	27.75	17.75 - 27.75	464.76	10/13/2014	455.04	10/14/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-40R	591013	369624	473.09	NA	454.59	444.59	10.00	18.50	28.50	18.50 - 28.50	465.29	7/20/2015	462.31	4/25/2017	8.36	464.73	8.60	464.49	10.37	462.72	10.78	462.31	10.17	462.92	10.33	462.76	9.89	463.20
MW-41[1,4]	591061	369469	472.09	NA	453.34	443.34	10.00	18.75	28.75	18.75 - 28.75	464.45	10/13/2014	462.63	3/25/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-41R	591061	369478	471.84	NA	453.84	443.84	10.00	18.00	28.00	18.00 - 28.00	465.13	7/20/2015	462.17	10/23/2017	7.21	464.63	7.43	464.41	9.20	462.64	9.63	462.21	9.67	462.17	9.22	462.62	8.81	463.03
MW-46R	591472	369609	465.79	NA	449.19	444.19	5.00	16.60	21.60	16.60 - 21.60	464.88	7/20/2015	457.50	1/12/2015	1.39	464.40	1.58	464.21	3.45	462.34	3.76	462.03	2.15	463.64	3.26	462.53	2.92	462.87
MW-50[4]	591415	370213	463.11	NA	455.11	445.11	10.00	8.00	18.00	8.00 - 18.00	459.81	10/13/2014	453.92	1/12/2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-50R	591415	370210	462.65	NA	449.65	444.65	5.00	13.00	18.00	13.00 - 18.00	455.84	7/20/2015	452.67	4/25/2017	7.30	455.35	8.46	454.19	8.88	453.77	9.98	452.67	7.70	454.95	9.68	452.97	8.33	454.32
MW-55[1,4]	591291	369893	465.50	NA	450.00	445.00	5.00	15.50	20.50	15.50 - 20.50	463.06	10/14/2013	461.59	10/1/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-55R	591291	369895	465.30	NA	446.30	444.30	2.00	19.00	21.00	19.00 - 21.00	465.06	7/20/2015	462.02	4/25/2017	0.73	464.57	NA	NA	2.91	462.39	3.28	462.02	2.60	462.70	2.78	462.52	1.83	463.47
MW-56[1,4]	591687	369730	463.22	NA	448.72	443.72	5.00	14.50	19.50	14.50 - 19.50	462.55	10/13/2014	456.49	3/25/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-56R	591687	369732	463.17	NA	445.17	443.17	2.00	18.00	20.00	18.00 - 20.00	462.47	7/20/2015	459.03	11/7/2016	1.06	462.11	0.95	462.22	4.14	459.03	2.43	460.74	3.24	459.93	2.95	460.22	2.48	460.69
MW-57[1,4]	591690	369811	462.90	NA	448.90	443.90	5.00	14.00	19.00	14.00 - 19.00	461.14	4/13/2015	457.65	10/1/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-57R	591693	369806	462.92	NA	447.92	442.92	5.00	15.00	20.00	15.00 - 20.00	462.26	7/20/2015	458.68	11/7/2016	0.88	462.04	0.85	462.07	4.24	458.68	2.19	460.73	3.22	459.70	1.88	461.04	2.25	460.67
MW-58[1,4]	591570	369907	462.71	NA	450.21	445.21	5.00	12.50	17.50	12.50 - 17.50	462.71	7/28/2014	461.01	1/12/2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-58R	591571	369898	465.98	NA	451.98	446.98	5.00	14.00	19.00	14.00 - 19.00	464.68	7/20/2015	461.64	4/25/2017	2.10	463.88	2.20	463.78	4.25	461.73	4.34	461.64	3.82	462.16	3.77	462.21	3.50	462.48
MW-60[1,4]	591710	370193	460.85	NA	448.85	443.85	5.00	12.00	17.00	12.00 - 17.00	458.07	10/13/2014	452.38	4/22/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-60R	591710	370193	460.66	NA	450.16	445.16	5.00	10.50	15.50	10.50 - 15.50	458.55	10/5/2015	454.55	4/17/2018	4.30	456.36	4.64	456.02	2.70	457.96	5.55	455.11	3.27	457.39	6.11	454.55	4.00	456.66
MW-61[1,4]	592003	370175	459.61	NA	449.11	444.11	5.00	10.50	15.50	10.50 - 15.50	453.32	7/28/2014	448.21	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-61R	591999	370175	459.31	NA	448.81	443.81	5.00	10.50	15.50	10.50 - 15.50	456.38	10/5/2015	451.85	4/25/2017	7.17	452.14	6.40	452.91	6.78	452.53	7.46	451.85	6.55	452.76	7.14	452.17	6.86	452.45
MW-62[1,4]	591791	369569	464.33	NA	448.83	443.83	5.00	15.50	20.50	15.50 - 20.50	464.03	1/12/2015	456.68	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-62R	591790	369572	464.19	NA	449.19	444.19	5.00	15.00	20.00	15.00 - 20.00	461.72	7/20/2015	457.49	4/25/2017	3.87	460.32	3.73	460.46	5.66	458.53	6.70	457.49	5.35	458.84	5.97	458.22	5.52	458.67
MW-63[1,4]	591994	369560	463.87	NA	447.87	442.87	5.00	16.00	21.00	16.00 - 21.00	461.43	10/13/2014	455.05	4/22/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-63R	591993	369559	463.94	NA	448.94	443.94	5.00	15.00	20.00	15.00 - 20.00	462.29	7/20/2015	458.22	4/17/2018	3.01	460.93	3.15	460.79	3.89	460.05	5.38	458.56	4.02	459.92	5.72	458.22	4.59	459.35
MW-65[3]	590980	369335	473.91	NA	454.41	444.41	10.00	19.50	29.50	19.50 - 29.50	473.57	1/12/2015	462.38	4/25/2017	9.13	464.78	9.36	464.55	NA	NA	11.53	462.38	11.04	462.87	11.18	462.73	10.76	463.15
MW-66	592280	369855	462.05	NA	449.45	444.45	5.00	12.60	17.60	12.60 - 17.60	460.24	7/20/2015	446.54	1/12/2015	3.36	458.69	3.31	458.74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-67	592291	370027	459.01	NA	449.41	444.41	5.00	9.60	14.60	9.60 - 14.60	458.42	7/28/2014	449.31	10/13/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-67R	592291	370022	459.16	NA	447.16	442.16	5.00	12.00	17.00	12.00 - 17.00	458.96	7/20/2015	456.44	5/2/2016	1.71	457.45	2.72	456.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-68	591173	369815	469.81	NA	455.81	445.81	10.00	14.00	24.00	14.00 - 24.00	465.23	7/20/2015	462.36	4/25/2017	5.02	464.79	5.22	464.59	7.41	462.40	7.45	462.36	6.87	462.94	6.89	462.92	6.18	463.63
RW-69[3]	591170	369678	470.89	NA	455.89	445.89	10.00	15.00	25.00	15.00 - 25.00	464.97	7/20/2015	462.00	4/25/2017	6.47	464.42	6.70	464.19	8.55	462.34	8.89	462.00	8.36	462.53	8.42	462.47	8.00	462.89

TABLE 3
SUMMARY OF MONITORING WELL STATIC WATER LEVEL MEASUREMENTS
Whirlpool Facility - Fort Smith, Arkansas

Location	Well Coordinates		TOC Elevation (ft)	Ground Surface (ft)	Top of Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Screen Length (ft)	Top of screen Depth	Bottom of screen Depth	Screened Interval (ft)	Maximum Static Water Elevation (Since Oct 2012)	Maximum Elevation Date	Minimum Static Water Elevation (Since Oct 2012)	Minimum Elevation Date	Static Water Level Elevation (ft)											
	Easting (ft)	Northing (ft)													1/6/2016		5/2/2016		11/7/2016		4/25/2017		10/23/2017		4/17/2018		11/13/2018	
															DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation
MW-70	591162	369693	471.53	NA	NA	NA	NA	NA	NA	NA	465.33	7/20/2015	462.38	4/25/2017	6.76	464.77	6.94	464.59	8.83	462.70	9.15	462.38	8.60	462.93	8.68	462.85	8.27	463.26
MW-71	591170	369695	471.35	NA	NA	NA	NA	NA	NA	NA	465.35	7/20/2015	461.93	10/23/2017	6.56	464.79	6.79	464.56	8.65	462.70	8.99	462.36	9.42	461.93	8.51	462.84	8.10	463.25
IW-72[3]	591056	369590	471.65	NA	456.65	446.65	10.00	15.00	25.00	15.00 - 25.00	465.19	7/20/2015	462.11	4/22/2013	7.02	464.63	7.35	464.30	9.05	462.60	9.43	462.22	8.88	462.77	9.11	462.54	8.57	463.08
IW-73	591060	369503	471.48	NA	NA	NA	NA	NA	NA	NA	465.29	7/20/2015	462.38	4/25/2017	6.69	464.79	6.94	464.54	8.75	462.73	9.10	462.38	8.56	462.92	8.70	462.78	8.27	463.21
IW-74[2,3]	591058	369545	472.06	NA	457.06	447.06	10.00	15.00	25.00	15.00 - 25.00	465.26	7/20/2015	462.30	4/25/2017	7.32	464.74	7.57	464.49	9.40	462.66	9.76	462.30	9.21	462.85	9.39	462.67	8.90	463.16
IW-75	591072	369605	472.17	NA	NA	NA	NA	NA	NA	NA	465.36	7/20/2015	462.37	4/25/2017	7.33	464.84	7.63	464.54	9.45	462.72	9.80	462.37	9.22	462.95	9.38	462.79	8.92	463.25
IW-76	591050	369426	472.26	NA	NA	NA	NA	NA	NA	NA	465.17	7/20/2015	462.21	4/25/2017	7.64	464.62	7.86	464.40	9.67	462.59	10.05	462.21	9.48	462.78	9.68	462.58	9.22	463.04
IW-77[2]	591027	369380	473.01	NA	453.01	443.01	10.00	20.00	30.00	20.00 - 30.00	465.37	7/20/2015	462.41	4/25/2017	8.20	464.81	8.46	464.55	10.20	462.81	10.60	462.41	10.03	462.98	10.24	462.77	9.79	463.22
IW-78	590984	369338	473.49	NA	NA	NA	NA	NA	NA	NA	465.38	7/20/2015	461.77	11/7/2016	8.69	464.80	8.94	464.55	11.72	461.77	11.12	462.37	10.62	462.87	10.73	462.76	10.30	463.19
IW-79	591018	369335	473.84	NA	NA	NA	NA	NA	NA	NA	465.39	7/20/2015	462.39	4/25/2017	9.04	464.80	9.30	464.54	11.04	462.80	11.45	462.39	10.90	462.94	11.06	462.78	10.61	463.23
IW-80[2,3]	591047	369343	473.30	NA	453.30	443.30	10.00	20.00	30.00	20.00 - 30.00	465.21	7/20/2015	462.28	4/25/2017	8.62	464.68	8.84	464.46	10.61	462.69	11.02	462.28	10.47	462.83	10.65	462.65	10.23	463.07
IW-101	590930	369201	475.70	NA	452.80	447.80	5.00	22.90	27.90	22.90-27.90	464.66	1/6/2016	463.13	11/13/2018	11.04	464.66	12.20	463.50	NA	NA	NA	NA	NA	NA	NA	NA	12.57	463.13
IW-115	591007	369344	473.41	NA	454.31	449.31	5.00	19.10	24.10	19.10-24.10	464.64	1/6/2016	462.38	11/7/2016	8.77	464.64	8.97	464.44	11.03	462.38	11.00	462.41	10.92	462.49	10.93	462.48	9.99	463.42
IW-129	590989	368977	473.54	NA	448.99	443.99	5.00	24.55	29.55	24.55 - 29.55	463.08	5/12/2014	463.08	5/12/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW-130	590924	369186	475.58	NA	452.20	447.28	5.00	23.38	28.30	23.38 - 28.38	463.20	5/12/2014	463.20	5/12/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IW-131	591006	369339	473.37	NA	453.65	448.65	5.00	19.72	24.72	19.72 - 24.72	463.21	5/12/2014	463.21	5/12/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-81	590977	369395	473.54	NA	453.54	448.54	5.00	20.00	25.00	20.00-25.00	465.33	7/20/2015	462.35	4/25/2017	8.79	464.75	9.01	464.53	10.80	462.74	11.19	462.35	10.63	462.91	10.79	462.75	10.36	463.18
MW-82	591039	369406	473.60	NA	452.60	447.60	5.00	21.00	26.00	21.00-26.00	465.35	7/20/2015	462.36	4/25/2017	8.84	464.76	9.10	464.50	10.87	462.73	11.24	462.36	10.70	462.90	10.83	462.77	10.43	463.17
MW-83	590946	369211	475.48	NA	453.48	448.48	5.00	22.00	27.00	22.00-27.00	465.25	7/20/2015	462.32	4/25/2017	10.76	464.72	11.01	464.47	12.84	462.64	13.16	462.32	12.62	462.86	12.79	462.69	12.38	463.10
MW-84	590882	369194	475.53	NA	451.53	446.53	5.00	24.00	29.00	24.00-29.00	466.39	1/6/2016	462.23	4/25/2017	9.14	466.39	11.22	464.31	12.95	462.58	13.30	462.23	12.73	462.80	12.88	462.65	12.47	463.06
MW-85	590760	369018	474.41	NA	449.41	444.41	5.00	25.00	30.00	25.00-30.00	465.21	7/20/2015	462.24	4/25/2017	9.73	464.68	10.08	464.33	11.79	462.62	12.17	462.24	11.66	462.75	11.74	462.67	11.36	463.05
MW-86	590767	368995	473.19	NA	450.19	445.19	5.00	23.00	28.00	23.00-28.00	465.10	7/20/2015	462.19	4/25/2017	8.55	464.64	8.88	464.31	10.65	462.54	11.00	462.19	10.42	462.77	10.60	462.59	10.18	463.01
MW-87	592269	368835	470.78	NA	453.78	443.78	10.00	17.00	27.00	17.00-27.00	460.91	10/5/2015	457.53	4/17/2018	10.30	460.48	10.78	460.00	12.57	458.21	12.53	458.25	12.74	458.04	13.25	457.53	13.19	457.59
MW-88	592151	369043	468.89	NA	450.89	440.89	10.00	18.00	28.00	18.00-28.00	462.85	10/5/2015	457.39	4/17/2018	7.40	461.49	8.92	459.97	7.62	461.27	10.42	458.47	8.48	460.41	11.50	457.39	9.22	459.67
MW-89	592357	369059	466.91	NA	451.91	441.91	10.00	15.00	25.00	15.00-25.00	459.23	10/5/2015	456.47	4/17/2018	7.93	458.98	8.47	458.44	9.90	457.01	9.96	456.95	10.11	456.80	10.44	456.47	10.39	456.52
MW-90	592157	369157	466.71	NA	451.71	441.71	10.00	15.00	25.00	15.00-25.00	464.46	10/23/2017	458.73	4/25/2017	4.58	462.13	5.98	460.73	4.05	462.66	7.98	458.73	2.25	464.46	7.95	458.76	5.82	460.89
MW-91	592371	368830	468.90	NA	453.90	443.90	10.00	15.00	25.00	15.00-25.00	460.19	10/5/2015	456.92	4/17/2018	9.11	459.79	9.58	459.32	11.30	457.60	11.19	457.71	11.39	457.51	11.98	456.92	11.90	457.00
MW-92	590778	368921	473.74	NA	453.74	443.74	10.00	20.00	30.00	20.00-30.00	465.29	7/20/2015	462.30	4/25/2017	8.85	464.89	9.31	464.43	11.01	462.73	11.44	462.30	10.92	462.82	11.03	462.71	10.62	463.12
MW-93	590908	368894	477.81	NA	452.81	442.81	10.00	25.00	35.00	25.00-35.00	465.12	7/20/2015	462.10	4/25/2017	13.24	464.57	13.54	464.27	15.23	462.58	15.71	462.10	15.12	462.69	15.30	462.51	14.88	462.93
MW-94	591015	368903	477.86	NA	452.86	442.86	10.00	25.00	35.00	25.00-35.00	464.97	7/20/2015	461.93	4/25/2017	13.44	464.42	13.75	464.11	15.45	462.41	15.93	461.93	15.39	462.47	15.63	462.23	15.22	462.64
MW-95	590981	368821	477.63	NA	452.63	442.63	10.00	25.00	35.00	25.00-35.00	465.01	7/20/2015	461.95	4/25/2017	13.18	464.45	13.50	464.13	15.14	462.49	15.68	461.95	15.09	462.54	15.32	462.31	14.89	462.74
MW-96	592775	369354	457.83	NA	447.83	442.83	5.00	10.00	15.00	10.00-15.00	451.72	10/23/2017	449.11	4/25/2017	7.23	450.60	6.14	451.69	8.59	449.24	8.72	449.11	6.11	451.72	6.71	451.12	6.83	451.00
MW-97	592687	369527	459.43	NA	447.93	442.93	5.00	11.50	16.50	11.50-16.50	451.23	10/23/2017	448.41	1/12/2015	8.59	450.84	8.73	450.70	8.96	450.47	8.21	451.22	8.20	451.23	8.70	450.73	8.52	450.91
MW-98	592840	369198	461.62	NA	446.62	441.62	10.00	15.00	20.00	15.00-20.00	451.39	4/25/2017	445.27	10/23/2017	10.92	450.70	10.58	451.04	11.90	449.72	10.23	451.39	16.35	445.27	10.85	450.77	10.68	450.94
MW-99	592554	368814	466.80	NA	448.30	443.30	5.00	18.50	23.50	18.50-23.50	459.89	7/20/2015	456.71	4/17/2018	7.29	459.51	7.74	459.06	NA	NA	9.31	457.49	9.57	457.23	10.09	456.71	10.03	456.77
MW-172	590858	369002	472.94	NA	454.94	444.94	10.00	18.00	28.00	18.00-28.00	465.27	7/20/2015	461.26	4/25/2017	8.21	464.73	8.55	464.39	10.28	462.66	11.68	461.26	10.10	462.84	10.28	462.66	9.84	463.10
MW-173	591973	369624	463.56	NA	458.56	457.56	1.00	5.00	6.00	5.00-6.00	462.63	7/20/2015	457.61	4/13/2015	1.25	462.31	1.12	462.44	2.13	461.43	1.16	462.40	2.43	461.13	1.24	462.32	1.19	462.37
MW-174	591976	369644	463.45	NA	452.45	451.45	1.00	11.00	12.00	11.00-12.00	461.75	10/5/2015	453.10	10/23/2017	3.74	459.71	3.44	460.01	3.68	459.77	5.58	457.87	10.35	453.10	5.41	458.04	4.76	458.69
MW-175	591603	369655	464.17	NA	450.67	449.67	1.00	13.50	14.50	13.50-14.50	463.71	7/20/2015	456.06	10/23/2017	0.80	463.37	0.75	463.42	1.95	462.22	3.43	460.74	8.11	456.06	2.46	461.71	2.09	462.08
MW-176	591474	369675	465.24	NA	452.24	451.24	1.00	13.00	14.00	13.00-14.00	464.66	7/20/2015	461.99	4/25/2017	0.86	464.38	1.06	464.18	2.94	462.30	3.25	461.99	NA	NA	2.75	462.49	2.38	462.86
MW-177	591148	369698	471.50	NA	462.50	461.50	1.00	9.00	10.00	9.00-10.00	469.97	1/6/2016	461.78	4/25/2017	1.53	469.97	2.5	469.00	6.31	465.19	9.72	461.78	NA	NA	3.94	467.56	4.03	467.47
MW-178	590973	369232	475.40	NA	468.40	467.40	1.00	7.00	8.00	7.00-8.00	472.05	5/2/2016	470.38	11/7/2016	3.47	471.93	3.35	472.05	5.02	470.38	3.90	471.50	4.09	471.31	3.86	471.54	4.03	471.37
MW-179	590984	369232	475.39	NA	463.39	462.39	1.00	12.00	13.00	12.00-13.00	473.98	11/13/2018	462.70	4/13/2015	9.46	465.93	NA	NA	8.59	466.80	12.25	463.14	7.59	467.80	10.90	464.49	1.41	473.98
MW-180	590996	369231	475.32	NA	469.32	468.32	1.00	6.00	7.00	6.00-7.00	471.93	5/2/2016	469.60	11/7/2016	3.51	471.81	3.39	471.93	5.72	469.60	4.43	470.89	4.20	471.12	4.24	471.08	4.57	470.75
MW-181	591156	369695	471.87	NA	465.87	464.87	1.00	6.00	7.00	6.00-7.00	471.25	4/17/2018	456.87	10/5/2015	2.50	469.37	3.60	468.27	DRY	NA	DRY	NA	NA	NA	0.62	471.25	4.34	467.53
MW-182	590403	367900	474.64	NA	453.64	443.64	10.00	21.00	31.00	21.00-31.00	461.60	10/5/2015	458.66	10/23/2017	13.13	461.51	13.20	461.44	15.25	459.39	15.17	459.47	15.98	458.66	15.29	459.35	15.25	459.39
MW-183[4]	592664	369246	462.42	462.87	447.42	442.42	5.00	15.00	20.00	15.00-20.00	453.47	10/23/2017	450.11	10/5/2015	11.92	450.50	11.06	451.36	12.22	450.20	10.20	452.22	8.95	453.47	11.66	450.76	NA	NA
MW-183R	592672	369248	462.43	462.67	449.43	444.43	5.00	13.00	18.00	13.00-18.00	448.68	11/13/2018	448.68	11/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.75	448.68
MW-184	592646	369023	465.58	NA	446.58	441.58	5.00	19.00	24.00	19.00-24.00	458.42	10/5/2015	448.03	10/23/2017	7.20	458.38	7.81	457.77	8.99	456.59	8.90	456.68	17.55	448.03	9.76	455.82	9.62	455.96
MW-185	592256	367995	473.86	NA	453.86	443.86	10.00	20.00	30.00	20.00-30.00	463.49	10/5/2015	458.90	11/13/2018	11.20	462.66	11.33	462.53	14.57	459.29	14.55	459.31	14.56	459.30	14.90	458.96	14.96	458.90
MW-186	590124	367716	469.80	NA	451.80	441.80	10.00	18.00	28.00	18.00-28.00	457.44	5/2/2016	455.76	10/23/2017	12.47	457.33	12.36	457.44	14.02	455.78	13.20	456.60	14.04	455.76	13.38	456.42	14.00	455.80
MW-187	590249	367588	477.42	NA	453.42	443.42	10.00	24.00	34.00	24.00-34.00	459.21	5/2/2016	457.30	10/23/2017	18.27	459.15	18.21	459.21	20.00	457.42	19.53	457.89	20.12	457.30	19.61	457.81	19.69	457.73
MW-188	590646	367509	481.14	NA	455.14	445.14	10.00	26.00	36.00	26.00-36.00	462.10	10/5/2015	459.07	10/23/2017	19.23	461.91	19.42	461.72	21.52	459.62	21.68	459.46	22.07	459.07	21.85	459.29	21.68	459.46
MW-189	590860	367666	485.59	NA	454.59	444.59	10.00	31.00	41.00	31.00-41.00	462.83	10/5/2015	459.45	10/23/2017	23.15	462.44	23.33	462.26	25.61	459.98	25.92	459.67	26.14	459.45	26.10	459.49	26.09	459.50
MW-190	591325	367745	481.29	NA	454.29	444.29	10.00	27.00	37.00	27.00-37.00	463.27	10/5/2015	459.38	11/13/2018	18.59	462.70	18.83	462.46	21.29	460.00	21.52	459.77	21.77	459.52	21.89	459.40	21.91	459.38
MW-191	591662	367732	476.85	NA	453.85	443.85	10.00	23.00	33.00	23.00-33.00	463.37	10/5/2015	459.27	11/13/2018	14.13	462.72	14.38	462.47	16.93	459.92	17.11	459.74	17.34	459.51	17.49	459.36	17.58	459.27
MW-192	592078	367679	475.33	NA	454.33	444.33	10.00	21.00	31.00	21.00-31.00	463.42	10/5/2015	459.10	11/13/2018	12.64	462.69	12.83	462.50	15.60	459.73	15.68	459.65	15.88	459.45	16.10	459.23	16.23	459.10
MW-193[4]	592312	370289	455.26	NA	447.76	442.76	5.00	7.50	12.50	7.50-12.50	453.76	5/2/2016	451.25	10/5/2015	1.96	453.30	1.50	453.76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-194	592161	369791	462.47	NA	451.47	441.47	10.00	11.00	21.00	11.00-12.00	457.88	10/23/2017	457.10	11/7/2016	NA	NA	NA	NA	5.37	457.10	5.25	457.22	4.59	457.88	5.23	457.24	4.72	457.75
MW-195	592185	370025	459.36	NA	446.36	441.36	5.00	13.00	18.00	13.00-18.00	457.18	10/23/2017	455.78	4/25/2017	NA	NA	NA	NA	2.42	456.94	3.58	455.78	2.18	457.18	3.35	456.01	2.80	456.56
MW-196	592217	370132	457.63	NA	447.63	442.63	5.00	10.00	15.00	10.00-15.00	454.07	11/7/2016	452.30	4/25/2017	NA	NA	NA	NA	3.56	454.07	5.33	452.30	3.77	453.86	4.26	453.37	4.88	452.75
TMW-10	591973	370113	460.75	NA	450.25	445.25	5.00	10.50	15.50	10.50-15.50	456.19	11/7/2016	453.51	4/17/2018	5.22	455.53	5.80	454.95	4.56	456.19	7.22	453.53	4.76	455.99	7.24	453.51	5.20	455.55
TMW-11	591956	370078	460.20	NA	449.70	444.70	5.00	10.50	15.50	10.50-15.50	456.50	11/7/2016	453.61	4/17/2018	4.71	455.49	5.25	454.95	3.70	456.50	6.48	453.72	4.01	456.19	6.59	453.61	4.40	455.80
TMW-12[5]	591873	369860	464.19	461.63	454.19	444.19	10.00	10.00	20.00	10.00-20.00	459.66	4/17/2018	458.33	10/23/2017	NA	NA	NA	NA	NA	NA	2.34	459.43	3.44	458.33	2.11	459.66	4.91	459.28
TMW-13[4]	592083	369870	460.10	460.27	447.10	442.10	5.00	13.00	18.00	13.00-18.00	457.59	4/25/2017	457.59	4/25/2017	NA	NA	NA	NA	NA	NA	2.51	457.59	NA	NA	NA	NA	NA	NA
TMW-14	591873	369736	461.89	462.46	450.89	440.89	10.00	11.00	21.00	11.00-21.00	459.58	11/13/2018	458.14	10/23/2017	NA	NA	NA	NA	NA	NA	3.11	458.78	3.75	458.14	2.65	459.24	2.31	459.58
TMW-15[4]	592032	369683	465.32	465.40	452.32	442.32	10.00	13.00	23.00	13.00-23.00	457.58	4/25/2017	457.58	4/25/2017	NA	NA	NA	NA	NA	NA	7.74	457.58	NA	NA	NA	NA	NA	NA
TMW-16	590180	367791	469.87	469.54	451.87	441.87	10.00	18.00	28.00	18.00-28.00	457.36	4/17/2018	456.48	11/13/2018	NA	NA	NA	NA	NA	NA	12.69	457.18	13.09	456.78	12.51	457.36	13.39	456.48
TMW-17[4]	590856	367810	484.05	483.74	451.55	441.55	10.00	32.50	42.50	32.50-42.50	459.53	4/25/2017	459.53	4/25/2017	NA	NA	NA	NA	NA	NA	24.52	459.53	NA	NA	NA	NA	NA	NA
TMW-18[4]	590672	367598	478.79	478.54	453.79	443.79	10.00	25.00	35.00	25.00-35.00	459.45	4/25/2017	459.45	4/25/2017	NA	NA	NA	NA	NA	NA	19.34	459.45	NA	NA	NA	NA	NA	NA
TMW-19	590841	367571	485.35	485.26	452.35	442.35	10.00	33.00	43.00	33.00-43.00	459.72	4/17/2018	459.54	4/25/2017	NA	NA	NA	NA	NA	NA	25.81	459.54	25.73	459.62	25.63	459.72	25.64	459.71
TMW-20	592210	369929	460.57	460.27	449.07	442.07	7.00	11.50	18.50	11.50-18.50	457.33	10/23/2017	456.25	4/17/2018	NA	NA	NA	NA	NA	NA	NA	NA	3.24	457.33	4.32	456.25	3.95	456.62
TMW-21	592082	369959	460.01	460.26	450.01	440.01	10.00	10.00	20.00	10.00-20.00	457.62	4/17/2018	456.68	10/23/2017	NA	NA	NA	NA	NA	NA	NA	NA	3.33	456.68	2.39	457.62	2.77	457.24
TMW-22[4]	591985	369997	460.82	461.05	448.82	441.82	7.00	12.00	19.00	12.00-19.00	457.63	4/17/2018	456.57	10/23/2017	NA	NA	NA	NA	NA	NA	NA	NA	4.25	456.57	3.19	457.63	NA	NA
TMW-22R	591992	369990	460.71	461.15	447.21	442.21	5.00	13.50	18.50	13.50-18.50	457.07	11/13/2018	457.07	11/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.64	457.07
TMW-23[5]	591874	370019	461.68	462.22	447.68	442.68	5.00	14.00	19.00	14.00-19.00	457.28	11/13/2018	455.31	4/17/2018	NA	NA	NA	NA	NA	NA	NA	NA	4.73	457.21	6.63	455.31	4.40	457.28
TMW-24[5]	592006	369808	461.15	461.46	449.15	442.15	7.00	12.00	19.00	12.00-19.00	458.21	11/13/2018	457.33	10/23/2017	NA	NA	NA	NA	NA	NA	NA	NA	3.90	457.33	3.09	458.14	2.94	458.21
TMW-25	590283	367848	473.14	473.41	452.64	442.64	10.00	20.50	30.50	20.50-30.50	457.64	11/13/2018	456.76	10/23/2017	NA	NA	NA	NA	NA	NA	NA	NA	16.38	456.76	15.79	457.35	15.50	457.64

RAMBOLL

TABLE 3
SUMMARY OF MONITORING WELL STATIC WATER LEVEL MEASUREMENTS
Whirlpool Facility - Fort Smith, Arkansas

Location	Well Coordinates		TOC Elevation (ft)	Ground Surface (ft)	Top of Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Screen Length (ft)	Top of screen Depth	Bottom of screen Depth	Screened Interval (ft)	Maximum Static Water Elevation (Since Oct 2012)	Maximum Elevation Date	Minimum Static Water Elevation (Since Oct 2012)	Minimum Elevation Date	Static Water Level Elevation (ft)											
	Easting (ft)	Northing (ft)													1/6/2016		5/2/2016		11/7/2016		4/25/2017		10/23/2017		4/17/2018		11/13/2018	
															DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation	DTW	GW Elevation
TMW-26	590115	367763	472.10	469.47	454.10	444.10	10.00	18.00	28.00	18.00-28.00	456.73	10/23/2017	455.66	11/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	15.37	456.73	15.79	456.31	16.44	455.66
TMW-27	590091	367871	467.45	468.03	451.45	441.45	10.00	16.00	26.00	16.00-26.00	456.68	4/17/2018	456.03	10/23/2017	NA	NA	NA	NA	NA	NA	NA	NA	11.42	456.03	10.77	456.68	11.08	456.37
TMW-28[4]	590092	367956	468.27	468.85	451.27	441.27	10.00	17.00	27.00	17.00-27.00	NA	10/1/2012	NA	10/1/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TMW-29	592211	369848	462.19	462.56	450.19	443.19	10.00	12.00	19.00	12.00-19.00	453.46	11/13/2018	452.30	4/17/2018	NA	NA	NA	NA	NA	NA	NA	NA	9.06	453.13	9.89	452.30	8.73	453.46
TMW-30	590113	367737	469.37	469.77	450.87	448.87	10.00	18.50	20.50	18.50-20.50	456.03	4/17/2018	455.28	11/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	13.83	455.54	13.34	456.03	14.09	455.28
TMW-32	590048	367787	466.9	467.07	450.40	440.40	10.00	16.50	26.50	16.50-26.50	456.21	4/17/2018	455.49	11/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.69	456.21	11.41	455.49
TMW-34	592334	368003	471.37	471.64	450.37	445.37	5.00	21.00	26.00	21.00-26.00	458.67	11/13/2018	458.67	11/13/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.70	458.67

Notes:

ft = Feet
NA = Not available
nm = Not measured
1 = Construction diagram notes use of pre-packed stainless steel screen
2 = Construction diagram text and graphical representation differ on construction details. Graphical representation used to infer elevations
3 = Construction diagram notes presence of sedimentation sump below screened interval
4 = Abandoned Monitoring Well
Horizontal and vertical coordinates converted to Arkansas State Plane, North Zone (NAD83) and North American Vertical Datum of 1988 (NAVD88) based on in historic site file. Casing elevations for ITMW-1 through ITMW-21 and MW-22 extracted from 2011/2012 Annual Ground Water Monitoring Report dated June 28, 2012. information provided
Casing elevations for remaining wells extracted from survey data provided by Philip J. Leraris, PE, LS, dated May 12, 2009.
IW-129, IW-130, IW-131, and MW-81 to MW-99 surveyed during 2014.
Well screen intervals and depths adapted from monitoring well construction diagrams.
5 During the November 2018 well repair event TOC elevations were modified due to repair work for TMW-12, TMW-23 and TMW-24. The TOC elevations listed on the table represent the most current elevations. All water level elevations prior to November 2018 were calculated using the previous surveyed TOC elevations.

TABLE 4
SUMMARY OF FINAL WELL GROUNDWATER FIELD PARAMETERS MEASUREMENTS (OCTOBER 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location	Well Casing Diameter (in)	Date Sampled	Water Level prior to Purging (ft btoc)	Total Depth of Well Casing (ft)	Set Tubing Depth (ft)	Time Sampled	Water Level after Purging (ft btoc)	Purge Volume (Gallons)	Purge Rate (ml/min)	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Ferrous Iron (mg/L)	Persulfate (mg/L)	Color
ITMW-1	4	11/15/2018	15.95	34.05	20.0	12:25	15.93	1.75	100-190	16.7	359.6	0.18	6.04	257.3	0.25	0.00	NM	Clear
ITMW-2	4	11/13/2018	12.58	27.00	22.0	17:03	12.59	2.0	100	15.8	347	0.24	5.75	-20.9	2.39	0.00	NM	Clear
ITMW-5	4	11/15/2018	18.90	39.29	29.5	14:25	19.00	1.25	100-250	20.5	530.3	0.13	6.02	225.4	0.31	0.00	NM	Clear
ITMW-7	4	11/15/2018	20.90	36.98	29.5	13:30	25.73	2.0	100	19.7	868	0.20	5.00	308.4	0.86	0.00	NM	Clear
ITMW-9	4	11/15/2018	21.90	34.95	29.8	15:20	22.08	2.4	100-200	19.9	580	0.20	7.07	-31.4	1.99	0.02	20	Clear
ITMW-10	4	11/14/2018	21.09	36.82	31.8	17:37	21.16	1.75	100	11.4	1,054	0.77	5.73	-42.1	0.95	0.00	NM	Clear
ITMW-16	4	11/13/2018	15.52	34.18	29.0	15:40	15.78	0.8	100	17.0	131.2	4.79	6.37	117.5	9.90	0.00	NM	Clear
ITMW-18	4	11/14/2018	10.55	29.50	24.9	17:00	10.58	1.5	100-150	16.8	963	3.90	6.78	114.0	1.13	0.00	25	Clear
ITMW-19	4	11/15/2018	12.76	33.73	25.7	14:30	12.92	1.1	100	16.7	7,461	5.05	6.62	449.7	1.39	0.04	1260	Clear
ITMW-20	4	11/14/2018	14.08	31.03	26.0	16:25	14.32	0.73	100	17.2	510.3	0.61	5.55	209.4	0.30	0.00	NM	Clear
ITMW-21	4	11/15/2018	12.81	32.99	18.0	11:01	13.07	1.25	100	17.8	1,998	0.15	5.04	312.2	0.33	0.05	NM	Clear
MW-22	4	11/14/2018	12.90	29.20	21.7	12:41	12.98	1.8	100	18.0	137	0.01	5.53	336.9	1.16	0.02	NM	Clear
MW-24	4	11/15/2018	12.73	32.51	27.5	13:25	12.71	1.0	100	20.1	3,956	0.58	4.24	240.3	0.09	0.00	140	Clear
MW-25	4	11/16/2018	13.22	34.60	29.6	9:25	13.46	2.0	100	17.3	3,104	0.33	6.42	-218.9	2.34	>3.00	<70	Clear
MW-26	4	11/14/2018	14.01	35.14	30.0	15:25	14.19	1.2	100	14.9	1,204	0.26	5.65	202.2	1.00	0.00	NM	Clear
MW-27	2	11/13/2018	12.13	30.14	25.0	14:45	12.18	1.0	100	17.9	340.4	1.48	5.88	127.0	12.8	0.00	NM	Clear
MW-28	2	11/13/2018	7.59	27.45	22.5	13:10	7.80	0.85	100	20.5	291.6	0.15	6.39	45.5	2.68	0.00	NM	Clear, slight chemical odor
MW-29	2	11/15/2018	11.50	30.32	25.3	9:10	11.56	0.72	100	15.1	542.6	0.44	5.04	245.0	1.59	0.02	NM	Clear
MW-38	2	11/15/2018	11.09	29.83	24.8	9:55	11.24	4.5	100-200	20.9	669	0.34	7.58	-58.6	1.24	2.53	20	Clear
MW-39R	2	11/15/2018	11.08	29.69	27.2	10:30	11.15	1.04	100	16.7	1,261	0.27	5.22	163.9	4.31	1.78	NM	Clear
MW-40R	2	11/14/2018	9.77	28.30	23.3	10:50	9.77	0.90	100	18.6	826	0.23	5.38	97.8	1.14	>3.00	NM	Clear
MW-46R	2	11/14/2018	2.69	21.51	19.0	17:10	3.03	1.8	100	17.1	800	0.79	5.03	266.4	0.71	0.26	NM	Clear
MW-50R	2	11/13/2018	8.28	18.24	15.7	14:10	10.89	1.3	75-100	16.6	1,203	1.10	6.40	-41.4	2.94	0.07	NM	Clear
MW-55R	2	11/15/2018	1.75	20.96	20.0	15:56	2.80	<1.0	100	17.3	997	0.65	5.43	75.4	0.37	0.32	NM	Clear
MW-56R	2	11/14/2018	2.33	19.79	18.8	14:25	2.90	0.9	100	17.2	704	0.00	5.86	135.6	4.14	1.37	NM	Clear
MW-57R	2	11/14/2018	2.28	19.35	16.9	15:40	3.25	1.9	100	16.7	480	1.61	6.21	174.5	4.56	0.20	NM	Clear
MW-58R	2	11/15/2018	3.09	21.88	19.4	14:00	3.83	1.5	100	16.4	866	2.14	5.12	-12.7	1.01	0.25	NM	Clear
MW-60R	2	11/14/2018	4.26	14.86	12.4	9:20	5.12	0.70	80-100	9.8	1,273	2.28	6.86	179.7	78.7	0.88	NM	Light brown
MW-61R	2	11/13/2018	6.85	18.28	12.8	14:20	8.65	4.5	150-200	19.8	951	0.12	6.54	-108.9	3.02	1.15	NM	Clear
MW-62R	2	11/14/2018	5.43	20.01	17.5	12:10	5.88	0.85	90-100	12.4	669	1.44	5.71	138.2	0.74	0.00	NM	Clear, trace black particles
MW-63R	2	11/14/2018	4.65	19.72	17.2	13:40	5.56	0.72	60-100	12.9	578.7	1.27	5.70	179.9	22.5	0.06	NM	Clear, slight chemical odor
MW-68	2	11/13/2018	6.37	20.35	15.4	15:11	6.53	1.25	100	16.0	1,175	0.21	4.81	26.9	5.35	2.35	NM	Clear
RW-69	4	11/14/2018	7.89	28.71	23.7	12:30	7.92	1.3	100	13.8	1,029	1.48	5.12	-11.1	0.91	0.39	NM	Clear
IW-73	2	11/14/2018	8.05	26.82	21.8	15:10	8.06	1.0	100	16.8	1,126	0.93	5.24	-31.9	2.33	0.30	NM	Clear
IW-77	2	11/15/2018	9.33	28.70	23.7	17:10	9.27	2.0	140-200	17.4	2,529	0.23	10.67	-29.3	4.07	0.12	<70	Clear
IW-78	2	11/15/2018	9.90	29.13	26.0	15:25	9.85	1.4	100	17.9	8,644	0.85	6.43	346.4	12.0	0.00	1400	Very slight light brown hue
MW-82	2	11/15/2018	10.02	25.98	23.5	11:15	10.02	1.8	100	19.5	1,586	0.00	5.36	392.8	2.26	0.09	0.0	Clear
MW-83	2	11/14/2018	12.25	26.77	24.3	10:50	12.29	1.6	100	20.7	3,251	1.23	7.25	406.1	8.33	0.00	210	Clear
MW-84	2	11/14/2018	12.34	25.19	22.5	9:20	12.42	1.5	100	18.4	7,000	1.78	6.91	440.6	1.21	0.08	1260	Clear
MW-86	2	11/16/2018	10.10	27.78	25.3	9:40	9.93	4.75	100-150	19.0	4,489	0.34	7.13	60.8	4.08	0.03	5.0	Clear
MW-87	2	11/15/2018	12.88	26.84	21.8	13:30	12.92	3.5	100-200	21.3	457	0.17	6.78	-31.2	8.03	0.00	NM	Clear
MW-89	2	11/14/2018	10.35	25.08	20.1	10:10	12.18	2.0	100	16.3	1,212	1.41	5.33	-2.9	0.89	0.00	NM	Clear
MW-91	2	11/15/2018	11.42	25.70	15.7	15:40	11.58	1.5	100	23.1	325.6	0.23	5.99	224.9	2.91	0.01	NM	Clear
MW-93	2	11/15/2018	14.35	34.21	29.2	15:45	14.40	1.4	100	18.4	1,307	0.29	5.33	447.1	2.54	0.01	840	Clear
MW-95	2	11/15/2018	14.44	34.14	29.1	15:55	14.51	1.6	100	17.7	1,283	1.08	5.26	-42.0	1.69	0.00	<70	Clear
MW-96	2	11/15/2018	7.39	14.53	12.0	9:46	7.97	2.0	100	17.8	184	0.77	5.23	-111.5	1.48	1.02	NM	Clear
MW-97	2	11/15/2018	8.65	15.20	14.0	11:42	11.32	1.0	50	18.5	250	2.24	6.02	-12.9	9.74	0.07	NM	Clear
MW-98	2	11/14/2018	10.97	19.65	17.2	13:51	14.97	1.0	50	14.2	177	2.74	6.02	-29.8	0.21	0.00	NM	Clear
MW-99	2	11/13/2018	10.02	22.74	20.2	13:57	10.04	2.0	100	19.4	200	1.56	6.07	-48.6	3.62	0.01	NM	Clear
MW-175	2	11/13/2018	2.13	14.51	14.0	13:25	8.65	1.5	75-100	17.7	1,878	4.91	11.69	-46.3	1.35	0.29	NM	Clear

RAMBOLL

TABLE 4
SUMMARY OF FINAL WELL GROUNDWATER FIELD PARAMETERS MEASUREMENTS (OCTOBER 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location	Well Casing Diameter (in)	Date Sampled	Water Level prior to Purging (ft btoc)	Total Depth of Well Casing (ft)	Set Tubing Depth (ft)	Time Sampled	Water Level after Purging (ft btoc)	Purge Volume (Gallons)	Purge Rate (ml/min)	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Ferrous Iron (mg/L)	Persulfate (mg/L)	Color
MW-176	2	11/13/2018	2.31	14.00	13.5	15:00	4.87	1.8	100	18.3	1,198	0.65	10.23	-14.7	11.9	0.05	NM	Clear
MW-178	2	11/14/2018	3.98	7.97	7.5	11:20	5.17	1.8	100	18.0	340	1.32	6.92	136.6	9.73	0.28	NM	Clear
MW-179	2	11/13/2018	1.36	12.79	12.3	16:45	8.66	1.5	75-100	16.3	79	2.16	6.84	138.6	4.65	0.05	NM	Clear
MW-182	2	11/15/2018	14.72	31.09	26.0	14:30	14.75	0.74	100	16.2	630	0.18	5.70	256.2	1.4	0.06	NM	Clear
MW-183R	2	11/14/2018	13.36	18.59	11.9	11:23	14.84	1.75	50-100	16.7	201	3.92	6.16	-68.0	2.11	0.00	NM	Clear
MW-184	2	11/14/2018	9.58	23.55	18.6	9:47	10.32	2.0	100	14.6	151	1.40	6.09	-290.6	68.8	0.00	NM	Clear
MW-185	2	11/14/2018	14.83	29.28	24.3	11:40	14.84	2.5	120-200	21.6	252	0.53	5.69	52.2	1.57	0.02	NM	Clear
MW-186	2	11/14/2018	14.02	27.80	22.8	10:05	18.50	2.5	100-150	15.2	11,567	0.07	6.38	-172.2	1.83	>3.00	NM	Light yellow
MW-187	2	11/14/2018	19.54	30.25	27.3	13:45	19.59	1.5	100-175	16.1	580	0.89	6.19	-51.9	3.44	0.00	NM	Clear
MW-188	2	11/14/2018	21.80	34.58	29.6	9:20	21.86	1.2	100-200	14.4	615.1	0.32	6.13	303.8	7.61	0.00	NM	Clear
MW-189	2	11/15/2018	25.58	40.85	35.9	16:55	25.58	1.1	100	19.3	1,185	0.00	5.87	288.0	2.20	0.22	0.0	Clear
MW-190	2	11/15/2018	21.63	36.10	31.1	9:25	21.90	2.0	100-160	19.0	3,292	2.25	12.68	-44.9	5.02	2.75	NM	Clear
MW-191	2	11/14/2018	17.33	33.20	28.0	14:55	17.30	1.5	100-140	19.7	118.3	0.63	6.01	132.2	8.39	0.00	NM	Clear
MW-192	2	11/14/2018	16.05	30.19	27.7	15:05	16.03	1.75	100-200	17.4	166	0.67	5.30	-25.0	4.03	0.00	NM	Clear
MW-194	2	11/14/2018	4.50	21.30	16.3	17:20	5.09	8.0	150-500	19.9	865	0.05	5.76	-61.3	13.7	0.61	NM	Clear
MW-195	2	11/13/2018	2.85	17.13	14.5	14:30	7.75	2.0	100-150	16.2	843	0.88	6.56	-35.6	4.59	0.00	NM	Clear
MW-196	2	11/13/2018	5.00	15.00	12.5	15:55	9.92	1.75	100-140	18.6	1,658	1.09	6.69	-7.8	5.96	0.00	NM	Clear
TMW-10	2	11/13/2018	5.69	15.19	12.7	16:55	9.41	2.7	100-200	16.5	3,499	0.47	6.63	-127.6	30.3	>3.00	NM	Light brown/grey
TMW-11	2	11/13/2018	5.34	15.13	12.6	16:45	8.25	4.0	120-200	17.0	2,157	0.05	6.98	-162.1	7.34	1.91	NM	Light yellow/grey
TMW-12	2	11/15/2018	4.55	20.00	15.0	9:30	4.65	1.6	100	15.3	556	0.18	5.59	204.7	3.13	0.37	NM	Clear
TMW-14	2	11/14/2018	2.68	21.00	18.5	15:51	3.51	1.0	50	14.3	199	1.02	5.82	-41.0	31.2	0.30	NM	Clear with white haze
TMW-16	2	11/16/2018	12.91	28.00	23.0	10:25	14.89	2.9	100	15.4	2,739	1.10	6.62	-97.4	17.0	>3.00	NM	Light brown/grey
TMW-19	2	11/14/2018	25.61	43.00	38.0	10:20	26.03	2.0	100-200	17.0	408.9	0.16	6.31	70.7	12.25	0.25	NM	Slightly turbid/clear
TMW-20	2	11/13/2018	3.87	17.90	14.0	17:00	4.49	1.0	100-150	13.7	1,486	1.36	6.69	-36.1	2.26	0.00	NM	Clear
TMW-21	2	11/15/2018	2.60	19.70	14.7	15:15	7.62	3.0	150-200	18.5	6,574	0.05	6.45	-101.8	22.3	>3.00	NM	Yellow/grey
TMW-22R	2	11/15/2018	3.30	17.80	15.3	16:50	8.43	2.5	100-180	18.6	1,478	0.04	7.08	-105.0	31.1	1.20	NM	Pale yellow
TMW-23	2	11/16/2018	4.47	20.00	15.0	9:55	8.19	2.5	100-240	19.7	712	0.85	6.61	199.4	3.48	0.00	NM	Clear
TMW-24	2	11/15/2018	2.45	19.50	16.0	17:00	2.57	1.6	100	17.1	844	0.32	5.96	157.7	7.25	0.00	NM	Clear
TMW-25	2	11/15/2018	15.55	30.50	25.5	13:30	17.46	2.5	150-200	17.5	13,954	0.02	6.61	-169.8	NM	>3.00	NM	Yellow/grey
TMW-26	2	11/15/2018	16.10	28.60	23.6	11:15	15.30	3.0	120-200	15.3	14,751	0.04	6.47	-162.9	10.22	>3.00	NM	Brown/black
TMW-27	2	11/14/2018	16.94	26.40	21.4	11:30	11.15	1.5	100-200	16.7	210.8	0.20	5.50	203.7	5.24	0.00	NM	Clear
TMW-29	2	11/13/2018	8.76	27.50	22.5	17:00	10.70	0.65	35-100	6.5	1,096	0.36	6.68	67.6	4.56	0.00	NM	Clear
TMW-30	2	11/14/2018	14.11	28.80	18.8	16:08	19.25	2.0	50-200	13.4	20,404	0.16	6.76	-555.7	NM	0.98	NM	Black
TMW-32	2	11/16/2018	10.93	26.10	21.1	9:35	10.96	4.0	150-200	17.7	934	0.08	6.66	-138.6	6.43	0.50	NM	Clear
TMW-34	2	11/14/2018	12.54	24.78	22.3	15:00	13.26	12.0	150-500	22.6	427	0.07	6.26	95.1	7.42	0.00	NM	Clear

Notes:

ft btoc = Feet below top of casing
in = Inches
ORP = Oxidation reduction potential
DO = Dissolved oxygen
(°C) = Degrees Celcius
mV = Millivolts
NS = Well not sampled

mL/min = Milliliters per minute
mg/L = Milligrams per liter
NTUs = Nephelometric turbidity units
NM = Not measured
(µS/cm) = Microsiemens per centimeter

All wells gauged using electronic water level meter and purged using peristaltic pumps.
Tubing inlet depths based on estimated distance from total depth.

RAMBOLL

TABLE 5
SUMMARY OF VERTICAL HYDRAULIC GRADIENT
Whirlpool Facility - Fort Smith, Arkansas

Location/ Well Pairs	Middle of Screen Elevation[1] (ft)	Static Water Level Elevation (ft)										Vertical Hydraulic Gradient[2,3] (ft/ft)									
		4/13/2015	7/20/2015	10/5/2015	1/6/2016	5/2/2016	11/7/2016	4/25/2017	10/23/2017	4/17/2018	11/13/2018	4/13/2015	7/20/2015	10/5/2015	1/6/2016	5/2/2016	11/7/2016	4/25/2017	10/23/2017	4/17/2018	11/13/2018
Shallow Well MW-70 and MW-177																					
MW-177	462.00	466.94	469.09	465.34	469.97	469.00	465.19	461.78	NM	467.56	467.47										
MW-70	451.53	464.17	465.33	465.15	464.77	464.59	462.70	462.38	462.93	462.85	463.26										
MW-177/MW-70												-0.26	-0.36	-0.02	-0.50	-0.42	-0.24	0.06	NM	-0.45	-0.40
Shallow Well MW-176 and MW-46R[4]																					
MW-176	451.74	463.81	464.66	464.49	464.38	464.18	462.30	461.99	462.93	462.49	462.86										
MW-46R	446.69	462.85	464.88	464.67	464.40	464.21	462.34	462.03	462.55	462.53	462.87										
MW-176/MW-46R												-0.19	0.04	0.04	0.004	0.005	0.01	0.01	-0.08	0.01	0.001
Shallow Well MW-175																					
MW-175	450.17	460.25	463.71	463.47	463.37	463.42	462.22	460.74	456.06	461.71	462.08										
Ave. of MW-46R & MW-56/56R	446.46	461.54	463.68	463.15	463.26	463.21	460.68	461.38	461.24	461.37	461.78										
MW-175/Ave. of MW-46R & MW-56/56R												0.35	-0.007	-0.07	-0.02	-0.04	-0.32	0.14	1.09	-0.07	-0.06
Shallow Wells MW-173 and MW-174																					
MW-174	451.95	457.67	459.92	461.75	459.71	460.01	459.77	457.87	453.10	458.04	458.69										
MW-63/MW-63R	445.37	459.36	462.29	462.08	460.93	460.79	460.05	458.56	459.92	458.22	459.35										
MW-174/MW-63												0.26	0.43	0.06	0.22	0.14	0.05	0.13	1.24	0.03	0.12
Shallow Wells MW-178, MW-179 and MW-180																					
MW-178	467.90	472.29	471.94	471.48	471.93	472.05	470.38	471.50	471.31	471.54	471.37										
MW-83	450.98	464.02	465.25	465.01	464.72	464.47	462.64	462.32	462.86	462.69	463.10										
MW-178/MW-83												-0.49	-0.40	-0.38	-0.43	-0.45	-0.46	-0.54	-0.50	-0.52	-0.49

Notes:
ft = Feet
[1] MW-56R and MW-63R were installed in June 2015
[2] Negative gradient indicates downward gradient
[3] Reference elevations used in vertical gradient calculations were changed from ground surface to top of casing for the First Quarter 2016 Annual Groundwater Monitoring Report.
NM = Measurement not completed

TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		ITMW-1	ITMW-2	ITMW-5	ITMW-7	ITMW-9	ITMW-10	ITMW-16	ITMW-18	ITMW-19	MW-22	MW-24	MW-24	MW-25	MW-27	MW-28	MW-38	MW-83	MW-84
Field Sample ID		ITMW-1-201811	ITMW-2-201811	ITMW-5-201811	ITMW-7-201811	ITMW-9-201811	ITMW-10-201811	ITMW-16-201811	ITMW-18-201811	ITMW-19-201811	MW-22-201811	MW-24-201811	DUP-02-201811	MW-25-201811	MW-27-201811	MW-28-201811	MW-38-201811	MW-83-201811	MW-84-201811
Lab Sample ID	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60287044023	60286720016	60287044024	60287044015	60287044038; 050PK-11	60286849021	60286720019	60287044004	60287044016	60286849007	60287044007	60287044008	60287140006; 050PK-12	60286720018	60286720017	60287044040; 050PK-9	60286849006	60286849005
Sample Date		11/15/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018	11/14/2018	11/15/2018	11/14/2018	11/15/2018	11/15/2018	11/16/2018	11/13/2018	11/13/2018	11/15/2018	11/14/2018	11/14/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments													Field Duplicate						
Volatile Organic Compounds																			
Acetone	12000	20.3 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	3.6 J (1.9)	16.4 (1.9)	U (1.9)	23.4 (1.9)	19.5 (1.9)	112 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	15.4 (1.9)
Benzene	5.0	U (0.060)	U (0.060)	U (0.060)	0.14 J (0.060)	1.3 (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	0.37 J (0.060)	U (0.060)	U (0.060)	0.18 J (0.060)	U (0.060)	U (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	1.6 (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	5.3 (0.070)	U (0.070)	27.6 (0.070)	27.1 (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	1.8 (0.070)	5.4 (0.070)
Bromomethane	7.0	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Carbon Disulfide	720	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	3.0 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	3.1 (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	0.98 J (0.15)	U (0.15)	U (0.15)
Chloroform	80	U (0.14)	U (0.14)	0.62 J (0.14)	U (0.14)	0.49 J (0.14)	U (0.14)	U (0.14)	0.52 J (0.14)	1.2 (0.14)	U (0.14)	U (0.14)	U (0.14)	52.9 (0.14)	U (0.14)	U (0.14)	0.42 J (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	0.63 J (0.080)	U (0.080)	1.8 (0.080)	1.9 (0.080)	4.7 (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	0.55 J (0.21)	U (0.21)	1.0 (0.21)	1.0 (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	0.27 J (0.21)	
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	1.5 (0.050)	U (0.050)	4.7 (0.050)	0.81 J (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	11.6 (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5.0	0.17 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	7.0	U (0.20)	U (0.20)	6.0 (0.20)	U (0.20)	9.9 (0.20)	1.1 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (400)	U (0.20)	U (0.20)	7.7 (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	5.4 (0.080)	0.57 J (0.080)	36.9 (0.080)	7.3 (0.080)	77.1 (0.080)	10.9 (0.080)	U (0.080)	55.3 (0.080)	1.3 (0.080)	U (0.080)	U (0.080)	U (0.080)	18200 (160)	0.27 J (0.080)	U (0.080)	675 (4.0)	0.63 J (0.080)	U (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	0.32 J (0.20)	U (0.20)	1.3 (0.20)	U (0.20)	U (0.20)	10.3 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (400)	U (0.20)	U (0.20)	4.0 (0.20)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	0.22 J (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	1.6 J (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	5.0	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	17.9 (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	0.55 J (0.15)	U (0.15)	U (0.15)	U (0.15)	192 (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5.0	U (0.10)	0.37 J (0.10)	1.4 (0.10)	U (0.10)	2.1 (0.10)	0.26 J (0.10)	U (0.10)	0.26 J (0.10)	0.32 J (0.10)	U (0.10)	U (0.10)	U (0.10)	49.6 (0.10)	U (0.10)	U (0.10)	0.21 J (0.10)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	0.22 J (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	11.6 (0.17)	U (0.17)	U (0.17)	0.24 J (0.17)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	10.7 (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5.0	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	4.1 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5.0	12.7 (0.17)	0.71 J (0.17)	2250 (3.4)	22.8 (0.17)	1390 (3.4)	45.0 (0.17)	U (0.17)	641 (1.7)	204 (0.85)	U (0.17)	12.6 (0.17)	12.5 (0.17)	94300 (340)	0.92 J (0.17)	U (0.17)	2340 (8.5)	34.2 (0.17)	1.5 (0.17)
Vinyl Chloride	2.0	U (0.13)	U (0.13)	2.0 (0.13)	U (0.13)	2.0 (0.13)	0.77 J (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	762 J (260)	U (0.13)	U (0.13)	360 (6.5)	U (0.13)	U (0.13)
Metals																			
Iron	NE	NM	NM	NM	NM	U (50.0)	NM	NM	NM	NM	NM	NM	NM	5570 (50.0)	NM	NM	4250 (50.0)	NM	NM
Monitored Natural Attenuation Parameters (Laboratory)																			
Acetic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butyric acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	NM	NM	NM	NM	2500 (1000)	NM	NM	NM	NM	NM	NM	NM	2200 (1000)	NM	NM	1400 (1000)	NM	NM
Chloride	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	486000 (50000)	NM	NM	NM	NM	NM
Lactic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Nitrogen, Nitrate	NE	NM	NM	NM	NM	4300 (100)	NM	NM	NM	NM	NM	NM	NM	U (100)	NM	NM	U (100)	NM	NM
Nitrogen, Nitrite	NE	NM	NM	NM	NM	180 (100)	NM	NM	NM	NM	NM	NM	NM	U (100)	NM	NM	U (100)	NM	NM
Nitrate/Nitrite	NE	NM	NM	NM	NM	4500 (100)	NM	NM	NM	NM	NM	NM	NM	U (100)	NM	NM	61 J (100)	NM	NM
Pentanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Propionic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pyruvic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfide (total)	NE	NM	NM	NM	NM	U (50)	NM	NM	NM	NM	NM	NM	NM	U (50)	NM	NM	U (50)	NM	NM
Sulfate	NE	NM	NM	NM	NM	29000 J+ (2000)	NM	NM	NM	NM	NM	NM	NM	500000 (50000)	NM	NM	84700 (20000)	NM	NM
Gases																			
Acetylene	NE	NM	NM	NM	NM	0.50 n (0.50)	NM	NM	NM	NM	NM	NM	NM	6.0 n (0.50)	NM	NM	0.50 n (0.50)	NM	NM
Methane	NE	NM	NM	NM	NM	29 n (0.50)	NM	NM	NM	NM	NM	NM	NM	72 n (0.50)	NM	NM	18 n (0.50)	NM	NM
Ethane	NE	NM	NM	NM	NM	0.13 n (0.10)	NM	NM	NM	NM	NM	NM	NM	16 n (0.10)	NM	NM	0.62 n (0.10)	NM	NM
Ethene	NE	NM	NM	NM	NM	0.10 n (0.10)	NM	NM	NM	NM	NM	NM	NM	1.7 n (0.10)	NM	NM	16 n (0.10)	NM	NM
Hydrogen (H2) [nM]	NE	NM	NM	NM	NM	4.4 (1.0)	NM	NM	NM	NM	NM	NM	NM	10 n (1.0)	NM	NM	5.5 (1.0)	NM	NM
Molecular Analyses																			
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	30 (0.5)	NM	NM
Dehalococcoides (DHC) [cells/mL]	NE	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	26.7 (0.5)	NM	NM
tceA Reductase [cells/mL]	NE	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	0.5 U (0.5)	NM	NM
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	0.5 U (0.5)	NM	NM

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.

2 Only compounds with at least one detection are shown.

3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
R = Result rejected by validator
M1 = Matrix spike recovery exceeded QC limits
J = Estimated concentration
( ) = Method detection limit for VOCs
RADD = Remedial action decision document
ADE = Arkansas Department of Environmental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
NE = Not established
NM = Not measured
n = The laboratory does not hold NELAP/TNI accreditation for this method or analyte

Onsite Wells
Offsite Wells
Plume Boundary Wells

RAMBOLL

TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location	Remedial Action Levels per ADEQ RADD Issued Dec 2013	MW-86
Field Sample ID		MW-86-201811
Lab Sample ID		60287140005; 050PK-13
Sample Date		11/16/2018
Sample Method		Low Flow
Comments		
Volatile Organic Compounds		
Acetone	12000	21.2 (1.9)
Benzene	5.0	0.41 J (0.060)
Bromodichloromethane	80	2.5 (0.19)
Bromoform	80	3.6 (0.070)
Bromomethane	7.0	0.26 J (0.16)
2-Butanone	4900	U (0.59)
Carbon Disulfide	720	3.3 J (0.12)
Carbon Tetrachloride	5	0.92 J (0.18)
Chlorobenzene	100	U (0.21)
Chloroethane	12000	U (0.15)
Chloroform	80	29.9 (0.14)
Chloromethane	190	3.5 (0.080)
Dibromochloromethane	80	0.70 J (0.21)
1,1-Dichloroethane	2.4	4.6 (0.050)
1,2-Dichloroethane	5.0	U (0.12)
1,1-Dichloroethene	7.0	84.0 (0.20)
cis-1,2-Dichloroethene	70	19500 (160)
trans-1,2-Dichloroethene	100	1890 J (400)
Ethyl Benzene	700	U (0.18)
2-Hexanone	34	29.3 (1.2)
4-Methyl-2-pentanone	1000	0.44 J (0.42)
Methylene Chloride	5.0	6.5 (0.15)
1,1,2,2-Tetrachloroethane	0.066	133 (0.15)
Tetrachloroethene	5.0	43.1 (0.10)
Toluene	1000	4.8 (0.17)
1,1,1-Trichloroethane	200	73.9 (0.11)
1,1,2-Trichloroethane	5.0	3.5 (0.20)
Trichloroethene	5.0	188000 (340)
Vinyl Chloride	2.0	2780 (260)
Metals		
Iron	NE	295 (50.0)
Monitored Natural Attenuation Parameters (Laboratory)		
Acetic acid	NE	NM
Butanoic acid	NE	NM
Butyric acid	NE	NM
Organic Carbon (total)	NE	NM
Organic Carbon (total)	NE	2800 (1000)
Chloride	NE	NM
Lactic Acid	NE	NM
Nitrogen, Nitrate	NE	140 (100)
Nitrogen, Nitrite	NE	U (100)
Nitrate/Nitrite	NE	140 (100)
Pentanoic acid	NE	NM
Propionic Acid	NE	NM
Pyruvic Acid	NE	NM
Sulfide (total)	NE	U (50)
Sulfate	NE	250000 (200000)
Gases		
Acetylene	NE	3.6 n (0.50)
Methane	NE	61 n (0.50)
Ethane	NE	9.6 n (0.10)
Ethene	NE	0.78 n (0.10)
Hydrogen (H2) [nM]	NE	130 (20)
Molecular Analyses		
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	0.5 U (0.5)
Dehalococcoides (DHC) [cells/mL]	NE	0.5 U (0.5)
tceA Reductase [cells/mL]	NE	0.5 U (0.5)
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	0.5 U (0.5)

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.
2 Only compounds with at least one detection are shown.
3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
R = Result rejected by validator
M1 = Matrix spike recovery exceeded QC limits
J = Estimated concentration
( ) = Method detection limit for VOCs
RADD = Remedial action decision document
ADE = Arkansas Department of Environmental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
NE = Not established
NM = Not measured
n = The laboratory does not hold NELAP/TNI accreditation for this method or analyte

Onsite Wells
Offsite Wells
Plume Boundary Wells

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TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		MW-87	MW-89	MW-91	MW-93	MW-95	MW-178	MW-179	ITMW-20	ITMW-21	MW-26	MW-26	MW-29	MW-39R	MW-40R	MW-50R	MW-55R	MW-55R	MW-60R
Field Sample ID		MW-87-201811	MW-89-201811	MW-91-201811	MW-93-201811	MW-95-201811	MW-178-201811	MW-179-201811	ITMW-20-201811	ITMW-21-201811	MW-26-201811	DUP-09-201811	MW-29-201811	MW-39R-201811	MW-40R-201811	MW-50R-201811	MW-55R-201811	DUP-08-201811	MW-60R-201811
Lab Sample ID	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60287044039; 050PK-10	60286849030; 050PK-6; 287710003	60287044025	60287044017	60287044037; 050PK-8	60286849004	60286720005	60286849017	60287044022	60286849015	60286849016	60287044026	60287044027	60286849012	60286720009; 050PK-3; 287710004	60287044009	60287044010	60286849011
Sample Date		11/15/2018	11/14/2018	11/15/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018	11/14/2018	11/15/2018	11/14/2018	11/14/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018	11/15/2018	11/15/2018	11/14/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments												Field Duplicate							Field Duplicate	
Volatile Organic Compounds																			
Acetone	12000	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	16.6 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)
Benzene	5.0	U (0.060)	U (0.060)	U (0.060)	0.12 J (0.060)	0.12 J (0.060)	0.22 J (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	0.34 J (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)
Bromomethane	7.0	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Carbon Disulfide	720	U (0.12)	U (0.12)	U (0.12)	UJ (0.12)	UJ (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	2.1 (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Chloroform	80	0.18 J (0.14)	U (0.14)	0.19 J (0.14)	3.6 (0.14)	4.8 (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	1.1 (0.050)	U (0.050)	1.6 (0.050)	0.31 J (0.050)	0.38 J (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5.0	U (0.12)	U (0.12)	0.23 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	7.0	2.9 (0.20)	U (0.20)	4.1 (0.20)	15.0 (0.20)	29.5 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.36 J (0.20)	0.32 J (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	28.3 (0.080)	0.53 J (0.080)	33.4 (0.080)	106 (0.080)	152 (0.080)	1.4 (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	0.91 J (0.080)	0.85 J (0.080)	U (0.080)
trans-1,2-Dichloroethene	100	0.95 J (0.20)	U (0.20)	0.60 J (0.20)	10.6 (0.20)	7.8 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	5.0	U (0.15)	U (0.15)	U (0.15)	1.6 J+ (0.15)	2.9 J+ (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	0.40 J (0.15)	0.34 J (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5.0	4.8 (0.10)	U (0.10)	4.0 (0.10)	4.3 (0.10)	6.0 (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	U (0.17)	0.30 J (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	0.51 J (0.11)	0.37 J (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5.0	U (0.20)	U (0.20)	U (0.20)	0.99 J (0.20)	1.5 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5.0	397 (3.4)	9.7 (0.17)	437 (1.7)	16300 (34.0)	20300 (34.0)	4.5 (0.17)	1.4 (0.17)	U (0.17)	8.0 (0.17)	U (0.17)	0.46 J (0.17)	U (0.17)	U (0.17)	U (0.17)	0.73 J (0.17)	22.3 (0.17)	23.1 (0.17)	U (0.17)
Vinyl Chloride	2.0	0.77 J (0.13)	U (0.13)	0.30 J (0.13)	3.6 (0.13)	39.6 (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)
Metals																			
Iron	NE	U (50.0)	11.0 J (50.0)	NM	NM	U (50.0)	NM	NM	NM	NM	NM	NM	NM	NM	NM	294 (50.0)	NM	NM	NM
Monitored Natural Attenuation Parameters (Laboratory)																			
Acetic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butyric acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	690 J (1000)	1200 (1000)	NM	NM	U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (1000)	NM	NM	NM
Chloride	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	259000 (50000)	NM	NM	NM
Lactic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Nitrogen, Nitrate	NE	2600 (100)	91400 (5000)	NM	NM	830 (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (100)	NM	NM	NM
Nitrogen, Nitrite	NE	U (100)	U (5000)	NM	NM	U (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (100)	NM	NM	NM
Nitrate/Nitrite	NE	2600 (100)	92000 (5000)	NM	NM	860 (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (100)	NM	NM	NM
Pentanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Propionic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pyruvic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfide (total)	NE	U (50)	U (50)	NM	NM	U (50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (50)	NM	NM	NM
Sulfate	NE	13500 (1000)	4300 (1000)	NM	NM	3800 (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	14000 (10000)	NM	NM	NM
Gases																			
Acetylene	NE	0.50 n (0.50)	0.50 n (0.50)	NM	NM	0.50 n (0.50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.50 n (0.50)	NM	NM	NM
Methane	NE	2.0 n (0.50)	12 n (0.50)	NM	NM	7.3 n (0.50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	280 n (0.50)	NM	NM	NM
Ethane	NE	0.10 n (0.10)	0.10 n (0.10)	NM	NM	0.64 n (0.10)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.18 n (0.10)	NM	NM	NM
Ethene	NE	0.10 n (0.10)	0.10 n (0.10)	NM	NM	0.10 n (0.10)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.10 n (0.10)	NM	NM	NM
Hydrogen (H2) [nM]	NE	4.7 n (1.0)	6.3 n (1.0)	NM	NM	5.0 (1.0)	NM	NM	NM	NM	NM	NM	NM	NM	NM	3.3 n (1.0)	NM	NM	NM
Molecular Analyses																			
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	0.5 U (0.5)	0.5 U (0.5)	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM
Dehalococcoides (DHC) [cells/mL]	NE	0.5 U (0.5)	0.5 U (0.5)	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM
tceA Reductase [cells/mL]	NE	0.5 U (0.5)	0.5 U (0.5)	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	0.5 U (0.5)	0.5 U (0.5)	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.

2 Only compounds with at least one detection are shown.

3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
R = Result rejected by validator
M1 = Matrix spike recovery exceeded QC limits
J = Estimated concentration
( ) = Method detection limit for VOCs
RADD = Remedial action decision document
ADE = Arkansas Department of Environmental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
NE = Not established
NM = Not measured
n = The laboratory does not hold NELAP/TNI accreditation for this method or analyte

Onsite Wells
Offsite Wells
Plume Boundary Wells

RAMBOLL

TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		MW-61R	MW-61R	MW-63R	MW-68	MW-96	MW-97	MW-98	MW-99	MW-183	MW-184	MW-185	MW-186	MW-187	MW-188	MW-189	MW-190	MW-191	MW-192
Field Sample ID		MW-61R-201811	DUP-06-201811	MW-63R-201811	MW-68-201811	MW-96-201811	MW-97-201811	MW-98-201811	MW-99-201811	MW-183R-201811	MW-184-201811	MW-185-201811	MW-186-201811	MW-187-201811	MW-188-201811	MW-189-201811	MW-190-201811	MW-191-201811	MW-192-201811
Lab Sample ID	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60286720002; 287340001	60286720006	60286849014	60286720015	60287044005	60287044006	60286849024	60286720014	60286849023	60286849022	60286849027; 287520002	60286849026; 287520001	60287044003	60286849001	60287044018	60287044021	60286849019	60287044002
Sample Date		11/13/2018	11/13/2018	11/14/2018	11/13/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018	11/14/2018	11/14/2018	11/14/2018	11/14/2018	11/14/2018	11/14/2018	11/15/2018	11/15/2018	11/14/2018	11/14/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments			Field Duplicate																
Volatile Organic Compounds																			
Acetone	12000	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	276 (9.4)	2.0 J (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	2.0 J (1.9)
Benzene	5.0	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.30)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.95)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.35)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)
Bromomethane	7.0	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.80)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	1250 (3.0)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Carbon Disulfide	720	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.60)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.90)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (1.0)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.75)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.70)	U (0.14)	U (0.14)	0.26 J (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.40)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (1.0)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.25)	U (0.050)	U (0.050)	1.4 (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5.0	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.60)	0.15 J (0.12)	U (0.12)	0.17 J (0.12)	0.20 J (0.12)	U (0.12)	0.18 J (0.12)
1,1-Dichloroethene	7.0	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.25 J (0.20)	U (1.0)	U (0.20)	U (0.20)	1.8 (0.20)	U (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	1.9 (0.080)	1.8 (0.080)	0.66 J (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	0.64 J (0.080)	U (0.080)	U (0.080)	2.6 (0.080)	6.5 (0.40)	0.81 J (0.080)	U (0.080)	11.3 (0.080)	U (0.080)	U (0.080)	U (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (1.0)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.90)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (6.0)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (2.1)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	5.0	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.75)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.75)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5.0	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.50)	U (0.10)	U (0.10)	0.39 J (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.85)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.55)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5.0	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (1.0)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5.0	7.7 (0.17)	7.7 (0.17)	4.5 (0.17)	U (0.17)	U (0.17)	U (0.17)	0.29 J (0.17)	8.1 (0.17)	1.1 (0.17)	U (0.17)	11.7 (0.17)	10.2 F1 (0.85)	0.86 J (0.17)	U (0.17)	670 (1.7)	U (0.17)	U (0.17)	U (0.17)
Vinyl Chloride	2.0	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.65)	U (0.13)	U (0.13)	0.64 J (0.13)	U (0.13)	U (0.13)	U (0.13)
Metals																			
Iron	NE	10700 (50.0)	NM	NM	NM	NM	NM	NM	NM	NM	NM	46.0 J (50.0)	588000 (250)	NM	NM	NM	NM	NM	NM
Monitored Natural Attenuation Parameters (Laboratory)																			
Acetic acid	NE	1900 (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	2800 (1000)	500000 (100000)	NM	NM	NM	NM	NM	NM
Butanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1000 U (1000)	22000 (10000)	NM	NM	NM	NM	NM	NM
Butyric acid	NE	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	1000 U (1000)	000000 (100000)	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	810 J (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (1000)	980000 (1000000)	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	710 J (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (1000)	950000 (1000000)	NM	NM	NM	NM	NM	NM
Chloride	NE	120000 (50000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	18800 (1000)	260000 (20000)	NM	NM	NM	NM	NM	NM
Lactic Acid	NE	2000 U (2000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Nitrogen, Nitrate	NE	U (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	5000 (500)	R (100)	NM	NM	NM	NM	NM	NM
Nitrogen, Nitrite	NE	U (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (500)	140 J (100)	NM	NM	NM	NM	NM	NM
Nitrate/Nitrite	NE	U (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	5100 (500)	130 J (100)	NM	NM	NM	NM	NM	NM
Pentanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1000 U (1000)	580000 (100000)	NM	NM	NM	NM	NM	NM
Propionic Acid	NE	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	2500 (1000)	000000 (1000000)	NM	NM	NM	NM	NM	NM
Pyruvic Acid	NE	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfide (total)	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfate	NE	8000 (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	7700 (1000)	1400 (1000)	NM	NM	NM	NM	NM	NM
Gases																			
Acetylene	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Methane	NE	6600 n (0.50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.50 n (0.50)	14000 n (0.50)	NM	NM	NM	NM	NM	NM
Ethane	NE	0.70 n (0.10)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.10 n (0.10)	0.50 n (0.10)	NM	NM	NM	NM	NM	NM
Ethene	NE	0.10 n (0.10)	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.10 n (0.10)	6.6 n (0.10)	NM	NM	NM	NM	NM	NM
Hydrogen (H2) [nM]	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Molecular Analyses																			
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Dehalococcoides (DHC) [cells/mL]	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
tceA Reductase [cells/mL]	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.

2 Only compounds with at least one detection are shown.

3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
R = Result rejected by validator
M1 = Matrix spike recovery exceeded QC limits
J = Estimated concentration
( ) = Method detection limit for VOCs
RADD = Remedial action decision document
ADE = Arkansas Department of Environmental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
NE = Not established
NM = Not measured
n = The laboratory does not hold NELAP/TNI accreditation for this method or analyte

Onsite Wells
Offsite Wells
Plume Boundary Wells

RAMBOLL

TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		MW-192	MW-194	MW-195	MW-196	IW-73	IW-77	IW-78	MW-46R	MW-56R	MW-57R	MW-58R	MW-58R	MW-62R	MW-82	MW-175	MW-176	MW-182	RW-69
Field Sample ID		DUP-07-201811	MW-194-201811	MW-195-201811	MW-196-201811	IW-73-201811	IW-77-201811	IW-78-201811	MW-46R-201811	MW-56R-201811	MW-57R-201811	MW-58R-201811	DUP-05-201811	MW-62R-201811	MW-82-201811	MW-175-201811	MW-176-201811	MW-182-201811	RW-69-201811
Lab Sample ID	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60287044001	60286849029; 287520004	60286720012	60286720013	60286849031; 050PK-5	60287044011	60287044029	60286849010	60286849008	60286849009	60287044035; 050PK-7	60287044036	60286849013	60287044014	60286720001	60286720020	60287044028	60286849032; 050PK-4; 287710005
Sample Date		11/14/2018	11/14/2018	11/13/2018	11/13/2018	11/14/2018	11/15/2018	11/15/2018	11/14/2018	11/14/2018	11/14/2018	11/15/2018	11/15/2018	11/14/2018	11/15/2018	11/13/2018	11/13/2018	11/15/2018	11/14/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments		Field Duplicate											Field Duplicate						
Volatile Organic Compounds																			
Acetone	12000	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	15.8 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	28.8 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)
Benzene	5.0	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	0.10 J (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	0.16 J (0.060)	U (0.060)	0.21 J (0.060)	0.19 J (0.060)	U (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	1.5 (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)
Bromomethane	7.0	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	1.3 J (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Carbon Disulfide	720	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	7.3 (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	0.19 J (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	2.8 (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	0.30 J (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5.0	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	0.21 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	7.0	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.63 J (0.20)	0.41 J (0.20)	U (0.20)	1.5 (0.20)	1.7 (0.20)	0.76 J (0.20)	1.7 (0.20)	1.7 (0.20)	U (0.20)	0.28 J (0.20)	3.0 (0.20)	U (0.20)	1.3 (0.20)	
cis-1,2-Dichloroethene	70	U (0.080)	0.87 J (0.080)	U (0.080)	U (0.080)	7.3 (0.080)	5.1 (0.080)	U (0.080)	14.4 (0.080)	21.1 (0.080)	7.7 (0.080)	10.2 (0.080)	9.8 (0.080)	U (0.080)	1.2 (0.080)	1.5 (0.080)	127 (0.080)	2.5 (0.080)	5.4 (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.59 J (0.20)	U (0.20)	0.50 J (0.20)	0.40 J (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	2.1 (0.20)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	5.0	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5.0	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	0.13 J (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5.0	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5.0	U (0.17)	10.7 (0.17)	U (0.17)	U (0.17)	208 (0.85)	218 (0.85)	0.74 J (0.17)	603 (1.7)	902 (1.7)	286 (1.7)	312 (0.85)	319 (1.7)	U (0.17)	60.3 (0.17)	70.7 (0.17)	397 (1.7)	40.8 (0.17)	141 J+ (0.17)
Vinyl Chloride	2.0	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	1.2 (0.13)	0.38 J (0.13)	0.21 J (0.13)	0.43 J (0.13)	0.47 J (0.13)	U (0.13)	U (0.13)	0.17 J (0.13)	2.1 (0.13)	U (0.13)	0.53 J (0.13)
Metals																			
Iron	NE	NM	8260 (50.0)	NM	NM	941 (50.0)	NM	NM	NM	NM	NM	453 (50.0)	NM	NM	NM	NM	NM	NM	505 (50.0)
Monitored Natural Attenuation Parameters (Laboratory)																			
Acetic acid	NE	NM	2500 (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butanoic acid	NE	NM	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butyric acid	NE	NM	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	NM	U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	NM	U (1000)	NM	NM	U (1000)	NM	NM	NM	NM	NM	U (1000)	NM	NM	NM	NM	NM	NM	U (1000)
Chloride	NE	NM	150000 J- (20000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lactic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Nitrogen, Nitrate	NE	NM	R (100)	NM	NM	70 J (100)	NM	NM	NM	NM	NM	U (100)	NM	NM	NM	NM	NM	NM	U (100)
Nitrogen, Nitrite	NE	NM	R (100)	NM	NM	U (100)	NM	NM	NM	NM	NM	U (100)	NM	NM	NM	NM	NM	NM	U (100)
Nitrate/Nitrite	NE	NM	R (100)	NM	NM	83 J (100)	NM	NM	NM	NM	NM	U (100)	NM	NM	NM	NM	NM	NM	U (100)
Pentanoic acid	NE	NM	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Propionic Acid	NE	NM	1000 U (1000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pyruvic Acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfide (total)	NE	NM	NM	NM	NM	U (50)	NM	NM	NM	NM	NM	U (50)	NM	NM	NM	NM	NM	NM	U (50)
Sulfate	NE	NM	9100 J- (1000)	NM	NM	3900 (1000)	NM	NM	NM	NM	NM	2400 (1000)	NM	NM	NM	NM	NM	NM	1300 (1000)
Gases																			
Acetylene	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.50 n (0.50)	NM	NM	NM	NM	NM	NM	0.50 n (0.50)
Methane	NE	NM	870 J- (0.50)	NM	NM	NM	NM	NM	NM	NM	NM	24 n (0.50)	NM	NM	NM	NM	NM	NM	47 n (0.50)
Ethane	NE	NM	0.26 J- (0.10)	NM	NM	NM	NM	NM	NM	NM	NM	0.10 n (0.10)	NM	NM	NM	NM	NM	NM	0.10 n (0.10)
Ethene	NE	NM	0.27 J- (0.10)	NM	NM	NM	NM	NM	NM	NM	NM	0.10 n (0.10)	NM	NM	NM	NM	NM	NM	0.16 n (0.10)
Hydrogen (H2) [nM]	NE	NM	NM	NM	NM	2.6 n (1.0)	NM	NM	NM	NM	NM	5.6 (2.0)	NM	NM	NM	NM	NM	NM	2.6 n (1.0)
Molecular Analyses																			
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	NM	NM	NM	NM	0.3 J (0.5)	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	0.5 U (0.5)
Dehalococcoides (DHC) [cells/mL]	NE	NM	NM	NM	NM	2.1 (0.5)	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	0.2 J (0.5)
tceA Reductase [cells/mL]	NE	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	0.5 U (0.5)
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	0.5 U (0.5)	NM	NM	NM	NM	NM	NM	0.5 U (0.5)

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.

2 Only compounds with at least one detection are shown.

3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
R = Result rejected by validator
M1 = Matrix spike recovery exceeded QC limits
J = Estimated concentration
( ) = Method detection limit for VOCs
RADD = Remedial action decision document
ADE = Arkansas Department of Environmental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
NE = Not established
NM = Not measured
n = The laboratory does not hold NELAP/TNI accreditation for this method or analyte

Onsite Wells
Offsite Wells
Plume Boundary Wells

RAMBOLL

TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		TMW-10	TMW-11	TMW-12	TMW-12	TMW-14	TMW-16	TMW-19	TMW-20	TMW-20	TMW-21	TMW-22	TMW-23	TMW-23	TMW-24	TMW-25	TMW-26	TMW-27	TMW-29
Field Sample ID		TMW-10-201811	TMW-11-201811	TMW-12-201811	DUP-04-201811	TMW-14-201811	TMW-16-201811	TMW-19-201811	TMW-20-201811	DUP-01-201811	TMW-21-201811	TMW-22R-201811	TMW-23-201811	DUP-03-201811	TMW-24-201811	TMW-25-201811	TMW-26-201811	TMW-27-201811	TMW-29-201811
Lab Sample ID	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60286720008; 050PK-1	60286720007; 050PK-2	60287044012	60287044013	60286849020	60287140007; 287710007	60286849002	60286720011	60286720004	60287044033; 287720003	60287044034; 287720004	60287140001	60287140002	60287044030	60287044032; 287720002	60287044031; 287720001	60286849003	60286720003
Sample Date		11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/14/2018	11/16/2018	11/14/2018	11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/16/2018	11/16/2018	11/15/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments					Field Duplicate					Field Duplicate				Field Duplicate					
Volatile Organic Compounds																			
Acetone	12000	128 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	146 (1.9)	U (1.9)	U (1.9)	U (1.9)	331 J- (1.9)	32.8 (1.9)	13.2 J+ (1.9)	U (1.9)	U (1.9)	193 J- (9.4)	242 J- (9.4)	U (1.9)	U (1.9)
Benzene	5.0	0.10 J (0.060)	0.11 J (0.060)	U (0.060)	U (0.060)	U (0.060)	0.13 J (0.060)	U (0.060)	U (0.060)	U (0.060)	0.11 J (0.060)	0.10 J (0.060)	U (0.060)	U (0.060)	U (0.060)	UJ (0.30)	UJ (0.30)	U (0.060)	U (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	UJ (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	UJ (0.95)	UJ (0.95)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	UJ (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	UJ (0.35)	UJ (0.35)	U (0.070)	U (0.070)
Bromomethane	7.0	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	UJ (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	UJ (0.80)	UJ (0.80)	U (0.16)	U (0.16)
2-Butanone	4900	307 (0.59)	U (0.59)	U (0.59)	3.7 J (0.59)	U (0.59)	1090 (5.9)	U (0.59)	U (0.59)	U (0.59)	760 J- (0.59)	20.5 (0.59)	U (0.59)	U (0.59)	U (0.59)	328 J- (3.0)	1460 J- (3.0)	U (0.59)	U (0.59)
Carbon Disulfide	720	0.56 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	0.97 J (0.12)	U (0.12)	U (0.12)	U (0.12)	0.78 J (0.12)	1.3 J (0.12)	UJ (0.12)	0.13 J (0.12)	U (0.12)	UJ (0.60)	UJ (0.60)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	UJ (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	UJ (0.90)	UJ (0.90)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	0.33 J (0.21)	U (0.21)	U (0.21)	U (0.21)	UJ (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	2.9 J (1.0)	UJ (1.0)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	UJ (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	UJ (0.75)	UJ (0.75)	U (0.15)	U (0.15)
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	0.15 J (0.14)	0.19 J (0.14)	U (0.14)	U (0.14)	UJ (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	UJ (0.70)	UJ (0.70)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	UJ (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	UJ (0.40)	UJ (0.40)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	UJ (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	UJ (1.0)	UJ (1.0)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	0.25 J (0.050)	U (0.050)	U (0.050)	U (0.050)	UJ (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	UJ (0.25)	UJ (0.25)	U (0.050)	U (0.050)
1,2-Dichloroethane	5.0	U (0.12)	U (0.12)	U (0.12)	0.26 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	UJ (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	UJ (0.60)	UJ (0.60)	U (0.12)	U (0.12)
1,1-Dichloroethene	7.0	0.26 J (0.20)	U (0.20)	1.7 (0.20)	1.8 (0.20)	U (0.20)	U (2.0)	U (0.20)	U (0.20)	U (0.20)	0.21 J (0.20)	1.3 (0.20)	U (0.20)	0.21 J (0.20)	1.1 (0.20)	UJ (1.0)	UJ (1.0)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	15.0 (0.080)	0.73 J (0.080)	13.7 (0.080)	12.8 (0.080)	U (0.080)	29.1 (0.80)	0.69 J (0.080)	U (0.080)	U (0.080)	86.3 J- (0.080)	71.2 (0.080)	1.2 (0.080)	1.6 (0.080)	10.9 (0.080)	11.0 J- (0.40)	11.1 J- (0.40)	U (0.080)	U (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	6.8 J (2.0)	U (0.20)	U (0.20)	U (0.20)	UJ (0.20)	0.51 J (0.20)	U (0.20)	U (0.20)	U (0.20)	UJ (1.0)	UJ (1.0)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	UJ (0.18)	0.36 J (0.18)	U (0.18)	U (0.18)	U (0.18)	UJ (0.90)	UJ (0.90)	U (0.18)	U (0.18)
2-Hexanone	34	3.7 J (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	22.0 (1.2)	U (1.2)	U (1.2)	U (1.2)	6.5 J (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	UJ (6.0)	UJ (6.0)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	1.1 J (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	1.3 J (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	UJ (2.1)	UJ (2.1)	U (0.42)	U (0.42)
Methylene Chloride	5.0	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	UJ (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	UJ (0.75)	UJ (0.75)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	1.6 (0.15)	U (0.15)	U (0.15)	U (0.15)	UJ (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	UJ (0.75)	UJ (0.75)	U (0.15)	U (0.15)
Tetrachloroethene	5.0	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	UJ (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	UJ (0.50)	UJ (0.50)	U (0.10)	U (0.10)
Toluene	1000	0.25 J (0.17)	1.1 (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	0.93 J (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	UJ (0.85)	1.1 J (0.85)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	UJ (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	UJ (0.55)	UJ (0.55)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5.0	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	UJ (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	UJ (1.0)	UJ (1.0)	U (0.20)	U (0.20)
Trichloroethene	5.0	14.3 (0.17)	0.40 J (0.17)	429 (1.7)	470 (1.7)	0.24 J (0.17)	368 (1.7)	0.97 J (0.17)	U (0.17)	U (0.17)	22.1 J- (0.17)	347 (3.4)	110 (0.17)	116 (0.17)	540 (1.7)	58.6 J- (0.85)	54.4 J- (0.85)	U (0.17)	U (0.17)
Vinyl Chloride	2.0	6.2 (0.13)	0.46 J (0.13)	0.41 J (0.13)	0.37 J (0.13)	U (0.13)	1.6 J (1.3)	U (0.13)	U (0.13)	U (0.13)	0.52 J (0.13)	0.16 J (0.13)	U (0.13)	U (0.13)	0.25 J (0.13)	UJ (0.65)	UJ (0.65)	U (0.13)	U (0.13)
Metals																			
Iron	NE	105000 (50.0)	10800 (50.0)	NM	NM	NM	186000 (50.0)	NM	NM	NM	131000 (50.0)	3510 (50.0)	NM	NM	NM	1410000 (500)	1300000 (500)	NM	NM
Monitored Natural Attenuation Parameters (Laboratory)																			
Acetic acid	NE	130000 (10000)	2500 (1000)	NM	NM	NM	400000 (100000)	NM	NM	NM	260000 (10000)	62000 (10000)	NM	NM	NM	3800000 (100000)	4000000 (100000)	NM	NM
Butanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Butyric acid	NE	54000 (10000)	1000 U (1000)	NM	NM	NM	190000 (100000)	NM	NM	NM	130000 (10000)	12000 (1000)	NM	NM	NM	1200000 (100000)	1600000 (100000)	NM	NM
Organic Carbon (total)	NE	2060000 (500000)	9200 (1000)	NM	NM	NM	910000 (1000000)	NM	NM	NM	2670000 (500000)	U (500000)	NM	NM	NM	000000 (1000000)	000000 (1000000)	NM	NM
Organic Carbon (total)	NE	2240000 (300000)	13200 (2000)	NM	NM	NM	2980000 (500000)	NM	NM	NM	2770000 (500000)	161000 (50000)	NM	NM	NM	000000 (1000000)	800000 (1000000)	NM	NM
Chloride	NE	276000 J+ (50000)	161000 (50000)	NM	NM	NM	480000 (50000)	NM	NM	NM	281000 (20000)	148000 (20000)	NM	NM	NM	441000 (50000)	431000 (50000)	NM	NM
Lactic Acid	NE	6800 (2000)	2000 U (2000)	NM	NM	NM	20000 U (20000)	NM	NM	NM	20000 U (20000)	2000 U (2000)	NM	NM	NM	220000 (20000)	200000 U (200000)	NM	NM
Nitrogen, Nitrate	NE	U (100)	U (100)	NM	NM	NM	72 J (100)	NM	NM	NM	U (100)	U (100)	NM	NM	NM	140 (100)	160 J- (100)	NM	NM
Nitrogen, Nitrite	NE	110 (100)	U (100)	NM	NM	NM	100 (100)	NM	NM	NM	190 (100)	U (100)	NM	NM	NM	180 (100)	250 (100)	NM	NM
Nitrate/Nitrite	NE	120 (100)	U (100)	NM	NM	NM	180 (100)	NM	NM	NM	130 (100)	U (100)	NM	NM	NM	320 (100)	410 J- (100)	NM	NM
Pentanoic acid	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Propionic Acid	NE	3100000 (100000)	1000 U (1000)	NM	NM	NM	1500000 (100000)	NM	NM	NM	1600000 (100000)	230000 (10000)	NM	NM	NM	000000 (1000000)	000000 (1000000)	NM	NM
Pyruvic Acid	NE	43000 (10000)	1000 U (1000)	NM	NM	NM	17000 (10000)	NM	NM	NM	38000 (10000)	2100 (1000)	NM	NM	NM	100000 U (100000)	83000 (10000)	NM	NM
Sulfide (total)	NE	43 J (50)	96 (50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfate	NE	10400 (10000)	U (1000)	NM	NM	NM	10900 (10000)	NM	NM	NM	10600 J- (1000)	7300 (1000)	NM	NM	NM	186000 (20000)	239000 J+ (20000)	NM	NM
Gases																			
Acetylene	NE	0.50 n (0.50)	0.50 n (0.50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Methane	NE	11000 n (0.50)	16000 n (0.50)	NM	NM	NM	10000 n (0.50)	NM	NM	NM	15000 n (0.50)	700 n (0.50)	NM	NM	NM	900 n (0.50)	11000 n (0.50)	NM	NM
Ethane	NE	0.28 n (0.10)	0.58 n (0.10)	NM	NM	NM	5.3 n (0.10)	NM	NM	NM	0.49 n (0.10)	1.6 n (0.10)	NM	NM	NM	6.3 n (0.10)	1.5 n (0.10)	NM	NM
Ethene	NE	1.8 n (0.10)	0.90 n (0.10)	NM	NM	NM	18 n (0.10)	NM	NM	NM	1.9 n (0.10)	4.2 n (0.10)	NM	NM	NM	31 n (0.10)	15 n (0.10)	NM	NM
Hydrogen (H2) [nM]	NE	11 n (1.0)	6.7 n (1.0)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Molecular Analyses																			
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	2 U (2)	2 U (2)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Dehalococcoides (DHC) [cells/mL]	NE	2 U (2)	2 U (2)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
tceA Reductase [cells/mL]	NE	2 U (2)	2 U (2)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	2 U (2)	2 U (2)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.

2 Only compounds with at least one detection are shown.

3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
R = Result rejected by validator
M1 = Matrix spike recovery exceeded QC limits
J = Estimated concentration
( ) = Method detection limit for VOCs
RADD = Remedial action decision document
ADE = Arkansas Department of Environmental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
NE = Not established
NM = Not measured
n = The laboratory does not hold NELAP/TNI accreditation for this method or analyte

Onsite Wells
Offsite Wells
Plume Boundary Wells

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TABLE 6
SUMMARY OF MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS
(ANNUAL EVENT 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location	Remedial Action Levels per ADEQ RADD Issued Dec 2013	TMW-30	TMW-32	TMW-34
Field Sample ID		TMW-30-201811	TMW-32-201811	TMW-34-201811
Lab Sample ID		60286849033	60287140008; 287710008	60286849028; 287520003
Sample Date		11/14/2018	11/16/2018	11/14/2018
Sample Method		Low Flow	Low Flow	Low Flow
Comments				
Volatile Organic Compounds				
Acetone	12000	299 (47.0)	U (1.9)	U (1.9)
Benzene	5.0	U (1.5)	U (0.060)	U (0.060)
Bromodichloromethane	80	U (4.8)	U (0.19)	U (0.19)
Bromoform	80	U (1.8)	U (0.070)	U (0.070)
Bromomethane	7.0	U (4.0)	U (0.16)	U (0.16)
2-Butanone	4900	875 (14.8)	21.4 (0.59)	U (0.59)
Carbon Disulfide	720	U (3.0)	1.2 J (0.12)	U (0.12)
Carbon Tetrachloride	5	U (4.5)	U (0.18)	U (0.18)
Chlorobenzene	100	U (5.2)	1.9 (0.21)	U (0.21)
Chloroethane	12000	U (3.8)	U (0.15)	U (0.15)
Chloroform	80	U (3.5)	U (0.14)	U (0.14)
Chloromethane	190	U (2.0)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (5.2)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (1.2)	U (0.050)	U (0.050)
1,2-Dichloroethane	5.0	U (3.0)	U (0.12)	U (0.12)
1,1-Dichloroethene	7.0	U (5.0)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	U (2.0)	1.9 (0.080)	1.5 (0.080)
trans-1,2-Dichloroethene	100	U (5.0)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (4.5)	U (0.18)	U (0.18)
2-Hexanone	34	U (29.8)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (10.5)	U (0.42)	U (0.42)
Methylene Chloride	5.0	U (3.8)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (3.8)	0.41 J (0.15)	U (0.15)
Tetrachloroethene	5.0	U (2.5)	U (0.10)	U (0.10)
Toluene	1000	U (4.2)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (2.8)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5.0	U (5.0)	U (0.20)	U (0.20)
Trichloroethene	5.0	U (4.2)	16.0 (0.17)	7.4 (0.17)
Vinyl Chloride	2.0	U (3.2)	0.35 J (0.13)	U (0.13)
Metals				
Iron	NE	1560000 (500)	7780 (50.0)	109 (50.0)
Monitored Natural Attenuation Parameters (Laboratory)				
Acetic acid	NE	NM	4000 (1000)	1800 (1000)
Butanoic acid	NE	NM	NM	1000 U (1000)
Butyric acid	NE	NM	1000 U (1000)	1000 U (1000)
Organic Carbon (total)	NE	00000 (2000000)	4600 (1000)	840 J (1000)
Organic Carbon (total)	NE	00000 (2000000)	4800 (1000)	720 J (1000)
Chloride	NE	NM	98900 (10000)	22400 (5000)
Lactic Acid	NE	NM	2000 U (2000)	NM
Nitrogen, Nitrate	NE	NM	U (100)	U (100)
Nitrogen, Nitrite	NE	NM	U (100)	U (100)
Nitrate/Nitrite	NE	NM	U (100)	U (100)
Pentanoic acid	NE	NM	NM	1000 U (1000)
Propionic Acid	NE	NM	15000 (1000)	1000 U (1000)
Pyruvic Acid	NE	NM	1000 U (1000)	NM
Sulfide (total)	NE	NM	NM	NM
Sulfate	NE	NM	22300 (10000)	9200 (1000)
Gases				
Acetylene	NE	NM	NM	NM
Methane	NE	NM	410 n (0.50)	4700 n (0.50)
Ethane	NE	NM	0.31 n (0.10)	1.1 n (0.10)
Ethene	NE	NM	0.75 n (0.10)	0.73 n (0.10)
Hydrogen (H2) [nM]	NE	NM	NM	NM
Molecular Analyses				
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	NM	NM	NM
Dehalococcoides (DHC) [cells/mL]	NE	NM	NM	NM
tceA Reductase [cells/mL]	NE	NM	NM	NM
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	NM	NM	NM

Notes:

1 All concentrations are presented in µg/L (ppb) except where otherwise noted.

2 Only compounds with at least one detection are shown.

3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.

U = Not detected
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Onsite Wells
Offsite Wells
Plume Boundary Wells

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TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
HP-02	HP-02-20180404	4/4/2018	63.4		5.9		0.16	J
HP-03	HP-03-20180404	4/4/2018	244		7.9		0.29	J
HP-04	HP-04-20180404	4/4/2018	6.6		2.2		< 0.13	U
HP-05	HP-05-20180404	4/4/2018	10.9		5.8		< 0.13	U
HP-06	HP-06-20180404	4/4/2018	7.4		2.7		< 0.13	U
HP-07	HP-07-20180405	4/5/2018	4.6		3.2		0.14	J
HP-08	HP-08-20180405	4/5/2018	0.30	J	0.34	J	< 0.13	U
ITMW-1	ITMW-1-19891101	11/1/1989	<	ND			<	ND
ITMW-1	ITMW-1-19900101	1/1/1990	<	ND			<	ND
ITMW-1	ITMW-1-19931101	11/1/1993	10				<	ND
ITMW-1	ITMW-1-19961201	12/1/1996	21				<	ND
ITMW-1	ITMW-1-19990201	2/1/1999	37		<	ND	<	ND
ITMW-1	ITMW-1-20000301	3/1/2000	125		8		<	ND
ITMW-1	ITMW-1-20000919	9/19/2000	30.7		7.45		< 10	U
ITMW-1	ITMW-1-20010327	3/27/2001	30		6		< 10	U
ITMW-1	ITMW-1-20010911	9/11/2001	27		9		< 10	U
ITMW-1	ITMW-1-20020910	9/10/2002	35		9		< 10	U
ITMW-1	ITMW-1-20030227	2/27/2003	29.6		7.14		< 10	U
ITMW-1	ITMW-1-20030923	9/23/2003	25		12		< 10	U
ITMW-1	ITMW-1-20040413	4/13/2004	42.2		11.1		< 10	U
ITMW-1	ITMW-1-20040921-FD	9/21/2004	26.1		15.8		< 10	U
ITMW-1	ITMW-1-20040921	9/21/2004	26		16.7		< 10	U
ITMW-1	ITMW-1-20050928	9/28/2005	34.7		11.3		< 10	U
ITMW-1	ITMW-1-20061014	10/14/2006	20		11		< 10	UJ
ITMW-1	ITMW-1-20070920	9/20/2007	18		13		< 10	U
ITMW-1	ITMW-1-20081209	12/9/2008	14		7.3		< 5	U
ITMW-1	ITMW-1-20111027	10/27/2011	17		8.2		< 5	U
ITMW-1	ITMW-1-20120418	4/18/2012	32		13		< 5	U
ITMW-1	ITMW-1-20121019	10/19/2012	10		8.3		< 0.11	U
ITMW-1	ITMW-1-20130424	4/24/2013	26		9.1		< 0.11	U
ITMW-1	ITMW-1-101513	10/15/2013	7.2		5.8		< 0.11	U
ITMW-1	ITMW-1-201403	3/8/2014	23.4		8.9		< 0.13	U
ITMW-1	ITMW-1-201405	5/13/2014	21.3		8.7		< 0.13	U
ITMW-1	DUP-5-201407	7/30/2014	9.2		5.7		< 0.50	U
ITMW-1	ITMW-1-201407	7/30/2014	8.9		5.4		< 0.50	U
ITMW-1	ITMW-1-201410	10/15/2014	6.1		4.5	J	< 0.50	U
ITMW-1	ITMW-1-201501	1/14/2015	22.7		9.7		< 0.50	U
ITMW-1	ITMW-1-201504	4/15/2015	19.2		9.7		< 0.50	U
ITMW-1	ITMW-1-201507	7/22/2015	10.5		5.3		< 0.13	U
ITMW-1	ITMW-1-201510	10/7/2015	7.8		4.4		< 0.13	U
ITMW-1	ITMW-1-201601	1/13/2016	19.9		8.9		< 0.13	U
ITMW-1	DUP-05-201605	5/5/2016	17.6		8.1		< 0.13	U
ITMW-1	ITMW-1-201605	5/5/2016	17.2		8.0		< 0.13	U
ITMW-1	DUP-04-201611	11/10/2016	7.0		3.4		< 0.13	U
ITMW-1	ITMW-1-201611	11/10/2016	7.6		3.1		< 0.13	U
ITMW-1	ITMW-1-201710	10/25/2017	8.9		3.8		< 0.13	U
ITMW-1	ITMW-1-201811	11/15/2018	12.7		5.4		< 0.13	U
ITMW-2	ITMW-2-19891001	10/1/1989	<	ND			<	ND
ITMW-2	ITMW-2-19891101	11/1/1989	<	ND			<	ND
ITMW-2	ITMW-2-19900101-FD	1/1/1990	<	ND			<	ND
ITMW-2	ITMW-2-19900101	1/1/1990	<	ND			<	ND
ITMW-2	ITMW-2-19910301	3/1/1991	<	ND			<	ND
ITMW-2	ITMW-2-19931101	11/1/1993	4				<	ND
ITMW-2	ITMW-2-19961201	12/1/1996	3.4				<	ND
ITMW-2	ITMW-2-20000301	3/1/2000	<	ND	<	ND	<	ND
ITMW-2	ITMW-2-20000919	9/19/2000	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20010327	3/27/2001	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20010913	9/13/2001	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20020911	9/11/2002	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20030923	9/23/2003	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20040413-FD	4/13/2004	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20040413	4/13/2004	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20040921-FD	9/21/2004	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20040921	9/21/2004	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20050929	9/29/2005	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20061014	10/14/2006	4	J	< 5	U	< 10	U
ITMW-2	ITMW-2-20070920	9/20/2007	< 5	U	< 5	U	< 10	U
ITMW-2	ITMW-2-20081209	12/9/2008	< 5	U	< 5	U	< 5	U
ITMW-2	ITMW-2-20101103	11/3/2010	< 5	U	< 5	U	< 5	U
ITMW-2	ITMW-2-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
ITMW-2	ITMW-2-20120417	4/17/2012	< 5	U	< 5	U	< 5	U
ITMW-2	ITMW-2-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-2	ITMW-2-20130424	4/24/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-2	ITMW-2-101413	10/14/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-2	ITMW-2-201403-FD	3/6/2014	0.28	J	0.51	J	< 0.13	U
ITMW-2	ITMW-2-201403	3/6/2014	0.23	J	0.40	J	< 0.13	U
ITMW-2	ITMW-2-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U

RAMBOLL

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-2	ITMW-2-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-2	ITMW-2-201410	10/15/2014	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-2	ITMW-2-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-2	ITMW-2-201504	4/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-2	ITMW-2-201507	7/22/2015	0.24	J	0.26	J	< 0.13	U
ITMW-2	ITMW-2-201510	10/6/2015	0.22	J	0.21	J	< 0.13	U
ITMW-2	ITMW-2-201601	1/12/2016	0.21	J	0.42	J	< 0.13	U
ITMW-2	ITMW-2-201605	5/5/2016	0.25	J	0.29	J	< 0.13	U
ITMW-2	ITMW-2-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-2	ITMW-2-201710	10/25/2017	0.34	U	0.29	J	< 0.13	U
ITMW-2	ITMW-2-201811	11/13/2018	0.71	J	0.57	J	< 0.13	U
ITMW-3	ITMW-3-19891001	10/1/1989	<	ND			<	ND
ITMW-3	ITMW-3-19900101	1/1/1990	<	ND			<	ND
ITMW-3	ITMW-3-19931101	11/1/1993	3				<	ND
ITMW-3	ITMW-3-19961201	12/1/1996	1.7				<	ND
ITMW-3	ITMW-3-19990201	2/1/1999	<	ND	<	ND	<	ND
ITMW-3	ITMW-30-20000301-FD	3/1/2000	<	ND	<	ND	<	ND
ITMW-3	ITMW-3-20000301	3/1/2000	<	ND	<	ND	<	ND
ITMW-3	ITMW-3-20000919	9/19/2000	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20010327	3/27/2001	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20010911	9/11/2001	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20020910	9/10/2002	15		< 5	U	< 10	U
ITMW-3	ITMW-3-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20030923	9/23/2003	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20040413	4/13/2004	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20040921	9/21/2004	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20050928	9/28/2005	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20061014	10/14/2006	< 5	U	< 5	U	< 10	UJ
ITMW-3	ITMW-3-20070920	9/20/2007	< 5	U	< 5	U	< 10	U
ITMW-3	ITMW-3-20081209	12/9/2008	< 5	U	< 5	U	< 5	U
ITMW-3	ITMW-3-20101104	11/4/2010	190		3.9	J	< 5	U
ITMW-3	ITMW-3-20111027	10/27/2011	4.1	J	< 5	U	< 5	U
ITMW-3	ITMW-3-20120417	4/17/2012	< 5	U	< 5	U	< 5	U
ITMW-3	ITMW-3-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-3	ITMW-3-20130423	4/23/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-3	ITMW-3-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-4	ITMW-4-19891001	10/1/1989	<	ND			<	ND
ITMW-4	ITMW-4-19891101	11/1/1989	<	ND			<	ND
ITMW-4	ITMW-4-19900101	1/1/1990	<	ND			<	ND
ITMW-4	ITMW-4-19931101	11/1/1993	<	ND			<	ND
ITMW-4	ITMW-4-19961201	12/1/1996	75				<	ND
ITMW-4	ITMW-4-19990201	2/1/1999	93		54		<	ND
ITMW-4	ITMW-4-20000301	3/1/2000	22		16		<	ND
ITMW-4	ITMW-4-20000920	9/20/2000	13.9		10.6		< 10	U
ITMW-4	ITMW-4-20010328	3/28/2001	9		< 5	U	< 10	U
ITMW-4	ITMW-4-20010913	9/13/2001	6		8		< 10	U
ITMW-4	ITMW-4-20020910	9/10/2002	9		< 5	U	< 10	U
ITMW-4	ITMW-4-20030228	2/28/2003	< 5	U	< 5	U	< 10	U
ITMW-4	ITMW-4-20030923	9/23/2003	< 5	U	< 5	U	< 10	U
ITMW-4	ITMW-4-20040414	4/14/2004	< 5	U	< 5	U	< 10	U
ITMW-4	ITMW-4-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
ITMW-4	ITMW-4-20050927	9/27/2005	< 5	U	< 5	U	< 10	U
ITMW-4	ITMW-4-20061011	10/11/2006	6		8		< 10	U
ITMW-4	ITMW-4-20070920	9/20/2007	5	J	5	J	< 10	U
ITMW-4	ITMW-4-20081209	12/9/2008	< 5	U	3.2	J	< 5	U
ITMW-4	ITMW-4-20111025	10/25/2011	4.8	J	5.1		< 5	U
ITMW-4	ITMW-4-20121017	10/17/2012	3.3	J	4.5	J	7.9	
ITMW-4	ITMW-4-101413	10/14/2013	3.7	J	6.1		< 0.11	U
ITMW-4	ITMW-4-201403	3/6/2014	1.4	J	2.0	J	0.19	J
ITMW-4	ITMW-4-201405	5/13/2014	2.0	J	2.1	J	0.18	J
ITMW-4	ITMW-4-201407	7/30/2014	2.8	J	4.6	J	< 0.50	U
ITMW-4	ITMW-4-201410	10/16/2014	3.4	J	4.9	J	< 0.50	U
ITMW-4	ITMW-4-201501	1/13/2015	1.7		2.3		< 0.50	U
ITMW-4	ITMW-4-201504	4/14/2015	1.6		2.6		0.84	J
ITMW-4	ITMW-4-201507	7/22/2015	2.0		2.6		0.17	J
ITMW-4	ITMW-4-201510	10/7/2015	2.3		2.8		0.23	J
ITMW-4	ITMW-4-201601	1/12/2016	1.5		2.5		< 0.13	U
ITMW-4	ITMW-4-201605	5/5/2016	1.3		< 0.080	U	0.15	J
ITMW-5	ITMW-5-19891001	10/1/1989	<	ND			<	ND
ITMW-5	ITMW-5-19900101	1/1/1990	<	ND			<	ND
ITMW-5	ITMW-5-19961201	12/1/1996	21				<	ND
ITMW-5	ITMW-5-19990201	2/1/1999	86		39		<	ND
ITMW-5	ITMW-5-20000301	3/1/2000	73		59		<	ND
ITMW-5	ITMW-5-20000920	9/20/2000	85		64.4		< 10	U
ITMW-5	ITMW-5-20010328	3/28/2001	100		46		< 10	U
ITMW-5	ITMW-5-20010913	9/13/2001	72		64		< 10	U
ITMW-5	ITMW-5-20020910	9/10/2002	108		72		< 10	U
ITMW-5	ITMW-5-20030228	2/28/2003	90.4		68.7		< 10	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-5	ITMW-5-20030924	9/24/2003	97.3		73.7		< 10	U
ITMW-5	ITMW-5-20040414	4/14/2004	83.9		55.4		< 10	U
ITMW-5	ITMW-5-20040922	9/22/2004	105		75.8		< 10	U
ITMW-5	ITMW-5-20050406-FD	4/6/2005	87		71		< 10	U
ITMW-5	ITMW-5-20050406	4/6/2005	93.2		72.6		< 10	U
ITMW-5	ITMW-5-20050928-FD	9/28/2005	82.1		54.4		< 10	U
ITMW-5	ITMW-5-20050928	9/28/2005	79		53.5		< 10	U
ITMW-5	ITMW-5-20060314-FD	3/14/2006	98.4		66.1		< 10	U
ITMW-5	ITMW-5-20060314	3/14/2006	92		66.1		< 10	U
ITMW-5	ITMW-5-20061010	10/10/2006	110		51		4	J
ITMW-5	ITMW-5-20070418	4/18/2007	115		39.3		< 10	U
ITMW-5	ITMW-5-20070920	9/20/2007	120		49		4	J
ITMW-5	ITMW-5-20080429	4/29/2008	120	0	43	0	< 10	U
ITMW-5	ITMW-5-20081209	12/9/2008	200	E	42		< 5	U
ITMW-5	ITMW-5-20090427	4/27/2009	160		34		< 5	U
ITMW-5	ITMW-5-20100511	5/11/2010	190	EF	40		< 5	U
ITMW-5	ITMW-5-20101106	11/6/2010	350		50		< 5	U
ITMW-5	ITMW-5-20110322	3/22/2011	370		39		< 5	U
ITMW-5	ITMW-5-20111025	10/25/2011	150		35		< 5	U
ITMW-5	ITMW-5-20120417	4/17/2012	290		26		< 5	U
ITMW-5	ITMW-5-20121018	10/18/2012	260		33		0.64	J
ITMW-5	ITMW-5-20130425	4/25/2013	220		20		0.50	J
ITMW-5	ITMW-5-101613	10/16/2013	260		27		0.55	J
ITMW-5	DUP-06-201611	11/10/2016	441		33.5		1.5	J
ITMW-5	ITMW-5-201611	11/10/2016	507		38.9		2.8	J
ITMW-5	DUP-06-201704	4/28/2017	664		27.8		0.82	J
ITMW-5	ITMW-5-201704	4/28/2017	608		30.7		0.93	J
ITMW-5	ITMW-5-201710	10/25/2017	1470		38.2		1.6	
ITMW-5	ITMW-5-201804	4/19/2018	1590		34.2		1.4	
ITMW-5	ITMW-5-201811	11/15/2018	2250		36.9		2.0	
ITMW-6	ITMW-6-19891001	10/1/1989	<	ND			<	ND
ITMW-6	ITMW-6-19900101	1/1/1990	<	ND			<	ND
ITMW-6	ITMW-6-19961201	12/1/1996	6.8				<	ND
ITMW-6	ITMW-6-19970501	5/1/1997	7		<	ND	<	ND
ITMW-6	ITMW-6-19990201-FD	2/1/1999	6		<	ND	<	ND
ITMW-6	ITMW-6-19990201	2/1/1999	25		<	ND	<	ND
ITMW-6	ITMW-6-20000301	3/1/2000	<	ND	<	ND	<	ND
ITMW-6	ITMW-6-20000920	9/20/2000	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20010328	3/28/2001	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20010913	9/13/2001	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20020910-FD	9/10/2002	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20020910	9/10/2002	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20030924	9/24/2003	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20040414	4/14/2004	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20050928	9/28/2005	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20061011	10/11/2006	< 5	U	4	J	< 10	U
ITMW-6	ITMW-6-20070920	9/20/2007	< 5	U	< 5	U	< 10	U
ITMW-6	ITMW-6-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
ITMW-6	ITMW-6-20091028	10/28/2009	< 5	U	2.1	J	< 5	U
ITMW-6	ITMW-6-20100510	5/10/2010	< 5	U	1.9	J	< 5	U
ITMW-6	ITMW-6-20111025-FD	10/25/2011	< 5	U	2.7	J	< 5	U
ITMW-6	ITMW-6-20111025	10/25/2011	< 5	U	2.4	J	< 5	U
ITMW-6	ITMW-6-20120417	4/17/2012	< 5	U	2.9	J	< 5	U
ITMW-6	ITMW-6-20121017	10/17/2012	< 1.6	U	3.1	J	< 0.11	U
ITMW-6	ITMW-6-20130422	4/22/2013	< 1.6	U	2.1	J	0.33	J
ITMW-6	ITMW-6-101413	10/14/2013	3.4	J	5.5		0.18	J
ITMW-6	ITMW-6-201403	3/6/2014	2.7	J	4.9	J	0.18	J
ITMW-6	ITMW-6-201405	5/13/2014	3.6	J	5.3		0.17	J
ITMW-6	ITMW-6-201407	7/30/2014	4.4	J	6.7		< 0.50	U
ITMW-6	ITMW-6-201410	10/15/2014	3.1	J	5.2		< 0.50	U
ITMW-6	ITMW-6-201501	1/13/2015	3.7		5.7		< 0.50	U
ITMW-6	ITMW-6-201504	4/14/2015	3.7		5.3	J	< 0.50	U
ITMW-6	ITMW-6-201507	7/22/2015	4.7		6.3		0.31	J
ITMW-6	ITMW-6-201510	10/7/2015	3.1		5.5		0.21	J
ITMW-6	ITMW-6-201601	1/12/2016	4.2		6.2		0.32	J
ITMW-6	ITMW-6-201605	5/5/2016	4.4		5.3		0.22	J
ITMW-7	ITMW-7-19891101	11/1/1989	<	ND			<	ND
ITMW-7	ITMW-7-19900101	1/1/1990	<	ND			<	ND
ITMW-7	ITMW-7-19961201	12/1/1996	290				3	
ITMW-7	ITMW-7-19970501	5/1/1997	380		180		<	ND
ITMW-7	ITMW-7-19990201	2/1/1999	<	ND	<	ND	<	ND
ITMW-7	ITMW-7-19990601-FD	6/1/1999	300		140		<	ND
ITMW-7	ITMW-7-19990601	6/1/1999	320		144		<	ND
ITMW-7	ITMW-7-20000301-FD	3/1/2000	207		92		<	ND
ITMW-7	ITMW-7-20000301	3/1/2000	262		100		<	ND
ITMW-7	ITMW-7-20000919	9/19/2000	207		100		< 10	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-7	ITMW-7-20000921-FD	9/21/2000	109		< 5	U	< 10	U
ITMW-7	ITMW-7-20010328	3/28/2001	161		66		< 10	U
ITMW-7	ITMW-7-20010913	9/13/2001	139		68		< 10	U
ITMW-7	ITMW-7-20020910-FD	9/10/2002	128		54		< 10	U
ITMW-7	ITMW-7-20020910	9/10/2002	137		56		< 10	U
ITMW-7	ITMW-7-20030227	2/27/2003	172		92.5		< 10	U
ITMW-7	ITMW-7-20030924	9/24/2003	125		57.3		< 10	U
ITMW-7	ITMW-7-20040414	4/14/2004	201		80.7		< 10	U
ITMW-7	ITMW-7-20040922	9/22/2004	132		48.4		< 10	U
ITMW-7	ITMW-7-20050407	4/7/2005	122		39		< 10	U
ITMW-7	ITMW-7-20050928	9/28/2005	100		30.5		< 10	U
ITMW-7	ITMW-7-20060314	3/14/2006	153		59.5		< 10	U
ITMW-7	ITMW-7-20061010	10/10/2006	140		44		1	J
ITMW-7	ITMW-7-20070417	4/17/2007	83		29.4		< 10	U
ITMW-7	ITMW-7-20070921	9/21/2007	72		22		< 10	U
ITMW-7	ITMW-7-20080430	4/30/2008	70	0	18	0	< 10	U
ITMW-7	ITMW-7-20081211	12/11/2008	66		19		< 5	U
ITMW-7	ITMW-7-20090427	4/27/2009	87		26		< 5	U
ITMW-7	ITMW-7-20091028	10/28/2009	60		20		< 5	U
ITMW-7	ITMW-7-20100510	5/10/2010	73		18		< 5	U
ITMW-7	ITMW-7-20110323	3/23/2011	225	EF	93.2		56.5	
ITMW-7	ITMW-7-20111025	10/25/2011	99		26		< 5	U
ITMW-7	ITMW-7-20120418	4/18/2012	100		20		< 5	U
ITMW-7	ITMW-7-20121018	10/18/2012	63		17		< 0.11	U
ITMW-7	ITMW-7-20130425	4/25/2013	69		16		0.27	J
ITMW-7	ITMW-7-101713	10/17/2013	47		12		< 0.11	U
ITMW-7	ITMW-7-201403	3/8/2014	37.4		10		0.24	J
ITMW-7	ITMW-7-201405	5/14/2014	37.0		11.1		0.22	J
ITMW-7	ITMW-7-201407	7/30/2014	36.7		11.2		< 0.50	U
ITMW-7	ITMW-7-201410	10/15/2014	33.7		10.3		< 0.50	U
ITMW-7	ITMW-7-201501	1/14/2015	34.7		10.5		< 0.50	U
ITMW-7	ITMW-7-201504	4/14/2015	29.3		9.2		< 0.50	U
ITMW-7	ITMW-7-201507	7/22/2015	26.4		8.3		0.19	J
ITMW-7	ITMW-7-201510	10/8/2015	27.6		8.8		0.19	J
ITMW-7	ITMW-7-201601	1/13/2016	44.2		13.0		0.23	J
ITMW-7	DUP-06-201605	5/5/2016	33.9		9.0		0.18	J
ITMW-7	ITMW-7-201605	5/5/2016	33.8		8.7		< 0.13	U
ITMW-7	ITMW-7-201611	11/10/2016	33.2		10		0.26	J
ITMW-7	ITMW-07-201704	4/27/2017	29.2		9.3		0.14	J
ITMW-7	ITMW-7-201710	10/25/2017	23.4		7.5		0.20	J
ITMW-7	ITMW-7-201804	4/19/2018	24.2		8.3		0.13	J
ITMW-7	ITMW-7-201811	11/15/2018	22.8		7.3		< 0.13	U
ITMW-9	ITMW-9-19900101	1/1/1990	<	ND			<	ND
ITMW-9	ITMW-9-19961201	12/1/1996	230				<	ND
ITMW-9	ITMW-9-19970501	5/1/1997	7		<	ND	<	ND
ITMW-9	ITMW-9-19990201	2/1/1999	40		24		<	ND
ITMW-9	ITMW-9-20000301	3/1/2000	69		45		<	ND
ITMW-9	ITMW-9-20000920-FD	9/20/2000	54.8		14		< 10	U
ITMW-9	ITMW-9-20000920	9/20/2000	57.3		14.3		< 10	U
ITMW-9	ITMW-9-20010328	3/28/2001	40		12		< 10	U
ITMW-9	ITMW-9-20010913	9/13/2001	40		12		< 10	U
ITMW-9	ITMW-9-20020910	9/10/2002	61		21		< 10	U
ITMW-9	ITMW-9-20030228	2/28/2003	54.2		37.2		< 10	U
ITMW-9	ITMW-9-20030923-FD	9/23/2003	97.6		53.9		< 10	U
ITMW-9	ITMW-9-20030923	9/23/2003	91		49.5		< 10	U
ITMW-9	ITMW-9-20040414	4/14/2004	71.8		38.8		< 10	U
ITMW-9	ITMW-9-20040922	9/22/2004	80.7		21.1		< 10	U
ITMW-9	ITMW-9-20050406	4/6/2005	79		30.4		< 10	U
ITMW-9	ITMW-9-20050927	9/27/2005	98.8		54.6		< 10	U
ITMW-9	ITMW-9-20060314	3/14/2006	101		78.7		< 10	U
ITMW-9	ITMW-9-20061011	10/11/2006	110		77		6	J
ITMW-9	ITMW-9-20070417	4/17/2007	79		39.6		< 10	U
ITMW-9	ITMW-9-20070920	9/20/2007	76		26		< 10	U
ITMW-9	ITMW-9-20080428	4/28/2008	82	0	37	0	< 10	U
ITMW-9	ITMW-9-20081209	12/9/2008	90		62		< 5	U
ITMW-9	ITMW-9-20090427	4/27/2009	110		51		< 5	U
ITMW-9	ITMW-9-20091027-FD	10/27/2009	120		71		6.1	
ITMW-9	ITMW-9-20091027	10/27/2009	120		67		5.7	
ITMW-9	ITMW-9-20100511	5/11/2010	130		38		< 5	U
ITMW-9	ITMW-9-20110322	3/22/2011	120		48		2.4	J
ITMW-9	ITMW-9-20111025	10/25/2011	90		57		< 5	U
ITMW-9	ITMW-9-20120417	4/17/2012	150		50		2.5	J
ITMW-9	ITMW-9-20121018	10/18/2012	120		53		5.2	
ITMW-9	ITMW-9-20130424	4/24/2013	140		44		1.6	J
ITMW-9	ITMW-9-101713	10/17/2013	83		42		16	
ITMW-9	ITMW-9-201403	3/8/2014	112		40.4		0.41	J
ITMW-9	ITMW-9-201405	5/14/2014	113		42.2		0.64	J
ITMW-9	DUP-6-201407	7/30/2014	143		43.9		0.54	J

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-9	ITMW-9-201407	7/30/2014	141		44.4		0.53	J
ITMW-9	DUP-02-201410	10/15/2014	75.3		38.8		1.7	J
ITMW-9	ITMW-9-201410	10/15/2014	76.9		39.1		1.8	J
ITMW-9	DUP-02-201501	1/13/2015	89.4		39.1		1.4	
ITMW-9	ITMW-9-201501	1/13/2015	89.6		39.1		1.4	
ITMW-9	ITMW-9-201504	4/15/2015	100		35.4		< 0.50	U
ITMW-9	ITMW-9-201507	7/21/2015	142		35.5		0.40	J
ITMW-9	DUP-09-201510	10/7/2015	55.2		26.8		1.1	
ITMW-9	ITMW-9-201510	10/7/2015	55.6		26.6		1.0	
ITMW-9	DUP-04-201601	1/13/2016	91.3		34.1		1.1	
ITMW-9	ITMW-9-201601	1/13/2016	92.4		35.3		1.1	
ITMW-9	ITMW-9-201605	5/5/2016	97.3		31.6		0.48	J
ITMW-9	ITMW-9-201611	11/8/2016	2550		73.0	J	0.17	J
ITMW-9	ITMW-9-201612	12/14/2016	193		40.1		1	
ITMW-9	ITMW-9-201710	10/25/2017	797		60.8		1.7	
ITMW-9	ITMW-9-201811	11/15/2018	1390		77.1		2.0	
ITMW-10	ITMW-10-19900101	1/1/1990	<	ND			<	ND
ITMW-10	ITMW-10-19961201	12/1/1996	4				<	ND
ITMW-10	ITMW-10-19990201	2/1/1999	25		13		<	ND
ITMW-10	ITMW-10-20000301	3/1/2000	23		17		<	ND
ITMW-10	ITMW-10-20000920	9/20/2000	18.1		15.9		< 10	U
ITMW-10	ITMW-10-20010328	3/28/2001	40		21		< 10	U
ITMW-10	ITMW-10-20010913-FD	9/13/2001	30		27		< 10	U
ITMW-10	ITMW-10-20010913	9/13/2001	29		28		< 10	U
ITMW-10	ITMW-10-20020910	9/10/2002	55		38		< 10	U
ITMW-10	ITMW-10-20030228	2/28/2003	57.6		50.9		< 10	U
ITMW-10	ITMW-10-20030716	7/16/2003	55.3		49.2		< 10	U
ITMW-10	ITMW-10-20030923	9/23/2003	65.9		56.5		< 10	U
ITMW-10	ITMW-10-20040414	4/14/2004	80		57.4		< 10	U
ITMW-10	ITMW-10-20040922	9/22/2004	59.6		50		< 10	U
ITMW-10	ITMW-10-20050406	4/6/2005	72.1		57.7		< 10	U
ITMW-10	ITMW-10-20050928	9/28/2005	57.6		41.6		< 10	U
ITMW-10	ITMW-10-20060314	3/14/2006	82		67.2		< 10	U
ITMW-10	ITMW-10-20061010	10/10/2006	88		54		5	J
ITMW-10	ITMW-10-20070417	4/17/2007	76		52.4		< 10	U
ITMW-10	ITMW-10-20070920	9/20/2007	67		48		5	J
ITMW-10	ITMW-10-20080428	4/28/2008	61	0	46	0	< 10	U
ITMW-10	ITMW-10-20081209	12/9/2008	78		50		< 5	U
ITMW-10	ITMW-10-20090427	4/27/2009	87		52		4.4	J
ITMW-10	ITMW-10-20091027	10/27/2009	110		50		4.2	J
ITMW-10	ITMW-10-20100511	5/11/2010	85		46		2.4	J
ITMW-10	ITMW-10-20110322	3/22/2011	92		42		2.7	J
ITMW-10	ITMW-10-20111025	10/25/2011	94		39		2.5	J
ITMW-10	ITMW-10-20121018	10/18/2012	100		37		2.5	
ITMW-10	ITMW-10-101513	10/15/2013	100		32		3.1	
ITMW-10	ITMW-10-201403	3/6/2014	166		32.3		1.2	J
ITMW-10	ITMW-10-201405	5/14/2014	184		32.4		1.4	J
ITMW-10	ITMW-10-201407	7/30/2014	273		38.3		1.8	J
ITMW-10	ITMW-10-201410	10/15/2014	243		32.3		1.7	J
ITMW-10	ITMW-10-201501	1/14/2015	403		38.9		1.4	
ITMW-10	ITMW-10-201504	4/15/2015	258		34.8		0.98	J
ITMW-10	DUP-08-201504	4/16/2015	303		36.1		1.2	
ITMW-10	DUP-01-201507	7/22/2015	501		36.7		1.5	
ITMW-10	ITMW-10-201507	7/22/2015	504		36.2		1.3	
ITMW-10	DUP-04-201510	10/7/2015	445		37.9		1.6	
ITMW-10	ITMW-10-201510	10/7/2015	437		37.5		1.5	
ITMW-10	DUP-01-201601	1/13/2016	735		45.5		1.7	
ITMW-10	ITMW-10-201601	1/13/2016	761		44.4		1.6	
ITMW-10	DUP-01-201605	5/5/2016	673		34.0		1.1	
ITMW-10	ITMW-10-201605	5/5/2016	743		36.6		1.1	
ITMW-10	ITMW-10-201611	11/10/2016	113		12.5		0.52	J
ITMW-10	ITMW-10-201704	4/28/2017	132		18.3		0.71	J
ITMW-10	ITMW-10-201710	10/25/2017	72.9		13.3		0.82	J
ITMW-10	ITMW-10-201804	4/19/2018	65.4		12.2		0.65	J
ITMW-10	ITMW-10-201811	11/14/2018	45.0		10.9		0.77	J
ITMW-11	ITMW-11-19900101	1/1/1990	19000				180	
ITMW-11	ITMW-11-19901101	11/1/1990	4700				93	
ITMW-11	ITMW-11-19910201	2/1/1991	3400				<	ND
ITMW-11	ITMW-11-19931101	11/1/1993	2300				43	
ITMW-11	ITMW-11-19961201	12/1/1996	510				<	ND
ITMW-11	ITMW-11-19990201	2/1/1999	650		10		<	ND
ITMW-11	ITMW-11-20000301	3/1/2000	3370		206		<	ND
ITMW-11	ITMW-11-20000919	9/19/2000	8030		327		11.7	
ITMW-11	ITMW-11-20010327	3/27/2001	7000		200		< 10	U
ITMW-11	ITMW-11-20010913	9/13/2001	6000		183		< 10	U
ITMW-11	ITMW-11-20011120	11/20/2001	< 5	U	< 5	U	< 10	U
ITMW-11	ITMW-11L-20020909	9/9/2002	7100		206		10	
ITMW-11	ITMW-11T-20020909	9/9/2002	800		72		< 10	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-11	ITMW-11-20030226-FD	2/26/2003	3630		306		60.7	
ITMW-11	ITMW-11-20030226	2/26/2003	4110		346		58.8	
ITMW-11	ITMW-11-20030924	9/24/2003	3990		269		11.8	
ITMW-11	ITMW-11-20040413	4/13/2004	3160		240		37.8	
ITMW-11	ITMW-11-20040921	9/21/2004	3450		204		< 10	U
ITMW-11	ITMW-11-20050407	4/7/2005	4210		282		66.7	
ITMW-11	ITMW-11-20050929	9/29/2005	3910		199		18	
ITMW-11	ITMW-11-20060316-FD	3/16/2006	12800		1210		381	
ITMW-11	ITMW-11-20060316	3/16/2006	14600		1290		482	
ITMW-11	ITMW-11-20061013	10/13/2006	8000		340		47	
ITMW-11	ITMW-11-20070419	4/19/2007	3970		199		< 200	U
ITMW-11	ITMW-11-20070921	9/21/2007	7600		180		21	
ITMW-11	ITMW-11-20080430	4/30/2008	4500	0	210	0	58	0
ITMW-11	ITMW-11-20081210	12/10/2008	5800		190		27	
ITMW-11	ITMW-11-20090427	4/27/2009	2500		200		24	
ITMW-11	ITMW-11-20100511-FD	5/11/2010	6200		290		28	
ITMW-11	ITMW-11-20100511	5/11/2010	6200		290		45	
ITMW-11	ITMW-11-20110323	3/23/2011	9700		520		130	
ITMW-11	ITMW-11-20111026	10/26/2011	8800		310		16	
ITMW-11	ITMW-11-20121019	10/19/2012	1400		34		2.4	
ITMW-11	ITMW-11-101713	10/17/2013	180		8.7		2.9	
ITMW-11	ITMW-11-201403	3/8/2014	2980		187	M1	22.5	
ITMW-11	DUP-4-201405	5/15/2014	1470		107		4.9	
ITMW-11	ITMW-11-201405	5/15/2014	1590		99.5		5.5	
ITMW-11	ITMW-11-201407	7/31/2014	7380		156		6.9	
ITMW-11	ITMW-11-201410	10/15/2014	2050		70.4		3.5	
ITMW-11	ITMW-11-20141204	12/4/2014	1530		55.0		6.4	
ITMW-11	ITMW-11-201501	1/15/2015	68.3		9.8		1.9	
ITMW-11	ITMW-11-201504	4/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-11	ITMW-11-201507	7/22/2015	33.2		5.9		< 0.13	U
ITMW-11	ITMW-11-201510	10/7/2015	721		57.9		0.96	J
ITMW-11	DUP-03-201601	1/13/2016	2100		199		65.3	
ITMW-11	ITMW-11-201601	1/13/2016	605		100		13.1	
ITMW-11	ITMW-11-201605	5/5/2016	4630		173		11.2	
ITMW-12	ITMW-12-19901101	11/1/1990	2400				140	
ITMW-12	ITMW-12-19910201	2/1/1991	2100				<	ND
ITMW-12	ITMW-12-19931101	11/1/1993	2500				35	
ITMW-12	ITMW-12-19961201	12/1/1996	1200				<	ND
ITMW-12	ITMW-12-19990201	2/1/1999	3100		480		34	
ITMW-12	ITMW-12-20000301	3/1/2000	3110		320		19	
ITMW-12	ITMW-12-20000919	9/19/2000	3350		180		12	
ITMW-12	ITMW-12-20010327	3/27/2001	3900		200		20	
ITMW-12	ITMW-12-20010913	9/13/2001	3100		159		< 10	U
ITMW-12	ITMW-12-20011120	11/20/2001	2400		300		20	
ITMW-12	ITMW-12-20020911	9/11/2002	4200		300		< 10	U
ITMW-12	ITMW-12-20030226-FD	2/26/2003	3940		308		< 10	U
ITMW-12	ITMW-12-20030226	2/26/2003	3460		287		< 10	U
ITMW-12	ITMW-12-20030924	9/24/2003	2920		242		< 10	U
ITMW-12	ITMW-12-20040413	4/13/2004	2410		245		< 10	U
ITMW-12	ITMW-12-20040921	9/21/2004	1780		238		< 10	U
ITMW-12	ITMW-12-20050929	9/29/2005	2120		273		< 10	U
ITMW-12	ITMW-12-20061013	10/13/2006	3500		310		9	J
ITMW-12	ITMW-12-20070921	9/21/2007	2100		220		< 10	U
ITMW-12	ITMW-12-20081209	12/9/2008	1500		180		< 5	U
ITMW-12	ITMW-12-20111026	10/26/2011	1600		230		1.8	J
ITMW-12	ITMW-12-20121019	10/19/2012	2500		200		3.6	
ITMW-12	ITMW-12-20131017-FD	10/17/2013	2300		160		4.1	
ITMW-12	ITMW-12-101713	10/17/2013	2300		190		3.2	
ITMW-12	ITMW-12-201403-FD	3/8/2014	2400		207		3.4	
ITMW-12	ITMW-12-201403	3/8/2014	1910		148		3.4	
ITMW-12	ITMW-12-201405	5/14/2014	2740		164		14.0	
ITMW-12	ITMW-12-201407	7/31/2014	2710		173		13.6	
ITMW-12	DUP-04-201410	10/15/2014	2950		192		3.7	
ITMW-12	ITMW-12-201410	10/15/2014	2570		188		3.5	
ITMW-12	ITMW-12-20141204	12/4/2014	468		51.1		0.88	J
ITMW-12	DUP-04-201501	1/15/2015	59.3		4.8		< 0.50	U
ITMW-12	ITMW-12-201501	1/15/2015	57.1		4.2		< 0.50	U
ITMW-12	ITMW-12-201504	4/15/2015	2260		149		< 0.13	U
ITMW-12	ITMW-12-201507	7/23/2015	652		46.2		0.58	J
ITMW-12	ITMW-12-201510	10/7/2015	314		34.6		0.42	J
ITMW-12	ITMW-12-201601	1/13/2016	465		70.5		< 0.13	U
ITMW-12	ITMW-12-201605	5/5/2016	675		78.9		< 0.13	U
ITMW-13	ITMW-13-19901101	11/1/1990	34				18	
ITMW-13	ITMW-13-19910201	2/1/1991	32				35	
ITMW-13	ITMW-13-19931101	11/1/1993					29	
ITMW-13	ITMW-13-19961201	12/1/1996	36				36	
ITMW-13	ITMW-13-19990201	2/1/1999	36		140		48	
ITMW-13	ITMW-13-20000301	3/1/2000	37		121		53	

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-13	ITMW-13-20000919	9/19/2000	22.4		112		50.5	
ITMW-13	ITMW-13-20010328	3/28/2001	44		92		40	
ITMW-13	ITMW-13-20010913	9/13/2001	35		111		80	
ITMW-13	ITMW-13L-20020909	9/9/2002	99		110		10	
ITMW-13	ITMW-13T-20020909	9/9/2002	81		86		20	
ITMW-13	ITMW-13-20030226	2/26/2003	70.2		85.5		< 10	U
ITMW-13	ITMW-13-20030924	9/24/2003	159		130		< 10	U
ITMW-13	ITMW-13-20040413	4/13/2004	48.4		87.2		< 10	U
ITMW-13	ITMW-13-20040921	9/21/2004	25.5		71.6		< 10	U
ITMW-13	ITMW-13-20050407	4/7/2005	71.8		103		< 10	U
ITMW-13	ITMW-13-20050930	9/30/2005	72.7		114		17.9	
ITMW-13	ITMW-13-20060316	3/16/2006	141		187		< 10	U
ITMW-13	ITMW-13-20061014	10/14/2006	100		150		17	
ITMW-13	ITMW-13-20070418	4/18/2007	83.1		78		4.3	J
ITMW-13	ITMW-13-20070920	9/20/2007	28		40		< 10	U
ITMW-13	ITMW-13-20080429	4/29/2008	69	0	72	0	< 10	U
ITMW-13	ITMW-13-20081210	12/10/2008	26		23		< 5	U
ITMW-13	ITMW-13-20090427	4/27/2009	79		78		< 5	U
ITMW-13	ITMW-13-20091027	10/27/2009	18		22		< 5	U
ITMW-13	ITMW-13-20100512	5/12/2010	97		72		< 5	U
ITMW-13	ITMW-13-20110323	3/23/2011	130		83		< 5	U
ITMW-13	ITMW-13-20111027-FD	10/27/2011	64		40		< 5	U
ITMW-13	ITMW-13-20111027	10/27/2011	65		41		< 5	U
ITMW-13	ITMW-13-20120419	4/19/2012	97		63		< 5	U
ITMW-13	ITMW-13-20121018	10/18/2012	400		260		1.0	J
ITMW-13	ITMW-13-20130425	4/25/2013	86		52		0.14	J
ITMW-13	ITMW-13-101613	10/16/2013	150		74		< 0.11	U
ITMW-13	ITMW-13-201403	3/8/2014	69.3		45.3		< 0.13	U
ITMW-13	ITMW-13-201405	5/14/2014	54.0		34.7		0.17	J
ITMW-13	ITMW-13-201407	7/30/2014	36.5		27.5		< 0.50	U
ITMW-13	ITMW-13-201410	10/15/2014	40.8		25.9		< 0.50	U
ITMW-13	ITMW-13-201501	1/14/2015	45.8		28.5		< 0.50	U
ITMW-13	DUP-03-201504	4/15/2015	47.7		26.7		< 0.50	U
ITMW-13	ITMW-13-201504	4/15/2015	43.1		26.5		< 0.50	U
ITMW-13	DUP-02-201507	7/22/2015	36.1		20.8		0.17	J
ITMW-13	ITMW-13-201507	7/22/2015	37.3		20.1		0.18	J
ITMW-13	DUP-01-201510	10/7/2015	25.5		17.6		0.18	J
ITMW-13	ITMW-13-201510	10/7/2015	29.9		17.8		0.20	J
ITMW-13	DUP-02-201601	1/13/2016	51.6		26.1		< 0.13	U
ITMW-13	ITMW-13-201601	1/13/2016	47.6		26.7		0.17	J
ITMW-13	ITMW-13-201605	5/5/2016	41.9		20.8		0.17	J
ITMW-14	ITMW-14-19901101	11/1/1990	<	ND			13	
ITMW-14	ITMW-14-19910201	2/1/1991	<	ND			<	ND
ITMW-14	ITMW-14-19931101	11/1/1993	6				<	ND
ITMW-14	ITMW-14-19961201	12/1/1996	<	ND			<	ND
ITMW-14	ITMW-14-19990201	2/1/1999	<	ND	29		20	
ITMW-14	ITMW-14-20000301	3/1/2000	<	ND	24		12	
ITMW-14	ITMW-14-20000919	9/19/2000	< 5	U	13.6		< 10	U
ITMW-14	ITMW-14-20010327	3/27/2001	< 5	U	24		10	
ITMW-14	ITMW-14-20010913	9/13/2001	< 5	U	5		< 10	U
ITMW-14	ITMW-14-20020911	9/11/2002	41		6		< 10	U
ITMW-14	ITMW-14-20030226	2/26/2003	< 5	U	< 5	U	< 10	U
ITMW-14	ITMW-14-20030924	9/24/2003	< 5	U	< 5	U	< 10	U
ITMW-14	ITMW-14-20040413	4/13/2004	< 5	U	< 5	U	< 10	U
ITMW-14	ITMW-14-20040921	9/21/2004	< 5	U	< 5	U	< 10	U
ITMW-14	ITMW-14-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
ITMW-14	ITMW-14-20061014	10/14/2006	4	J	8		< 10	UJ
ITMW-14	ITMW-14-20070921	9/21/2007	5	J	9		< 10	U
ITMW-14	ITMW-14-20081210	12/10/2008	5.7		9.3		< 5	U
ITMW-14	ITMW-14-20101104	11/4/2010	110		14		< 5	U
ITMW-14	ITMW-14-20111027	10/27/2011	6.3		11		< 5	U
ITMW-14	ITMW-14-20120419	4/19/2012	7.6		16		< 5	U
ITMW-14	ITMW-14-20121019	10/19/2012	5.4		11		< 0.11	U
ITMW-14	ITMW-14-20130425	4/25/2013	6.8		14		< 0.11	U
ITMW-14	ITMW-14-101613	10/16/2013	2.9	J	4.9	J	< 0.11	U
ITMW-14	ITMW-14-201403	3/8/2014	6.1		11.9		< 0.13	U
ITMW-14	ITMW-14-201405	5/14/2014	5.3		11.3		< 0.13	U
ITMW-14	ITMW-14-201407	7/30/2014	4.0	J	9.2		< 0.50	U
ITMW-14	ITMW-14-201410	10/15/2014	4.1	J	9.4		< 0.50	U
ITMW-14	ITMW-14-201501	1/14/2015	4.9		11.5		< 0.50	U
ITMW-14	ITMW-14-201504	4/15/2015	5.0		10.7		< 0.50	U
ITMW-14	ITMW-14-201507	7/22/2015	4.3		9.6		< 0.13	U
ITMW-14	ITMW-14-201510	10/7/2015	4.6		9.8		< 0.13	U
ITMW-14	ITMW-14-201601	1/12/2016	4.3		10		< 0.13	U
ITMW-14	ITMW-14-201605	5/5/2016	3.9		8.6		< 0.13	U
ITMW-15	ITMW-15-19901101	11/1/1990	2500				55	
ITMW-15	ITMW-15-19910201	2/1/1991	1700				<	ND
ITMW-15	ITMW-15-19910415	4/15/1991	2000				<	ND

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-15	ITMW-15-19910419	4/19/1991	2100				<	ND
ITMW-15	ITMW-15-19910420	4/20/1991	2400				<	ND
ITMW-15	ITMW-15-19931101	11/1/1993	4300				10	
ITMW-15	ITMW-15-19961201	12/1/1996	240				<	ND
ITMW-15	ITMW-15-19990201	2/1/1999	400		120		<	ND
ITMW-15	ITMW-15-20000301	3/1/2000	339		97		<	ND
ITMW-15	ITMW-15-20000919-FD	9/19/2000	376		91		< 10	U
ITMW-15	ITMW-15-20000919	9/19/2000	362		92.7		< 10	U
ITMW-15	ITMW-15-20010328	3/28/2001	290		57		< 10	U
ITMW-15	ITMW-15-20010913-FD	9/13/2001	370		80		< 10	U
ITMW-15	ITMW-15-20010913	9/13/2001	380		87		< 10	U
ITMW-15	ITMW-15-20011120	11/20/2001	157		30		< 10	U
ITMW-15	ITMW-15-20020911	9/11/2002	320		75		< 10	U
ITMW-15	ITMW-15-20030226	2/26/2003	301		98.7		< 10	U
ITMW-15	ITMW-15-20030925	9/25/2003	490		91.9		< 10	U
ITMW-15	ITMW-15-20040414	4/14/2004	334		126		< 10	U
ITMW-15	ITMW-15-20040921	9/21/2004	774		118		< 10	U
ITMW-15	ITMW-15-20050407	4/7/2005	685		133		< 10	U
ITMW-15	ITMW-15-20050929	9/29/2005	862		189		< 10	U
ITMW-15	ITMW-15-20060316	3/16/2006	908		183		12	
ITMW-15	ITMW-15-20061013	10/13/2006	680		140		7	J
ITMW-15	ITMW-15-20070419	4/19/2007	591		110		8.5	J
ITMW-15	ITMW-15-20070921	9/21/2007	1000		190		27	
ITMW-15	ITMW-15-20080429	4/29/2008	100	0	18	0	< 10	U
ITMW-15	ITMW-15-20081210	12/10/2008	1100		150		< 5	U
ITMW-15	ITMW-15-20090427	4/27/2009	2800		130		17	
ITMW-15	ITMW-15-20100511	5/11/2010	2800		160		11	
ITMW-15	ITMW-15-20111026	10/26/2011	1100		74		< 5	U
ITMW-15	ITMW-15-20121019	10/19/2012	240		14		1.1	J
ITMW-15	ITMW-15-101613	10/16/2013	2800		170		14	
ITMW-15	ITMW-15-201403	3/8/2014	1630		152		11.6	
ITMW-15	DUP2-201405	5/14/2014	899		61.7		4.4	
ITMW-15	ITMW-15-201405	5/14/2014	729		60.7		4.1	
ITMW-15	DUP-4-201407	7/30/2014	1850		82.8		3.0	
ITMW-15	ITMW-15-201407	7/30/2014	1820		82.5		3.1	
ITMW-15	DUP-05-201410	10/16/2014	1660		66.4		1.8	J
ITMW-15	ITMW-15-201410	10/16/2014	1490		63.0		2.0	
ITMW-15	ITMW-15-20141205	12/5/2014	63.0		< 0.50	U	< 0.50	U
ITMW-15	DUP-05-201501	1/15/2015	61.7		3.8		< 0.50	U
ITMW-15	ITMW-15-201501	1/15/2015	56.5		2.9		< 0.50	U
ITMW-15	ITMW-15-201504	4/15/2015	101		7.5		< 0.50	U
ITMW-15	ITMW-15-201507	7/22/2015	110		22.4		1.3	
ITMW-15	ITMW-15-201510	10/8/2015	38.9		2.4		< 0.13	U
ITMW-15	ITMW-15-201601	1/13/2016	797		67.0		4.9	
ITMW-15	ITMW-15-201605	5/5/2016	659		48.8		5.8	
ITMW-16	ITMW-16-19910201	2/1/1991	31				<	ND
ITMW-16	ITMW-16-19931101	11/1/1993	41				7	
ITMW-16	ITMW-16-19961201	12/1/1996	<	ND			<	ND
ITMW-16	ITMW-16-19990201	2/1/1999	<	ND	<	ND	<	ND
ITMW-16	ITMW-16-20000301	3/1/2000	7		<	ND	<	ND
ITMW-16	ITMW-16-20000921	9/21/2000	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20010326	3/26/2001	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20010913	9/13/2001	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20020911	9/11/2002	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20040923	9/23/2004	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20050929-FD	9/29/2005	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20050929	9/29/2005	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20061014	10/14/2006	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20070920	9/20/2007	< 5	U	< 5	U	< 10	U
ITMW-16	ITMW-16-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
ITMW-16	ITMW-16-20101106	11/6/2010	17		< 5	U	< 5	U
ITMW-16	ITMW-16-20111027	10/27/2011	< 5	U	< 5	U	< 5	U
ITMW-16	ITMW-16-20120418	4/18/2012	< 5	U	< 5	U	< 5	U
ITMW-16	ITMW-16-20121018	10/18/2012	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-16	ITMW-16-20130424	4/24/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-16	ITMW-16-101613	10/16/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-16	ITMW-16-201403	3/7/2014	0.30	J	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-16	ITMW-16-201410	10/15/2014	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-16	ITMW-16-201501	1/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-16	ITMW-16-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-16	ITMW-16-201507	7/22/2015	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201601	1/13/2016	< 0.17	U	< 0.080	U	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-16	ITMW-16-201605	5/5/2016	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-16	ITMW-16-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-17	ITMW-17-19910201	2/1/1991	21000				<	ND
ITMW-17	ITMW-17-19910415	4/15/1991	21000				<	ND
ITMW-17	ITMW-17-19910424	4/24/1991	21000				<	ND
ITMW-17	ITMW-17-19931101	11/1/1993	18000				15	
ITMW-17	ITMW-17-19961201	12/1/1996	9300				<	ND
ITMW-17	ITMW-17-19990201	2/1/1999	11000		240		<	ND
ITMW-17	ITMW-17-20000301	3/1/2000	6780		171		<	ND
ITMW-17	ITMW-17-20000919	9/19/2000	5500		180		< 10	U
ITMW-17	ITMW-17-20010105	1/5/2001	8310		179		< 10	U
ITMW-17	ITMW-17-20010328	3/28/2001	6700		134		< 10	U
ITMW-17	ITMW-17-20010913	9/13/2001	6300		158		< 10	U
ITMW-17	ITMW-17-20020911	9/11/2002	6500		153		< 10	U
ITMW-17	ITMW-17-20030226	2/26/2003	4380		134		< 10	U
ITMW-17	ITMW-17-20030925	9/25/2003	6090		136		< 10	U
ITMW-17	ITMW-17-20040414-FD	4/14/2004	4920		182		< 10	U
ITMW-17	ITMW-17-20040414	4/14/2004	5050		184		< 10	U
ITMW-17	ITMW-17-20040921	9/21/2004	5760		156		< 10	U
ITMW-17	ITMW-17-20050407	4/7/2005	5750		156		< 10	U
ITMW-17	ITMW-17-20050929	9/29/2005	5460		111		< 10	U
ITMW-17	ITMW-17-20060315	3/15/2006	15900		211	E	26.3	
ITMW-17	ITMW-17-20061012	10/12/2006	19000		220		21	
ITMW-17	ITMW-17-20070418	4/18/2007	13000		298		< 10	U
ITMW-17	ITMW-17-20070921	9/21/2007	11000		210		3	J
ITMW-17	ITMW-17-20080429	4/29/2008	6200	0	140	0	< 10	U
ITMW-17	ITMW-17-20081210	12/10/2008	5600		130		< 5	U
ITMW-17	ITMW-17-20090427	4/27/2009	5200		130		< 5	U
ITMW-17	ITMW-17-20100511	5/11/2010	4500		85		< 5	U
ITMW-17	ITMW-17-20101104	11/4/2010	5400		110		< 5	U
ITMW-17	ITMW-17-20110322	3/22/2011	5300		100		< 5	U
ITMW-17	ITMW-17-20111026	10/26/2011	4500		98		< 5	U
ITMW-17	ITMW-17-20120419	4/19/2012	4700		110		< 5	U
ITMW-17	ITMW-17-20121019	10/19/2012	3500		100		0.48	J
ITMW-17	ITMW-17-20130425	4/25/2013	5600		130		0.90	J
ITMW-17	ITMW-17-101713	10/17/2013	4800		79		< 0.11	U
ITMW-17	ITMW-17-201403-FD	3/8/2014	4040		87.3		0.74	J
ITMW-17	ITMW-17-201403	3/8/2014	3770		86.1		0.57	J
ITMW-17	DUP-3-201405	5/15/2014	3370		88.5		1.1	J
ITMW-17	ITMW-17-201405	5/15/2014	3630		82.9		1.3	J
ITMW-17	ITMW-17-201407	7/30/2014	2260		64.7		< 0.50	U
ITMW-17	ITMW-17-201410	10/16/2014	3510		70.5		3.2	
ITMW-17	ITMW-17-20141205	12/5/2014	4630		210	J	7.7	
ITMW-17	ITMW-17-201501	1/15/2015	3840		110		1.5	
ITMW-17	ITMW-17-201504	4/15/2015	3920		142		< 0.13	U
ITMW-17	ITMW-17-201507	7/22/2015	5350		116		0.51	J
ITMW-17	ITMW-17-201510	10/8/2015	3970		77.2		2.5	
ITMW-17	ITMW-17-201601	1/13/2016	2600		44.7		2.2	
ITMW-17	ITMW-17-201605	5/5/2016	2720		77.7		< 6.5	U
ITMW-18	ITMW-18-19910201	2/1/1991	3700				<	ND
ITMW-18	ITMW-18-19931101	11/1/1993	4500				6	
ITMW-18	ITMW-18-19961201	12/1/1996	1600				<	ND
ITMW-18	ITMW-18-19990201	2/1/1999	6300		480		<	ND
ITMW-18	ITMW-18-20000301	3/1/2000	3560		401		<	ND
ITMW-18	ITMW-18-20000919	9/19/2000	4080		409		< 10	U
ITMW-18	ITMW-18-20010327-FD	3/27/2001	4200		370		< 100	U
ITMW-18	ITMW-18-20010327	3/27/2001	4000		400		< 10	U
ITMW-18	ITMW-18-20010911	9/11/2001	4100		300		< 10	U
ITMW-18	ITMW-18-20020911	9/11/2002	6700		300		< 10	U
ITMW-18	ITMW-18-20030226	2/26/2003	5110		290		< 10	U
ITMW-18	ITMW-18-20030924	9/24/2003	7700		415		< 10	U
ITMW-18	ITMW-18-20040413	4/13/2004	7740		410		< 10	U
ITMW-18	ITMW-18-20040921	9/21/2004	7050		380		< 10	U
ITMW-18	ITMW-18-20050408	4/8/2005	7080		389		< 10	U
ITMW-18	ITMW-18-20050929	9/29/2005	4660		241		< 10	U
ITMW-18	ITMW-18-20060315	3/15/2006	5750		373		< 50	U
ITMW-18	ITMW-18-20061013	10/13/2006	6600		300		< 10	U
ITMW-18	ITMW-18-20070418	4/18/2007	15000		387		< 10	U
ITMW-18	ITMW-18-20070921	9/21/2007	8300		310		< 100	U
ITMW-18	ITMW-18-20080430	4/30/2008	9000	0	350	0	< 10	U
ITMW-18	ITMW-18-20081209	12/9/2008	7200		320		< 5	U
ITMW-18	ITMW-18-20090427	4/27/2009	7100		320		< 5	U
ITMW-18	ITMW-18-20091027	10/27/2009	7800		360		< 5	U
ITMW-18	ITMW-18-20100511	5/11/2010	11000		360		< 5	U
ITMW-18	ITMW-18-20111026	10/26/2011	8500		290		< 5	U
ITMW-18	ITMW-18-20120419	4/19/2012	9800		360		2.9	J

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-18	ITMW-18-20121019	10/19/2012	7600		260		1.2	J
ITMW-18	ITMW-18-20130425	4/25/2013	7200		270		0.90	J
ITMW-18	ITMW-18-101713	10/17/2013	7000		280		0.64	J
ITMW-18	ITMW-18-201403-FD	3/8/2014	8550		242	J	1.7	J
ITMW-18	ITMW-18-201403	3/8/2014	9380		285		< 6.5	U
ITMW-18	DUP-5-201405	5/15/2014	2500		108		< 0.13	U
ITMW-18	ITMW-18-201405	5/15/2014	2940		101		< 0.13	U
ITMW-18	ITMW-18-201407	7/31/2014	5360		139		1.6	J
ITMW-18	ITMW-18-201410	10/15/2014	3540		68.5		< 0.50	U
ITMW-18	ITMW-18-20141204	12/4/2014	3690		74.3		< 0.50	U
ITMW-18	ITMW-18-201501	1/15/2015	488		26.5		< 0.50	U
ITMW-18	DUP-04-201504	4/16/2015	42.8		1.7		< 0.50	U
ITMW-18	ITMW-18-201504	4/16/2015	43.5		1.6		< 0.50	U
ITMW-18	DUP-07-201507	7/23/2015	24.7		0.81	J	< 0.13	U
ITMW-18	ITMW-18-201507	7/23/2015	22.9		0.69	J	< 0.13	U
ITMW-18	DUP-06-201510	10/8/2015	12.4		0.41	J	< 0.13	U
ITMW-18	ITMW-18-201510	10/8/2015	12.9		0.40	J	< 0.13	U
ITMW-18	ITMW-18-201601	1/13/2016	48.8		4.6		< 0.13	U
ITMW-18	ITMW-18-201605	5/5/2016	13.9		0.49	J	< 0.13	U
ITMW-18	ITMW-18-201611	11/9/2016	10.1		< 0.080	U	< 0.13	U
ITMW-18	FD-07-201710	10/26/2017	16.0		0.50	J	< 0.13	U
ITMW-18	ITMW-18-201710	10/26/2017	15.0		0.47	J	< 0.13	U
ITMW-18	ITMW-18-201811	11/14/2018	641		55.3		< 0.13	U
ITMW-19	ITMW-19-19910201	2/1/1991	9900				<	ND
ITMW-19	ITMW-19-19931101	11/1/1993	27000				7	
ITMW-19	ITMW-19-19961201	12/1/1996	25000				<	ND
ITMW-19	ITMW-19-19990201	2/1/1999	33000		150		<	ND
ITMW-19	ITMW-19-20000301	3/1/2000	33100		128		<	ND
ITMW-19	ITMW-19-20000919	9/19/2000	35700		197		< 10	U
ITMW-19	ITMW-19-20010105	1/5/2001	34000		166		< 10	U
ITMW-19	ITMW-19-20010328	3/28/2001	38000		119		< 10	U
ITMW-19	ITMW-19-20010913	9/13/2001	19000		132		< 10	U
ITMW-19	ITMW-19-20020911	9/11/2002	27000		167		< 10	U
ITMW-19	ITMW-19-20030226	2/26/2003	16200		126		< 10	U
ITMW-19	ITMW-19-20030924	9/24/2003	27300		186		< 10	U
ITMW-19	ITMW-19-20040413	4/13/2004	19400		186		< 10	U
ITMW-19	ITMW-19-20040921	9/21/2004	20000		148		< 10	U
ITMW-19	ITMW-19-20050407-FD	4/7/2005	16200		145		< 10	U
ITMW-19	ITMW-19-20050407	4/7/2005	18300		146		< 10	U
ITMW-19	ITMW-19-20050929	9/29/2005	25700		144		< 10	U
ITMW-19	ITMW-19-20060315	3/15/2006	21300		177		< 100	U
ITMW-19	ITMW-19-20061012	10/12/2006	16000		150		2	J
ITMW-19	ITMW-19-20070418	4/18/2007	20000		131		< 10	U
ITMW-19	ITMW-19-20070921	9/21/2007	19000		110		< 200	U
ITMW-19	ITMW-19-20080429	4/29/2008	17000	0	98	0	< 100	U
ITMW-19	ITMW-19-20081210	12/10/2008	11000		93		< 5	U
ITMW-19	ITMW-19-20090427	4/27/2009	13000		100		< 5	U
ITMW-19	ITMW-19-20100511	5/11/2010	19000		130		< 5	U
ITMW-19	ITMW-19-20101104-FD	11/4/2010	19000		150		< 5	U
ITMW-19	ITMW-19-20101104	11/4/2010	18000		140		< 5	U
ITMW-19	ITMW-19-20110322	3/22/2011	16000		110		1	J
ITMW-19	ITMW-19-20111026	10/26/2011	17000		120		< 5	U
ITMW-19	ITMW-19-20120419-FD	4/19/2012	15000		110		< 5	U
ITMW-19	ITMW-19-20120419	4/19/2012	18000		110		< 5	U
ITMW-19	ITMW-19-20121019	10/19/2012	15000		110		0.89	J
ITMW-19	ITMW-19-20130425	4/25/2013	13000		110		0.57	J
ITMW-19	ITMW-19-10182013-FD	10/18/2013	14000		100	J	< 0.11	U
ITMW-19	ITMW-19-101813	10/18/2013	16000		91	J	< 0.11	U
ITMW-19	ITMW-19-201403-FD	3/8/2014	8270		60.8	J	< 6.5	U
ITMW-19	ITMW-19-201403	3/8/2014	8850		66.7		0.57	J
ITMW-19	DUP-6-201405	5/15/2014	15300	J	67.2		0.87	J
ITMW-19	ITMW-19-201405	5/15/2014	9780	J	65.8		0.85	J
ITMW-19	ITMW-19-201407	7/31/2014	13300		85.5		0.96	J
ITMW-19	ITMW-19-201410	10/16/2014	12800		76.7		1.9	J
ITMW-19	ITMW-19-20141205	12/5/2014	33.5		< 0.50	U	< 0.50	U
ITMW-19	ITMW-19-201501	1/15/2015	17.4		< 0.50	U	< 0.50	U
ITMW-19	ITMW-19-201504	4/15/2015	594		2.2		< 0.50	U
ITMW-19	ITMW-19-201507	7/23/2015	15.2		< 0.080	U	< 0.13	U
ITMW-19	ITMW-19-201510	10/8/2015	87.1		0.41	J	< 0.13	U
ITMW-19	ITMW-19-201601	1/13/2016	336		1.2		< 0.13	U
ITMW-19	ITMW-19-201605	5/5/2016	105		0.28	J	< 0.13	U
ITMW-19	ITMW-19-201611	11/9/2016	137		< 0.080	U	< 0.13	U
ITMW-19	ITMW-19-201710	10/26/2017	165		0.52	J	< 0.13	U
ITMW-19	ITMW-19-201811	11/15/2018	204		1.3		< 0.13	U
ITMW-20	ITMW-20-19910301	3/1/1991	<	ND			<	ND
ITMW-20	ITMW-20-19931101	11/1/1993	<	ND			<	ND
ITMW-20	ITMW-20-19961201	12/1/1996	290				<	ND
ITMW-20	ITMW-20-19970501	5/1/1997	<	ND	<	ND	<	ND

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-20	ITMW-20-19990201	2/1/1999	<	ND	<	ND	<	ND
ITMW-20	ITMW-20-20000301	3/1/2000	<	ND	<	ND	<	ND
ITMW-20	MW-20-20000921-FS	9/21/2000	< 5	U	< 5	U	< 10	U
ITMW-20	MW-20-20010327-FS	3/27/2001	< 5	U	< 5	U	< 10	U
ITMW-20	MW-20-20010911-FS	9/11/2001	21		< 5	U	< 10	U
ITMW-20	ITMW-20-20020910	9/10/2002	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20030924	9/24/2003	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20040414	4/14/2004	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20050929	9/29/2005	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
ITMW-20	ITMW-20-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
ITMW-20	ITMW-20-20091029	10/29/2009	< 5	U	< 5	U	< 5	U
ITMW-20	ITMW-20-20100512	5/12/2010	< 5	U	< 5	U	< 5	U
ITMW-20	ITMW-20-20101105	11/5/2010	15		< 5	U	< 5	U
ITMW-20	ITMW-20-20111026-FD	10/26/2011	< 5	U	< 5	U	< 5	U
ITMW-20	ITMW-20-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
ITMW-20	ITMW-20-20120418	4/18/2012	< 5	U	< 5	U	< 5	U
ITMW-20	ITMW-20-20121018	10/18/2012	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-20	ITMW-20-20130423	4/23/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-20	ITMW-20-101413	10/14/2013	< 1.6	U	< 0.56	U	< 0.11	U
ITMW-20	ITMW-20-201403	3/5/2014	< 0.17	U	< 0.080	U	0.15	J
ITMW-20	ITMW-20-201405	5/12/2014	0.21	J	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-20	ITMW-20-201410	10/15/2014	< 0.50	U	< 0.50	U	< 0.50	U
ITMW-20	ITMW-20-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	
ITMW-20	ITMW-20-201504	4/13/2015	< 0.50	U	< 0.50	U	< 0.50	
ITMW-20	ITMW-20-201507	7/22/2015	0.20	J	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-20	ITMW-20-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
ITMW-21	ITMW-21-19910301	3/1/1991	21				<	ND
ITMW-21	ITMW-21-19931101	11/1/1993	37				<	ND
ITMW-21	ITMW-21-19961201	12/1/1996	150				<	ND
ITMW-21	ITMW-21-19990201	2/1/1999	190		<	ND	<	ND
ITMW-21	ITMW-21-20000301	3/1/2000	196		<	ND	<	ND
ITMW-21	ITMW-21-20000919	9/19/2000	192		< 5	U	< 10	U
ITMW-21	ITMW-21-20010328	3/28/2001	123		< 5	U	< 10	U
ITMW-21	ITMW-21-20010913	9/13/2001	116		< 5	U	< 10	U
ITMW-21	ITMW-21-20020910	9/10/2002	13		< 5	U	< 10	U
ITMW-21	ITMW-21-20030226	2/26/2003	39.5		< 5	U	< 10	U
ITMW-21	ITMW-21-20030923	9/23/2003	9.09		< 5	U	< 10	U
ITMW-21	ITMW-21-20040414	4/14/2004	52.9		< 5	U	< 10	U
ITMW-21	ITMW-21-20040922	9/22/2004	7.8		< 5	U	< 10	U
ITMW-21	ITMW-21-20050928	9/28/2005	6.45		< 5	U	< 10	U
ITMW-21	ITMW-21-20061012	10/12/2006	9		< 5	U	< 10	U
ITMW-21	ITMW-21-20070921	9/21/2007	10		< 5	U	< 10	U
ITMW-21	ITMW-21-20081209	12/9/2008	15		< 5	U	< 5	U
ITMW-21	ITMW-21-20091027	10/27/2009	14		< 5	U	< 5	U
ITMW-21	ITMW-21-20101104	11/4/2010	1100		4.4	J	< 5	U
ITMW-21	ITMW-21-20110322	3/22/2011	24		< 5	U	< 5	U
ITMW-21	ITMW-21-20111025	10/25/2011	11		< 5	U	< 5	U
ITMW-21	ITMW-21-20120417	4/17/2012	30		< 5	U	< 5	U
ITMW-21	ITMW-21-20121019	10/19/2012	7.7		< 0.56	U	< 0.11	U
ITMW-21	ITMW-21-20130424	4/24/2013	18		< 0.56	U	< 0.11	U
ITMW-21	ITMW-21-101513	10/15/2013	20		< 0.56	U	< 0.11	U
ITMW-21	ITMW-21-201403	3/6/2014	14.8		< 0.080	U	< 0.13	U
ITMW-21	ITMW-21-201405	5/14/2014	17.6		< 0.080	U	< 0.13	U
ITMW-21	DUP-3-201407	7/30/2014	9.3		< 0.50	U	< 0.50	U
ITMW-21	ITMW-21-201407	7/30/2014	9.4		< 0.50	U	< 0.50	U
ITMW-21	ITMW-21-201410	10/15/2014	6.0		< 0.50	U	< 0.50	U
ITMW-21	ITMW-21-201501	1/14/2015	10.8		< 0.50	U	< 0.50	U
ITMW-21	ITMW-21-201504	4/14/2015	12.7		< 0.50	U	< 0.50	U
ITMW-21	ITMW-21-201507	7/22/2015	7.6		0.20	J	< 0.13	U
ITMW-21	ITMW-21-201510	10/8/2015	7.2		0.29	J	< 0.13	U
ITMW-21	ITMW-21-201601	1/13/2016	9.8		0.27	J	< 0.13	U
ITMW-21	ITMW-21-201605	5/5/2016	11.1		0.30	J	< 0.13	U
ITMW-21	ITMW-21-201611	11/9/2016	8.1		< 0.080	U	< 0.13	U
ITMW-21	ITMW-21-201704	4/28/2017	11.9		0.31	J	< 0.13	U
ITMW-21	ITMW-21-201710	10/25/2017	7.9		0.25	J	< 0.13	U
ITMW-21	ITMW-21-201804	4/19/2018	13.2		0.38	J	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
ITMW-21	ITMW-21-201811	11/15/2018	8.0		< 0.080	U	< 0.13	U
IW-72	IW-72-20090116	1/16/2009	27		< 5	U	< 5	U
IW-72	IW-72-20090423	4/23/2009	40		< 5	U	< 5	U
IW-72	IW-72-20090508	5/8/2009	40		< 5	U	< 5	U
IW-72	IW-72-20110303-FS	3/3/2011	3.1	J	< 0.56	U	< 0.85	U
IW-72	IW-72-20110519-FS	5/19/2011	< 1.6	U	< 0.56	U		
IW-72	IW-72-20111024	10/24/2011	< 5	U	< 5	U	< 5	U
IW-72	IW-72-20120417	4/17/2012	3.8	J	< 5	U	< 5	U
IW-72	IW-72-20121019	10/19/2012	< 1.6	U	< 0.56	U	< 0.11	U
IW-72	IW-72-20130424	4/24/2013	< 1.6	U	< 0.56	U	< 0.11	U
IW-72	IW-72-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
IW-72	IW-72-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
IW-72	IW-72-201405	5/12/2014	< 0.17	U	< 0.080	U	< 0.13	U
IW-72	IW-72-201407	7/29/2014	< 0.50	U	< 0.50	U	< 0.50	U
IW-72	IW-72-201410	10/13/2014	< 0.50	U	< 0.50	U	< 0.50	U
IW-72	IW-72-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
IW-72	IW-72-201504	4/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
IW-72	IW-72-201507	7/20/2015	0.48	J	< 0.080	U	< 0.13	U
IW-72	IW-72-201510	10/6/2015	0.74	J	< 0.080	U	< 0.13	U
IW-72	IW-72-201601	1/12/2016	1.4		< 0.080	U	< 0.13	U
IW-72	IW-72-201605	5/3/2016	1.8		< 0.080	U	< 0.13	U
IW-73	IW-73-20090423	4/23/2009	400		16		< 5	U
IW-73	IW-73-20110519-FS	5/19/2011	160		3.6	J		
IW-73	IW-73-20111025	10/25/2011	250		4.9	J	< 5	U
IW-73	IW-73-20120417	4/17/2012	180		5.8		< 5	U
IW-73	IW-73-20121020	10/20/2012	170		7.0		< 0.11	U
IW-73	IW-73-20130424-FD	4/24/2013	180		6.4		< 0.11	U
IW-73	IW-73-20130424	4/24/2013	200		6.5		< 0.11	U
IW-73	IW-73-101513	10/15/2013	140		47		6.3	
IW-73	IW-73-201403	3/7/2014	183		20.9		4.6	
IW-73	IW-73-201405	5/14/2014	31.9		0.81	J	< 0.13	U
IW-73	IW-73-201407	7/29/2014	138		24.3		26.1	
IW-73	IW-73-201410	10/14/2014	8.5		0.84	J	1.1	J
IW-73	IW-73-201501	1/14/2015	70.8		6.3		4.1	
IW-73	IW-73-201504	4/15/2015	96.8		6.8		1.6	
IW-73	IW-73-201507	7/21/2015	143		9.0		1.5	
IW-73	IW-73-201510	10/6/2015	154		7.8		0.59	J
IW-73	IW-73-201601	1/12/2016	103		4.3		0.24	J
IW-73	IW-73-201605	5/4/2016	125		4.9		0.35	J
IW-73	DUP-01-201611	11/9/2016	116		2.8		0.21	J
IW-73	IW-73-201611	11/9/2016	113		2.5		0.16	J
IW-73	IW-73-201704	4/28/2017	108		3.8		< 0.13	U
IW-73	IW-73-201710	10/24/2017	126		3.3		< 0.13	U
IW-73	IW-73-201804	4/18/2018	176		4.0		< 0.13	U
IW-73	IW-73-201811	11/14/2018	208		7.3		< 0.13	U
IW-74	IW-74-20090423	4/23/2009	260		8.1		< 5	U
IW-74	IW-74-20110519-FS	5/19/2011	74		< 0.56	U		
IW-74	IW-74-20111025	10/25/2011	150		3.1	J	< 5	U
IW-74	IW-74-20120417	4/17/2012	130		2.4	J	< 5	U
IW-74	IW-74-20121020	10/20/2012	160		3.4	J	< 0.11	U
IW-74	IW-74-20130424	4/24/2013	160		4.8	J	< 0.11	U
IW-74	IW-74-101513	10/15/2013	190		5.7		< 0.11	U
IW-74	IW-74-201403-FD	3/7/2014	151		4.5	J	2.2	
IW-74	IW-74-201403	3/7/2014	135		4.3	J	1.5	J
IW-74	IW-74-201405	5/14/2014	169		4.3	J	0.80	J
IW-74	IW-74-201407	7/29/2014	177		5.8		0.91	J
IW-74	DUP-01-201410	10/14/2014	143		3.3	J	< 0.50	U
IW-74	IW-74-201410	10/14/2014	144		3.3	J	< 0.50	U
IW-74	DUP-01-201501	1/14/2015	139		3.5		< 0.50	U
IW-74	IW-74-201501	1/14/2015	141		3.8		< 0.50	U
IW-74	DUP-05-201504	4/15/2015	153		4.8		< 0.50	U
IW-74	IW-74-201504	4/15/2015	147		5.0		< 0.50	U
IW-74	DUP-08-201507	7/21/2015	168		4.2		1.3	
IW-74	IW-74-201507	7/21/2015	168		4.6		1.4	
IW-74	DUP-10-201510	10/7/2015	122		3.8		0.33	J
IW-74	IW-74-201510	10/7/2015	121		3.8		0.36	J
IW-74	DUP-05-201601	1/12/2016	135		3.3		0.18	J
IW-74	IW-74-201601	1/12/2016	135		3.2		0.17	J
IW-74	DUP-07-201605	5/4/2016	108		3.2		0.42	J
IW-74	IW-74-201605	5/4/2016	122		3.5		0.44	J
IW-75	IW-75-20090116	1/16/2009	140		2.4	J	< 5	U
IW-75	IW-75-20111025	10/25/2011	< 5	U	< 5	U	< 5	U
IW-75	IW-75-20120417	4/17/2012	2.9	J	< 5	U	< 5	U
IW-75	IW-75-20121018	10/18/2012	< 1.6	U	< 0.56	U	< 0.11	U
IW-75	IW-75-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
IW-76	IW-76-20090423	4/23/2009	730		28		< 5	U
IW-76	IW-76-20090507	5/7/2009	460		28		< 5	U
IW-76	IW-76-20110304-FS	3/4/2011	380		11		< 0.85	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
IW-76	IW-76-20110523-FS	5/23/2011	460		12			
IW-76	IW-76-20111025	10/25/2011	130		2.2	J	< 5	U
IW-76	IW-76-20120417	4/17/2012	400		8.9		< 5	U
IW-76	IW-76-20121020	10/20/2012	610		16		< 0.11	U
IW-76	IW-76-20130424	4/24/2013	420		13		0.39	J
IW-76	IW-76-101513	10/15/2013	450		8.7		< 0.11	U
IW-76	IW-76-201403	3/8/2014	127		1.5	J	< 0.13	U
IW-76	IW-76-201405	5/14/2014	10.3		< 0.080	U	< 0.13	U
IW-76	IW-76-201407	7/29/2014	319		2.7	J	< 0.50	
IW-76	IW-76-201410	10/15/2014	214		6.7		< 0.50	U
IW-76	IW-76-201501	1/14/2015	288		8.8		< 0.50	U
IW-76	IW-76-201504	4/15/2015	354		11.2		< 0.50	U
IW-76	IW-76-201507	7/21/2015	323		7.3		< 0.13	U
IW-76	IW-76-201510	10/6/2015	106		1.6		< 0.13	U
IW-76	IW-76-201601	1/12/2016	80.2	J	1.9		< 0.13	U
IW-76	IW-76-201605	5/4/2016	139	J	2.6		< 0.13	U
IW-77	IW-77-20090423	4/23/2009	570		20		< 5	U
IW-77	IW-77-20090507	5/7/2009	300		17		< 5	U
IW-77	IW-77-20090527	5/27/2009	250		13		< 5	U
IW-77	IW-77-20091028	10/28/2009	380		13		< 5	U
IW-77	IW-77-20091221-FS	12/21/2009	250		12		< 1.6	U
IW-77	IW-77-20100513	5/13/2010	260		11		< 5	U
IW-77	IW-77-20101105	11/5/2010	1400		41		< 5	U
IW-77	IW-77-20110304-FS	3/4/2011	430		14		< 0.85	U
IW-77	IW-77-20110523-FS	5/23/2011	440		15			
IW-77	IW-77-20111025	10/25/2011	1400		32		< 5	U
IW-77	IW-77-20120417-FD	4/17/2012	520		20		< 5	U
IW-77	IW-77-20120417	4/17/2012	510		23		< 5	U
IW-77	IW-77-20121019	10/19/2012	1000		32		0.65	J
IW-77	IW-77-20130424	4/24/2013	530		21		< 0.11	U
IW-77	IW-77-20131016-FD	10/16/2013	990		39		0.49	J
IW-77	IW-77-101613	10/16/2013	1000		39		1.6	J
IW-77	IW-77-201403	3/8/2014	546		24.4		0.22	J
IW-77	IW-77-201405	5/14/2014	1460		36.0		0.66	J
IW-77	20140709-GW-IW-77	7/9/2014	1200		21.1		< 0.50	U
IW-77	IW-77-201407	7/29/2014	1540		35.2		< 0.50	U
IW-77	IW-77-201410	10/15/2014	741		15.8		< 0.50	U
IW-77	IW-77-20141023	10/23/2014	554		11.9		< 0.50	U
IW-77	IW-77-201501	1/14/2015	201		4.8		< 0.50	U
IW-77	IW-77-201504	4/14/2015	153		2.9		< 0.50	U
IW-77	IW-77-201507	7/21/2015	130		2.4		< 0.13	U
IW-77	IW-77-201510	10/8/2015	24.3		0.54	J	< 0.13	U
IW-77	IW-77-201511	11/5/2015	95.1		1.1		< 0.13	U
IW-77	IW-77-201512	12/2/2015	87.8		1.3		< 0.13	U
IW-77	IW-77-201601	1/11/2016	95.3		1.3		< 0.13	U
IW-77	IW-77-201605	5/4/2016	101		1.7		< 0.13	U
IW-77	IW-77-201611	11/8/2016	137		2.1		< 0.13	U
IW-77	IW-77-201704	4/28/2017	113		1.8		< 0.13	U
IW-77	IW-77-201710	10/24/2017	161		2.9		< 0.13	U
IW-77	IW-77-201804	4/18/2018	181		3.6		< 0.13	U
IW-77	IW-77-201811	11/15/2018	218		5.1		< 0.13	U
IW-78	IW-78-20111025	10/25/2011	350		12		< 5	U
IW-78	IW-78-20120418	4/18/2012	120		2.3	J	< 5	U
IW-78	IW-78-20121020	10/20/2012	310		8.7		< 0.11	U
IW-78	IW-78-20130424	4/24/2013	7.0		< 0.56	U	< 0.11	U
IW-78	IW-78-101713	10/17/2013	190		4.6	J	< 0.11	U
IW-78	IW-78-201405	5/28/2014	255		6.2		< 0.13	U
IW-78	IW-78-201409	9/11/2014	39.6		1.2	J	< 0.50	U
IW-78	IW-78-201601	1/11/2016	1.5		< 0.080	U	< 0.13	U
IW-78	IW-78-201605	5/3/2016	1.3		< 0.080	U	< 0.13	U
IW-78	IW-78-201611	11/8/2016	2.6		< 0.080	U	< 0.13	U
IW-78	IW-78-201710	10/25/2017	7.0		0.16	J	< 0.13	U
IW-78	IW-78-201811	11/15/2018	0.74		< 0.080	U	< 0.13	U
IW-79	IW-79-20111025	10/25/2011	570		13		< 5	U
IW-79	IW-79-20120417	4/17/2012	430		2.1	J	< 5	U
IW-79	IW-79-20121020-FD	10/20/2012	480		16		< 0.11	U
IW-79	IW-79-20121020	10/20/2012	670		20		0.45	J
IW-79	IW-79-20130424	4/24/2013	420		9.0		< 0.11	U
IW-79	IW-79-101713	10/17/2013	440		12		< 0.11	U
IW-79	IW-79-201405	5/28/2014	426		6.9		< 0.13	U
IW-79	IW-79-201409	9/11/2014	105		1.8	J	< 0.50	U
IW-79	IW-79-201601	1/11/2016	70.0		1.4		< 0.13	U
IW-79	IW-79-201605	5/4/2016	55.0		1.0		< 0.13	U
IW-80	IW-80-20090423	4/23/2009	170		4	J	< 5	U
IW-80	IW-80-20090507	5/7/2009	69		< 5	U	< 5	U
IW-80	IW-80-20110519-FS	5/19/2011	27		< 0.56	U		
IW-80	IW-80-20111025	10/25/2011	9.7		< 5	U	< 5	U
IW-80	IW-80-20120417	4/17/2012	55		2.2	J	< 5	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
IW-80	IW-80-20121019	10/19/2012	48		< 0.56	U	< 0.11	U
IW-80	IW-80-20130424	4/24/2013	40		< 0.56	U	< 0.11	U
IW-80	IW-80-20131017-FD	10/17/2013	62		2.4	J	< 0.11	U
IW-80	IW-80-101713	10/17/2013	58		2.4	J	< 0.11	U
IW-80	IW-80-201403	3/8/2014	79.1	J	2.7	J	< 0.13	U
IW-80	IW-80-201405	5/13/2014	24.2		< 0.080	U	< 0.13	U
IW-80	IW-80-201407	7/30/2014	25.6		0.85	J	< 0.50	U
IW-80	IW-80-201410	10/14/2014	11.8		< 0.50	U	< 0.50	U
IW-80	IW-80-201501	1/13/2015	7.1		< 0.50	U	< 0.50	U
IW-80	IW-80-201504	4/14/2015	9.2		< 0.50	U	< 0.50	U
IW-80	IW-80-201507	7/21/2015	12.5		0.39	J	< 0.13	U
IW-80	IW-80-201510	10/6/2015	10.6		0.37	J	< 0.13	U
IW-80	IW-80-201511	11/5/2015	11.0		< 0.080	U	< 0.13	U
IW-80	IW-80-201512	12/2/2015	9.0		0.35	J	< 0.13	U
IW-80	IW-80-201601	1/7/2016	4.2		< 0.080	U	< 0.13	U
IW-80	IW-80-201605	5/3/2016	4.3		< 0.080	U	< 0.13	U
IW-101	IW-101-20140323	3/23/2014	314		7.5		0.21	J
IW-101	IW-101-20140430	4/30/2014	794		18.9		< 0.13	U
IW-101	IW-101-20140523	5/23/2014	509		11.2		< 0.13	U
IW-101	20140708-GW-IW-101	7/8/2014	150		4.5	J	< 0.50	U
IW-101	IW-101-201409	9/12/2014	139		3.4	J	< 0.50	U
IW-101	IW-101-201601	1/7/2016	42.9		1.1		< 0.13	U
IW-101	IW-101-201605	5/5/2016	20.3		0.54	J	< 0.13	U
IW-102	IW-102-20140323	3/23/2014	685		14.6		0.45	J
IW-102	IW-102-20140430	4/30/2014	239		5.4		< 0.13	U
IW-103	IW-103-20140323	3/23/2014	692		13.1		0.76	J
IW-103	IW-103-20140430	4/30/2014	729		22.8		0.83	J
IW-104	IW-104-20140323	3/23/2014	637		13.5		0.69	J
IW-104	IW-104-20140430	4/30/2014	527		12.6		< 0.13	U
IW-105	IW-105-20140323	3/23/2014	901		14.4		0.54	J
IW-105	IW-105-20140430	4/30/2014	185		4.9	J	< 0.13	U
IW-106	IW-106-20140323	3/23/2014	198		4.2	J	< 2	U
IW-106	IW-106-20140430	4/30/2014	163		6.8		< 0.13	U
IW-106	IW-106-20140523	5/23/2014	132		2.6	J	< 0.13	U
IW-107	IW-107-20140323	3/23/2014	198		4.3	J	0.14	J
IW-107	IW-107-20140430	4/30/2014	110		3.3	J	< 0.13	U
IW-108	IW-108-20140323	3/23/2014	1280		27.8		0.83	J
IW-108	IW-108-20140429	4/29/2014	72.1		4.1	J	< 0.13	U
IW-108	IW-108-20140523	5/23/2014	59.0		1.5	J	< 0.13	U
IW-109	IW-109-20140323	3/23/2014	362		7.4		0.23	J
IW-109	IW-109-20140429	4/29/2014	91.2		2.5	J	< 0.13	U
IW-109	IW-109-20140523	5/23/2014	110		1.9	J	< 0.13	U
IW-110	IW-110-20140323	3/23/2014	464		9.8		0.5	J
IW-110	IW-110	4/16/2014	397		9.4		0.17	J
IW-110	IW-110-20140430	4/30/2014	268		8.2		0.33	J
IW-111	IW-111-20140323	3/23/2014	704		14		0.63	J
IW-111	IW-111-20140429	4/29/2014	260		6.4		< 0.13	U
IW-112	IW-112-20140323	3/23/2014	219		4.9	J	0.23	J
IW-112	IW-112	4/16/2014	200		4.8	J	< 0.13	U
IW-112	IW-112-20140430	4/30/2014	104		3.8	J	< 0.13	U
IW-113	IW-113-20140324	3/24/2014	510		11.1		0.43	J
IW-113	IW-113	4/14/2014	435		8.7		< 0.13	U
IW-114	IW-114-20140324	3/24/2014	397		9.7		0.25	J
IW-114	IW-114	4/14/2014	336		8.1		< 0.13	U
IW-115	IW-115-20140324	3/24/2014	622		14		0.25	J
IW-115	IW-115-20140407	4/7/2014	455		9.1	J	< 1.3	U
IW-115	IW-115	4/14/2014	449		9.3		< 0.13	U
IW-115	IW-115-201405	5/28/2014	504		11.2		0.27	J
IW-115	20140709-GW-IW-115	7/9/2014	352		7.4		< 0.50	U
IW-115	IW-115-201409	9/11/2014	355		8.0		< 0.50	U
IW-115	IW-115-201601	1/11/2016	169		3.6		< 0.13	U
IW-115	IW-115-201605	5/4/2016	51.9		1.1		< 0.13	U
IW-116	IW-116-20140324	3/24/2014	486		10.9		0.33	J
IW-116	IW-116	4/15/2014	546		10.8		0.34	J
IW-117	IW-117-20140324	3/24/2014	384		9.1		0.23	J
IW-117	IW-117	4/15/2014	384		9.9		< 0.13	U
IW-118	IW-118-20140324	3/24/2014	496		11.6		0.34	J
IW-118	IW-118	4/15/2014	395		9.7		< 0.13	U
IW-118	IW-118-201405	5/28/2014	437		9.3		< 0.13	U
IW-119	IW-119-20140324	3/24/2014	524		11.5		0.33	J
IW-119	IW-119-20140407	4/7/2014	478		9.1	J	< 1.3	U
IW-119	IW-119	4/15/2014	509		11.3		< 0.13	U
IW-120	IW-120-20140324	3/24/2014	289		7.9		0.14	J
IW-120	IW-120	4/15/2014	390		10.2		< 0.13	U
IW-121	IW-121-20140324	3/24/2014	402		8.9	J	< 10	U
IW-121	IW-121	4/15/2014	445		11.7		< 0.13	U
IW-122	IW-122-20140324	3/24/2014	473		11.5		0.29	J
IW-122	IW-122	4/15/2014	384		10.0		< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
IW-123	IW-123-20140324	3/24/2014	532		12.2		0.40	J
IW-123	IW-123-20140407	4/7/2014	539		8.8	J	< 1.3	U
IW-123	IW-123	4/15/2014	488		10.0		< 0.13	U
IW-124	IW-124-20140324	3/24/2014	455		6.8	J	< 10	U
IW-124	IW-124	4/15/2014	448		8.7		0.26	J
IW-125	IW-125-20140325	3/25/2014	2140		207		3.1	
IW-125	IW-125-201405	5/29/2014	17.1		2.9	J	< 0.13	U
IW-125	IW-125-201409	9/11/2014	7.3		1.0	J	< 0.50	U
IW-126	IW-126-20140325	3/25/2014	2020		197		10.4	
IW-126	IW-126-201405	5/29/2014	787		59.1		< 0.13	U
IW-127	IW-127-20140324	3/24/2014	3700		219	J	7.6	
IW-127	IW-127-201405	5/29/2014	639		34.7		< 0.13	U
IW-127	IW-127-201409	9/11/2014	1020		38.5		2.6	
IW-127	IW-127-20141204	12/4/2014	182		7.2		< 0.50	U
IW-128	IW-128-20140325	3/25/2014	2980		178		11.7	
IW-128	IW-128-20140429	4/29/2014	1250		68.4		4.9	
IW-128	IW-128-201405	5/29/2014	1190		62.7		< 0.13	U
IW-129	IW-129-20140325	3/25/2014	2540		192		< 0.13	U
IW-129	IW-129-201405	5/29/2014	25.8		1.8	J	< 0.13	U
IW-130	IW-130-20140323	3/23/2014	358		7.6	J	< 10	U
IW-130	IW-130-20140523	5/23/2014	75.5		0.78	J	< 0.13	U
IW-131	IW-131-20140324	3/24/2014	526		11.5		0.35	J
IW-131	IW-131-20140430	4/30/2014	318		8.5		0.31	J
IW-131	IW-131-201405	5/28/2014	443		8.8		0.30	J
IW-132	IW-132-20141023	10/23/2014	714		3.5	J	< 0.50	U
IW-135	IW-135-20141023	10/23/2014	3840		43.3		2.0	
IW-141	IW-141-20141023	10/23/2014	368000		< 1000	U	82.6	
IW-141	IW-141-20141205	12/5/2014	46300		232	E	31.0	
IW-143	IW-143-20141023	10/23/2014	13100		44.8		2.5	
IW-147	IW-147-20141023	10/23/2014	199000		1640	J	< 1000	U
IW-147	IW-147-20141205	12/5/2014	91600		1420	J	176	
IW-152	IW-152-20141022	10/22/2014	17600		224	J	8.2	
IW-152	IW-152-20141204	12/4/2014	< 0.50	U	< 0.50	U	< 0.50	U
IW-153	IW-153-20141023	10/23/2014	293		85.3		12.3	
IW-153	IW-153-20141204	12/4/2014	1.6	J	< 0.50	U	< 0.50	U
IW-155	IW-155-20141023	10/23/2014	14600		36.4		5.8	
IW-157	IW-157-20141023	10/23/2014	74200		712	J	195	
IW-157	IW-157-20141205	12/5/2014	31700		391	E	66.8	
IW-169	IW-169-20141022	10/22/2014	163		1.7	J	< 0.50	U
MW-22	MW-22-19961201	12/1/1996	<	ND			<	ND
MW-22	MW-22-19970501	5/1/1997	<	ND	5		<	ND
MW-22	MW-22-19990201	2/1/1999	<	ND	5		<	ND
MW-22	MW-22-20000301	3/1/2000	<	ND	<	ND	<	ND
MW-22	MW-22-20000919	9/19/2000	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20010327	3/27/2001	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20010913	9/13/2001	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20020910	9/10/2002	9		< 5	U	< 10	U
MW-22	MW-22-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20030923-FD	9/23/2003	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20030923	9/23/2003	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20040413	4/13/2004	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20040921	9/21/2004	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20061014	10/14/2006	< 5	U	< 5	U	< 10	UJ
MW-22	MW-22-20070920	9/20/2007	< 5	U	< 5	U	< 10	U
MW-22	MW-22-20081209	12/9/2008	< 5	U	< 5	U	< 5	U
MW-22	MW-22-20091027	10/27/2009	< 5	U	< 5	U	< 5	U
MW-22	MW-22-20101103	11/3/2010	< 5	U	< 5	U	< 5	U
MW-22	MW-22-20111027	10/27/2011	2.1	J	< 5	U	< 5	U
MW-22	MW-22-20120418	4/18/2012	< 5	U	< 5	U	< 5	U
MW-22	MW-22-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-22	MW-22-20130423	4/23/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-22	MW-22-101413	10/14/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-22	MW-22-201403	3/5/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201405	5/12/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-22	MW-22-201410	10/15/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-22	MW-22-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-22	MW-22-201504	4/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-22	MW-22-201507	7/22/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-22	MW-22-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-23	MW-23-19961201	12/1/1996	210				<	ND
MW-23	MW-23-19970501	5/1/1997	2400				<	ND

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Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-23	MW-23-19990201-FD	2/1/1999	440		10		<	ND
MW-23	MW-23-19990201	2/1/1999	350		10		<	ND
MW-23	MW-23-20000301-FD	3/1/2000	147		<	ND	<	ND
MW-23	ITMW-23-20000921	9/21/2000	67		< 5	U	< 10	U
MW-23	ITMW-23-20010105	1/5/2001	137		< 5	U	< 10	U
MW-23	ITMW-23-20010326	3/26/2001	87		< 5	U	< 10	U
MW-23	ITMW-23-20010911	9/11/2001	23		< 5	U	< 10	U
MW-23	MW-23-20020911-FD	9/11/2002	105		< 5	U	< 10	U
MW-23	ITMW-23-20020911	9/11/2002	111		< 5	U	< 10	U
MW-23	ITMW-23-20030227	2/27/2003	54		< 5	U	< 10	U
MW-23	ITMW-23-20030925	9/25/2003	83.9		< 5	U	< 10	U
MW-23	ITMW-23-20040415	4/15/2004	70.3		< 5	U	< 10	U
MW-23	ITMW-23-20040922	9/22/2004	73.4		< 5	U	< 10	U
MW-23	ITMW-23-20050405	4/5/2005	55.5		< 5	U	< 10	U
MW-23	ITMW-23-20050929	9/29/2005	65.8		< 5	U	< 10	U
MW-23	ITMW-23-20060317	3/17/2006	47.1		< 5	U	< 10	U
MW-23	ITMW-23-20061014	10/14/2006	59		< 5	U	< 10	UJ
MW-23	ITMW-23-20070419	4/19/2007	39.9		9.79		< 10	U
MW-23	ITMW-23-20070919	9/19/2007	47		< 5	U	< 10	U
MW-23	ITMW-23-20080429	4/29/2008	29	0	< 5	U	< 10	U
MW-23	ITMW-23-20081210	12/10/2008	69		< 5	U	< 5	U
MW-23	ITMW-23-20090427	4/27/2009	32		< 5	U	< 5	U
MW-23	ITMW-23-20091029	10/29/2009	45		< 5	U	< 5	U
MW-23	MW-23-20100512-FD	5/12/2010	55		< 5	U	< 5	U
MW-23	ITMW-23-20100512	5/12/2010	52		< 5	U	< 5	U
MW-23	ITMW-23-20101105	11/5/2010	76		< 5	U	< 5	U
MW-23	ITMW-23-20110323	3/23/2011	46		< 5	U	< 5	U
MW-23	ITMW-23-20111027	10/27/2011	41		< 5	U	< 5	U
MW-23	ITMW-23-20120418	4/18/2012	36		< 5	U	< 5	U
MW-23	ITMW-23-20121019	10/19/2012	43		< 0.56	U	< 0.11	U
MW-23	ITMW-23-20130425	4/25/2013	20		< 0.56	U	< 0.11	U
MW-23	MW-23-101613	10/16/2013	54		< 0.56	U	< 0.11	U
MW-23	MW-23-20140522	5/22/2014	22.8		< 0.080	U	< 0.13	U
MW-23	20140708-GW-MW-23	7/8/2014	27.8		0.68	J	< 0.50	U
MW-23	MW-23-201409	9/12/2014	62.1		1.8	J	< 0.50	U
MW-23	MW-23-20141023	10/23/2014	189		3.5	J	< 0.50	U
MW-23	MW-23-201501	1/15/2015	115		2.2		< 0.50	U
MW-23	MW-23-201504	4/14/2015	57.5		1.1		< 0.50	U
MW-23	MW-23-201507	7/23/2015	37.8		0.95	J	< 0.13	U
MW-23	MW-23-201510	10/8/2015	0.65	J	< 0.080	U	< 0.13	U
MW-23	MW-23-201511	11/5/2015	0.40	J	< 0.080	U	< 0.13	U
MW-23	MW-23-201512	12/1/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-23	MW-23-201601	1/7/2016	0.48	J	< 0.080	U	< 0.13	U
MW-23	MW-23-201605	5/5/2016	0.90	J	< 0.080	U	< 0.13	U
MW-24	MW-24-19990201	2/1/1999	1400		49		<	ND
MW-24	MW-24-20000301-FD	3/1/2000	595		24		<	ND
MW-24	MW-24-20000301	3/1/2000	403		25		<	ND
MW-24	MW-24-20000921	9/21/2000	128		11		< 10	U
MW-24	MW-24-20010105	1/5/2001	247		12		< 10	U
MW-24	MW-24-20010326	3/26/2001	330		11		< 10	U
MW-24	MW-24-20010911	9/11/2001	124		6		< 10	U
MW-24	MW-24-20020911	9/11/2002	199		6		< 10	U
MW-24	MW-24-20030227	2/27/2003	253		7.01		< 10	U
MW-24	MW-24-20030925	9/25/2003	155		< 5	U	< 10	U
MW-24	MW-24-20040415	4/15/2004	181		5.12		< 10	U
MW-24	MW-24-20040923	9/23/2004	116		< 5	U	< 10	U
MW-24	MW-24-20050406	4/6/2005	152		6.04		< 10	U
MW-24	MW-24-20050929	9/29/2005	161		< 5	U	< 10	U
MW-24	MW-24-20060316	3/16/2006	347		7.57		< 10	U
MW-24	MW-24-20061014	10/14/2006	620		11		2	J
MW-24	MW-24-20070419	4/19/2007	196		11.6		< 10	U
MW-24	MW-24-20070920-FD	9/20/2007	150		< 5	U	< 10	U
MW-24	MW-24-20070920	9/20/2007	140		< 5	U	< 10	U
MW-24	MW-24-20080429	4/29/2008	150	0	3	J	< 10	U
MW-24	MW-24-20081210-FD	12/10/2008	130		3.4	J	< 5	U
MW-24	MW-24-20081210	12/10/2008	150		3.4	J	< 5	U
MW-24	MW-24-20090427	4/27/2009	120		< 5	U	< 5	U
MW-24	MW-24-20091029	10/29/2009	110		2.6	J	< 5	U
MW-24	MW-24-20100512	5/12/2010	150		4.3	J	< 5	U
MW-24	MW-24-20110323	3/23/2011	170		3.6	J	< 5	U
MW-24	MW-24-20111027-FD	10/27/2011	170		1.4	J	< 5	U
MW-24	MW-24-20111027	10/27/2011	170		1.9	J	< 5	U
MW-24	MW-24-20120418	4/18/2012	150		2.9	J	< 5	U
MW-24	MW-24-20121019	10/19/2012	190		3.7	J	< 0.11	U
MW-24	MW-24-20130425	4/25/2013	110		3.5	J	0.23	J
MW-24	MW-24-20140522	5/22/2014	79.7		1.2	J	< 0.13	U
MW-24	20140708-GW-MW-24	7/8/2014	102		1.4	J	< 0.50	U
MW-24	MW-24-201409	9/12/2014	55.7		0.66	J	< 0.50	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-24	MW-24-20141023	10/23/2014	33.1		< 0.50	U	< 0.50	U
MW-24	MW-24-201501	1/15/2015	26.9		< 0.50	U	< 0.50	U
MW-24	MW-24-201504	4/16/2015	18.8		< 0.50	U	< 0.50	U
MW-24	MW-24-201507	7/23/2015	178		3.1		< 0.13	U
MW-24	MW-24-201510	10/8/2015	44.1		0.83	J	< 0.13	U
MW-24	MW-24-201511	11/5/2015	75.8		0.20	J	< 0.13	U
MW-24	MW-24-201512	12/2/2015	84.1		0.59	J	< 0.13	U
MW-24	MW-24-201601	1/7/2016	49.3		0.48	J	< 0.13	U
MW-24	MW-24-201605	5/4/2016	23.8	J	0.27	J	< 0.13	U
MW-24	MW-24-201611	11/8/2016	4.2		< 0.080	U	< 0.13	U
MW-24	MW-24-201710	10/25/2017	20.9		< 0.080	U	< 0.13	U
MW-24	DUP-02-201811	11/15/2018	12.5		< 0.080	U	< 0.13	U
MW-24	MW-24-201811	11/15/2018	12.6		< 0.080	U	< 0.13	U
MW-25	MW-25-19990201-FD	2/1/1999	27000		180		110	
MW-25	MW-25-19990201	2/1/1999	29000		170		100	
MW-25	MW-25-19991201	12/1/1999	94500		<	ND	<	ND
MW-25	MW-25-20000301	3/1/2000	35900		245		63	
MW-25	MW-25-20000921	9/21/2000	59000		300		50	
MW-25	MW-25-20010328	3/28/2001	34000		117		60	
MW-25	MW-25-20010913	9/13/2001	60000		300		< 200	U
MW-25	MW-25L-20020909	9/9/2002	157000		440		180	
MW-25	MW-25T-20020909	9/9/2002	56000		370		200	
MW-25	MW-25-20030226	2/26/2003	45900		557		75.7	
MW-25	MW-25-20030717	7/17/2003	62200		621		243	
MW-25	MW-25-20030924	9/24/2003	103000		775		< 500	U
MW-25	MW-25-20040414	4/14/2004	25600		255		31.8	
MW-25	MW-25-20040921	9/21/2004	85200		819		422	
MW-25	MW-25-20050407	4/7/2005	21100		353		61.1	
MW-25	MW-25-20050928	9/28/2005	136000		837		< 500	U
MW-25	MW-25-20060315	3/15/2006	36300		774		< 200	U
MW-25	MW-25-20061012-FD	10/12/2006	65000		1400		600	
MW-25	MW-25-20061012	10/12/2006	64000		1300		610	
MW-25	MW-25-20070418-FD	4/18/2007	18000		319		20	
MW-25	MW-25-20070418	4/18/2007	19000		321		20	
MW-25	MW-25-20070921-FD	9/21/2007	55000		1200		780	
MW-25	MW-25-20070921	9/21/2007	54000		1200		800	
MW-25	MW-25-20080429-FD	4/29/2008	25000	0	510	0	10	J
MW-25	MW-25-20080429	4/29/2008	23000	0	470	0	10	J
MW-25	MW-25-20081210	12/10/2008	100000		1200		430	
MW-25	MW-25-20090427-FD	4/27/2009	39000		2000		190	
MW-25	MW-25-20090427	4/27/2009	36000		2100		140	
MW-25	MW-25-20091027	10/27/2009	140000		1500		570	
MW-25	MW-25-20100511	5/11/2010	81000		1400		11	
MW-25	MW-25-20101104	11/4/2010	270000		1500		400	
MW-25	MW-25-20110322	3/22/2011	57000		2400		34	
MW-25	MW-25-20111026	10/26/2011	120000		2100		< 250	U
MW-25	MW-25-20120417	4/17/2012	18000		690		18	
MW-25	MW-25-20121019-FD	10/19/2012	49000		3600		1500	
MW-25	MW-25-20121019	10/19/2012	56000		4200		1500	
MW-25	MW-25-20130425-FD	4/25/2013	9500		380		11	
MW-25	MW-25-20130425	4/25/2013	9100		330		7.9	
MW-25	MW-25-101813	10/18/2013	43000		2900		1300	
MW-25	MW-25-201403	3/8/2014	14500		625		33.6	J
MW-25	MW-25-201405	5/15/2014	18500		600	J	30.3	
MW-25	20140709-GW-MW-25	7/9/2014	49900		1750		< 0.50	U
MW-25	MW-25-201407	7/31/2014	71700		2310	J	< 500	U
MW-25	MW-25-201410	10/16/2014	42500		2870	J	540	J
MW-25	MW-25-20141024	10/24/2014	59800		2650	J	0.66	J
MW-25	MW-25-20141205	12/5/2014	2620	J	31.5		2.1	
MW-25	MW-25-201501	1/15/2015	2510		126		1.6	
MW-25	MW-25-201504	4/16/2015	4650		204		6.4	
MW-25	MW-25-201507	7/23/2015	39800		580	J	66.4	
MW-25	MW-25-201510	10/8/2015	68700		957	J	< 0.13	U
MW-25	MW-25-201601	1/13/2016	43400		608	J	55.0	
MW-25	MW-25-201605	5/5/2016	53000		83.6		< 0.13	U
MW-25	MW-25-201611	11/9/2016	36900		509	J	< 130	U
MW-25	FD-08-201710	10/26/2017	95900		20900		< 0.13	U
MW-25	MW-25-201710	10/26/2017	97400		22900		< 0.13	U
MW-25	MW-25-201811	11/16/2018	94300		18200		762	J
MW-26	MW-26-19990201	2/1/1999	360		150		<	ND
MW-26	MW-26-19990601	6/1/1999	<	ND	<	ND	<	ND
MW-26	MW-26-20000301	3/1/2000	<	ND	<	ND	<	ND
MW-26	MW-26-20000921	9/21/2000	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20010326	3/26/2001	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20010911-FD	9/11/2001	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20010911	9/11/2001	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20020910	9/10/2002	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20030227	2/27/2003	< 5	U	< 5	U	< 10	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-26	MW-26-20030924	9/24/2003	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20040414	4/14/2004	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20050929	9/29/2005	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-26	MW-26-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-26	MW-26-20091029	10/29/2009	< 5	U	< 5	U	< 5	U
MW-26	MW-26-20100512	5/12/2010	< 5	U	< 5	U	< 5	U
MW-26	MW-26-20101105	11/5/2010	22		< 5	U	< 5	U
MW-26	MW-26-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-26	MW-26-20120418	4/18/2012	< 5	U	< 5	U	< 5	U
MW-26	MW-26-20121018	10/18/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-26	MW-26-20130423	4/23/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-26	MW-26-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-26	MW-26-201403	3/5/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-26	MW-26-201405	5/12/2014	0.25	J	< 0.080	U	< 0.13	U
MW-26	MW-26-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-26	MW-26-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-26	MW-26-201501	1/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-26	MW-26-201504	4/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-26	MW-26-201507	7/22/2015	0.18	J	< 0.080	U	< 0.13	U
MW-26	MW-26-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-26	MW-26-201601	1/13/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-26	MW-26-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-26	MW-26-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-26	MW-26-201704	4/28/2017	0.28	J	< 0.080	U	< 0.13	U
MW-26	MW-26-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-26	MW-26-201804	4/18/2018	1.0		< 0.080	U	< 0.13	U
MW-26	DUP-09-201811	11/14/2018	0.46		< 0.080	U	< 0.13	U
MW-26	MW-26-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-27	MW-27-19991201	12/1/1999	<	ND	<	ND	<	ND
MW-27	MW-27-19991207	12/7/1999	< 5	U	< 5	U	< 10	U
MW-27	MW-27-19991209	12/9/1999	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20000301	3/1/2000	<	ND	<	ND	<	ND
MW-27	MW-27-20000921	9/21/2000	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20010105-FD	1/5/2001	5.55		< 5	U	< 10	U
MW-27	MW-27-20010105	1/5/2001	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20010326	3/26/2001	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20010911	9/11/2001	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20020911-FD	9/11/2002	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20020911	9/11/2002	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20050929	9/29/2005	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20061014	10/14/2006	2	J	< 5	U	< 10	U
MW-27	MW-27-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-27	MW-27-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-27	MW-27-20100512	5/12/2010	3.1	J	< 5	U	< 5	U
MW-27	MW-27-20101105	11/5/2010	42		< 5	U	< 5	U
MW-27	MW-27-20111027	10/27/2011	< 5	U	< 5	U	< 5	U
MW-27	MW-27-20120418	4/18/2012	2.6	J	< 5	U	< 5	U
MW-27	MW-27-20121018	10/18/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-27	MW-27-20130424	4/24/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-27	MW-27-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-27	MW-27-201403	3/7/2014	0.31	J	< 0.080	U	< 0.13	U
MW-27	MW-27-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-27	MW-27-201407	7/30/2014	0.63	J	< 0.50	U	< 0.50	U
MW-27	MW-27-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-27	MW-27-201501	1/14/2015	0.84	J	0.59	J	< 0.50	U
MW-27	MW-27-201504	4/13/2015	0.59	J	< 0.50	U	< 0.50	U
MW-27	MW-27-201507	7/22/2015	0.18	J	< 0.080	U	< 0.13	U
MW-27	MW-27-201510	10/7/2015	0.55	J	0.33	J	< 0.13	U
MW-27	MW-27-201601	1/12/2016	0.61	J	0.42	J	< 0.13	U
MW-27	MW-27-201605	5/4/2016	0.35	J	0.18	J	< 0.13	U
MW-27	MW-27-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-27	MW-27-201710	10/25/2017	0.41	U	< 0.080	U	< 0.13	U
MW-27	MW-27-201811	11/13/2018	0.92	J	0.27	J	< 0.13	U
MW-28	MW-28-19991201	12/1/1999	<	ND	<	ND	<	ND
MW-28	MW-28-19991209-FD	12/9/1999	< 5	U	< 5	U	< 10	U
MW-28	MW-28-19991209	12/9/1999	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20000301	3/1/2000	<	ND	<	ND	<	ND
MW-28	MW-28-20000921	9/21/2000	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20010327-FD	3/27/2001	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20010327	3/27/2001	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20010911	9/11/2001	< 5	U	< 5	U	< 10	U

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HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-28	MW-28-20020911	9/11/2002	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20061014	10/14/2006	< 5	U	< 5	U	< 10	UJ
MW-28	MW-28-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-28	MW-28-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-28	MW-28-20091029	10/29/2009	< 5	U	< 5	U	< 5	U
MW-28	MW-28-20100512	5/12/2010	2.6	J	< 5	U	< 5	U
MW-28	MW-28-20101105	11/5/2010	54		< 5	U	< 5	U
MW-28	MW-28-20110323	3/23/2011	1.6	J	< 5	U	< 5	U
MW-28	MW-28-20111027	10/27/2011	< 5	U	< 5	U	< 5	U
MW-28	MW-28-20120419	4/19/2012	< 5	U	< 5	U	< 5	U
MW-28	MW-28-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-28	MW-28-20130424	4/24/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-28	MW-28-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-28	MW-28-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201405	5/13/2014	0.30	J	< 0.080	U	< 0.13	U
MW-28	MW-28-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-28	MW-28-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-28	MW-28-201501	1/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-28	MW-28-201504	4/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-28	MW-28-201507	7/22/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-28	MW-28-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-19991201	12/1/1999	<	ND	<	ND	<	ND
MW-29	MW-29-19991209	12/9/1999	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20000301	3/1/2000	<	ND	<	ND	<	ND
MW-29	MW-29-20000920	9/20/2000	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20010327	3/27/2001	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20010911	9/11/2001	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20020910	9/10/2002	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20030227	2/27/2003	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20030924	9/24/2003	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20040414	4/14/2004	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20040922	9/22/2004	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20050928	9/28/2005	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-29	MW-29-20081210-FD	12/10/2008	< 5	U	< 5	U	< 5	U
MW-29	MW-29-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-29	MW-29-20091029	10/29/2009	< 5	U	< 5	U	< 5	U
MW-29	MW-29-20111025	10/25/2011	< 5	U	< 5	U	< 5	U
MW-29	MW-29-20120418	4/18/2012	< 5	U	< 5	U	< 5	U
MW-29	MW-29-20121018	10/18/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-29	MW-29-20130423	4/23/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-29	MW-29-101413	10/14/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-29	MW-29-201403	3/5/2014	0.52	J	< 0.080	U	< 0.13	U
MW-29	MW-29-201405	5/13/2014	0.18	J	< 0.080	U	< 0.13	U
MW-29	MW-29-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-29	MW-29-201410	10/15/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-29	MW-29-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-29	MW-29-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-29	MW-29-201507	7/22/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201601	1/13/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201710	10/25/2017	0.17	U	0.16	J	< 0.13	U
MW-29	MW-29-201804	4/19/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-29	MW-29-201811	11/15/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-30	MW-30-19991201	12/1/1999	115		34		<	ND
MW-30	MW-30-19991209	12/9/1999	115		34		< 10	U
MW-30	MW-30-20000301	3/1/2000	86		25		<	ND
MW-30	MW-30-20000920	9/20/2000	102		25		< 10	U
MW-30	MW-30-20010327	3/27/2001	43		11		< 10	U
MW-30	MW-30-20010911	9/11/2001	63		18		< 10	U
MW-30	MW-30-20020910	9/10/2002	48		14		< 10	U
MW-30	MW-30-20030227	2/27/2003	60		20.3		< 10	U
MW-30	MW-30-20030924	9/24/2003	46.8		13.7		< 10	U
MW-30	MW-30-20040414	4/14/2004	36.6		11.8		< 10	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-30	MW-30-20040922	9/22/2004	36.2		12.1		< 10	U
MW-30	MW-30-20050928	9/28/2005	59.6		15.6		< 10	U
MW-30	MW-30-20061012	10/12/2006	53		15		< 10	U
MW-30	MW-30-20070920	9/20/2007	39		11		< 10	U
MW-30	MW-30-20081210	12/10/2008	37		11		< 5	U
MW-30	MW-30-20101103	11/3/2010	50		15		< 5	U
MW-30	MW-30-20111026	10/26/2011	57		16		< 5	U
MW-30	MW-30-20120418	4/18/2012	150		32		< 5	U
MW-30	MW-30-20121018	10/18/2012	65		19		< 0.11	U
MW-30	MW-30-20130425	4/25/2013	49		18		0.49	J
MW-30	MW-30-101413	10/14/2013	40		16		< 0.11	U
MW-31	MW-31-20010105	1/5/2001	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20010326	3/26/2001	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20010913	9/13/2001	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20020911	9/11/2002	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20030228	2/28/2003	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20040923	9/23/2004	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20050405	4/5/2005	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20050927	9/27/2005	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20060315	3/15/2006	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20061011	10/11/2006	3	J	< 5	U	< 10	U
MW-31	MW-31-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20070918	9/18/2007	< 5	U	< 5	U	< 10	U
MW-31	MW-31-20080430	4/30/2008	2	J	< 5	U	< 10	U
MW-31	MW-31-20081211	12/11/2008	< 5	U	< 5	U	< 5	U
MW-31	MW-31-20090425	4/25/2009	< 5	U	< 5	U	< 5	U
MW-31	MW-31-20100512	5/12/2010	< 5	U	< 5	U	< 5	U
MW-31	MW-31-20101107	11/7/2010	48		< 5	U	< 5	U
MW-31	MW-31-20110323	3/23/2011	< 5	U	< 5	U	< 5	U
MW-31	MW-31-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-31	MW-31-20121019	10/19/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-31	MW-31-101813	10/18/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-31	MW-31-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-31	MW-31-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-31	DUP-1-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-31	MW-31-201407	7/30/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-31	MW-31-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-31	MW-31-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-31R	MW-31R-GW-20150119	1/19/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-31R	MW-31R-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-31R	MW-31R-201507	7/21/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-31R	MW-31R-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-31R	MW-31R-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-31R	MW-31R-201604	4/18/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-32	MW-32-20010105	1/5/2001	108		< 5	U	< 10	U
MW-32	MW-32-20010327	3/27/2001	174		< 5	U	< 10	U
MW-32	MW-32-20010913	9/13/2001	95		< 5	U	< 10	U
MW-32	MW-32-20020911	9/11/2002	109		< 5	U	< 10	U
MW-32	MW-32-20030228	2/28/2003	133		< 5	U	< 10	U
MW-32	MW-32-20030925	9/25/2003	32.3		< 5	U	< 10	U
MW-32	MW-32-20040415	4/15/2004	76.9		< 5	U	< 10	U
MW-32	MW-32-20040923	9/23/2004	51.4		< 5	U	< 10	U
MW-32	MW-32-20050405	4/5/2005	158		< 5	U	< 10	U
MW-32	MW-32-20050927	9/27/2005	97.6		< 5	U	< 10	U
MW-32	MW-32-20060315	3/15/2006	111		< 5	U	< 10	U
MW-32	MW-32-20061012	10/12/2006	85		4	J	< 10	U
MW-32	MW-32-20070419	4/19/2007	66.3		10.1		< 10	U
MW-32	MW-32-20070918	9/18/2007	78		< 5	U	< 10	U
MW-32	MW-32-20080430	4/30/2008	70	0	2	J	< 10	U
MW-32	MW-32-20081211	12/11/2008	60		< 5	U	< 5	U
MW-32	MW-32-20090425	4/25/2009	47		< 5	U	< 5	U
MW-32	MW-32-20091028	10/28/2009	68		1.8	J	< 5	U
MW-32	MW-32-20100512	5/12/2010	58		< 5	U	< 5	U
MW-32	MW-32-20101106	11/6/2010	120		< 5	U	< 5	U
MW-32	MW-32-20110324	3/24/2011	66		1.4	J	< 5	U
MW-32	MW-32-20111026	10/26/2011	73		< 5	U	< 5	U
MW-32	MW-32-20121019	10/19/2012	61		1.2	J	< 0.11	U
MW-32	MW-32-101813	10/18/2013	48		1.4	J	< 0.11	U
MW-32	MW-32-201403	3/8/2014	36.8		1.1	J	< 0.13	U
MW-32	MW-32-201405	5/13/2014	33.1		0.19	J	< 0.13	U
MW-32	MW-32-201407	7/29/2014	37.2		1.0	J	< 0.50	U
MW-32	MW-32-201410	10/14/2014	29.7		0.80	J	< 0.50	U
MW-32	MW-32-201501	1/14/2015	20.2		0.55	J	< 0.50	U
MW-32R	MW-32R-GW-20150119	1/19/2015	12.9		< 0.50	U	< 0.50	U
MW-32R	MW-32R-201504	4/15/2015	11.2		< 0.50	U	< 0.50	U
MW-32R	MW-32R-201507	7/21/2015	7.4		0.29	J	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-32R	MW-32R-201510	10/7/2015	8.2		0.37	J	< 0.13	U
MW-32R	MW-32R-201601	1/12/2016	13.1		0.45	J	< 0.13	U
MW-32R	MW-32R-201604	4/18/2016	8.8		< 0.080	U	< 0.13	U
MW-33	MW-33-20010105	1/5/2001	120		< 5	U	< 10	U
MW-33	MW-33-20010327	3/27/2001	260		7		< 10	U
MW-33	MW-33-20010913	9/13/2001	310		8		< 10	U
MW-33	MW-33-20020911	9/11/2002	450		8		< 10	U
MW-33	MW-33-20030228	2/28/2003	274		6.62		< 10	U
MW-33	MW-33-20030925	9/25/2003	198		5.95		< 10	U
MW-33	MW-33-20040415	4/15/2004	871		21.3		< 10	U
MW-33	MW-33-20040923	9/23/2004	798		15.3		< 10	U
MW-33	MW-33-20050405	4/5/2005	1430		24.5		< 10	U
MW-33	MW-33-20050927	9/27/2005	1030		15.2		< 10	U
MW-33	MW-33-20060315	3/15/2006	1610		20.5		< 10	U
MW-33	MW-33-20061012	10/12/2006	1300		19		< 10	U
MW-33	MW-33-20070419	4/19/2007	1430		9.2	J	< 50	U
MW-33	MW-33-20070918	9/18/2007	1700		25		< 10	U
MW-33	MW-33-20080430	4/30/2008	1100	0	16	0	< 10	U
MW-33	MW-33-20081211	12/11/2008	1200		18		< 5	U
MW-33	MW-33-20090425	4/25/2009	1200		19		< 5	U
MW-33	MW-33-20090527	5/27/2009	1000		19		< 5	U
MW-33	MW-33-20091028	10/28/2009	1200		20		< 5	U
MW-33	MW-33-20100512	5/12/2010	1100		21		< 5	U
MW-33	MW-33-20101106	11/6/2010	1200		17		< 5	U
MW-33	MW-33-20110304-FS	3/4/2011	500		14		< 0.85	U
MW-33	MW-33-20110523-FS	5/23/2011	1300		18			
MW-33	MW-33-20111026	10/26/2011	1000		16		< 5	U
MW-33	MW-33-20121019	10/19/2012	1300		18		0.56	J
MW-33	MW-33-101813	10/18/2013	1100		19		< 0.11	U
MW-33	MW-33-201403	3/8/2014	918		15.9		0.56	J
MW-33	MW-33-201405	5/14/2014	954		15.1		0.56	J
MW-33	MW-33-201407	7/29/2014	1600		20.8		0.59	J
MW-33	MW-33-201410	10/15/2014	1290		15.3		< 0.50	U
MW-33	MW-33-201501	1/14/2015	1080		13.9		< 0.50	U
MW-33R	MW-33R-GW-20150118	1/18/2015	799		9.9		< 0.50	U
MW-33R	DUP-01-201504	4/15/2015	624		10.5		< 0.50	U
MW-33R	MW-33R-201504	4/15/2015	570		12.2		0.37	J
MW-33R	DUP-04-201507	7/22/2015	447		6.1		< 0.13	U
MW-33R	MW-33R-201507	7/22/2015	488		6.8		< 0.13	U
MW-33R	DUP-05-201510	10/8/2015	460		6.3		0.28	J
MW-33R	MW-33R-201510	10/8/2015	562		6.1		0.31	J
MW-33R	MW-33R-201511	11/5/2015	752		8.0		0.39	J
MW-33R	MW-33R-201512	12/2/2015	675		6.5		0.30	J
MW-33R	MW-33R-201601	1/8/2016	724		7.6		< 0.13	U
MW-33R	MW-33R-201604	4/18/2016	776		6.7		0.23	J
MW-34	MW-34-20010328	3/28/2001	83		< 5	U	< 10	U
MW-34	MW-34-20010913	9/13/2001	61		< 5	U	< 10	U
MW-34	MW-34L-20020909	9/9/2002	84		< 5	U	< 10	U
MW-34	MW-34-20030228	2/28/2003	< 5	U	< 5	U	< 10	U
MW-34	MW-34-20030925	9/25/2003	28.4		< 5	U	< 10	U
MW-34	MW-34-20031114	11/14/2003	121		< 5	U	< 10	U
MW-34	MW-34-20040415	4/15/2004	119		< 5	U	< 10	U
MW-34	MW-34-20040923	9/23/2004	81.1		< 5	U	< 10	U
MW-34	MW-34-20041209	12/9/2004	93.3		< 5	U	< 10	U
MW-34	MW-34-20050405	4/5/2005	65.8		< 5	U	< 10	U
MW-34	MW-34-20050930	9/30/2005	83.7		< 5	U	< 10	U
MW-34	MW-34-20060314	3/14/2006	77.1		< 5	U	< 10	U
MW-34	MW-34-20061011	10/11/2006	63		4	J	< 10	U
MW-34	MW-34-20070418	4/18/2007	41		9.79		< 10	U
MW-34	MW-34-20070919	9/19/2007	61		< 5	U	< 10	U
MW-34	MW-34-20080430	4/30/2008	32	0	< 5	U	< 10	U
MW-34	MW-34-20081210	12/10/2008	53		< 5	U	< 5	U
MW-34	MW-34-20090424	4/24/2009	43		< 5	U	< 5	U
MW-34	MW-34-20090527	5/27/2009	12		< 5	U	< 5	U
MW-34	MW-34-20091028	10/28/2009	34		< 5	U	< 5	U
MW-34	MW-34-20100512	5/12/2010	38		< 5	U	< 5	U
MW-34	MW-34-20101107-FD	11/7/2010	70		< 5	U	< 5	U
MW-34	MW-34-20101107	11/7/2010	73		< 5	U	< 5	U
MW-34	MW-34-20110324-FD	3/24/2011	40		< 5	U	< 5	U
MW-34	MW-34-20110324	3/24/2011	42		< 5	U	< 5	U
MW-34	MW-34-20111026	10/26/2011	56		< 5	U	< 5	U
MW-34	MW-34-20121020	10/20/2012	90		1.6	J	< 0.11	U
MW-34	MW-34-101713	10/17/2013	43		0.90	J	< 0.11	U
MW-34	MW-34-201403	3/8/2014	28.7		0.61	J	< 0.13	U
MW-34	MW-34-201405	5/13/2014	19.9		< 0.080	U	< 0.13	U
MW-34	MW-34-201407	7/29/2014	78.2		1.7	J	< 0.50	U
MW-34	MW-34-201410	10/15/2014	47.7		0.96	J	< 0.50	U
MW-34	MW-34-201501	1/13/2015	22.0		< 0.50	U	< 0.50	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-34	MW-34-201504	4/14/2015	13.8		< 0.50	U	< 0.50	U
MW-34R	MW-34R-201507	7/21/2015	3.5		< 0.080	U	< 0.13	U
MW-34R	MW-34R-201510	10/8/2015	4.5		0.16	J	< 0.13	U
MW-34R	MW-34R-201601	1/11/2016	2.6		0.30	J	< 0.13	U
MW-34R	MW-34R-201605	5/3/2016	2.5		0.56	J	< 0.13	U
MW-35R	MW-35R-20010328	3/28/2001	960		34		< 10	U
MW-35R	MW-35R-20010913	9/13/2001	1030		40		< 20	U
MW-35R	MW-35L-20020909	9/9/2002	900		31		< 10	U
MW-35R	MW-35R-20030228	2/28/2003	246		15.1		< 10	U
MW-35R	MW-35R-20030925	9/25/2003	297		19.8		< 10	U
MW-35R	MW-35R-20031114	11/14/2003	990		34.9		< 10	U
MW-35R	MW-35R-20040415	4/15/2004	1150		45.8		< 10	U
MW-35R	MW-35R-20040923	9/23/2004	685		28.4		< 10	U
MW-35R	MW-35R-20041209	12/9/2004	880		42		< 10	U
MW-35R	MW-35R-20050406	4/6/2005	886		35		< 10	U
MW-35R	MW-35R-20050930	9/30/2005	804		29.3		< 10	U
MW-35R	MW-35R-20060314	3/14/2006	858		24.2		< 10	U
MW-35R	MW-35R-20060406	4/6/2006	1540		52.5		< 10	U
MW-35R	MW-35R-20061011	10/11/2006	910		29		< 10	U
MW-35R	MW-35R-20070418	4/18/2007	900		27.6		< 10	U
MW-35R	MW-35R-20070919	9/19/2007	1100		28		< 10	U
MW-35R	MW-35R-20080430	4/30/2008	1100	0	33	0	< 10	U
MW-35R	MW-35R-20081211	12/11/2008	790		27		< 5	U
MW-35R	MW-35R-20090424	4/24/2009	1100		37		< 5	U
MW-35R	MW-35R-20090507	5/7/2009	< 5	U	< 5	U	< 5	U
MW-35R	MW-35R-20090527	5/27/2009	< 5	U	< 5	U	< 5	U
MW-35R	MW-35R-20101105	11/5/2010	240		9.9		< 5	U
MW-35R	MW-35R-20110304-FS	3/4/2011	180		8.4		< 0.85	U
MW-35R	MW-35R-20110523-FS	5/23/2011	260		13			
MW-35R	MW-35R-20111025	10/25/2011	280		12		< 5	U
MW-35R	MW-35R-20121020	10/20/2012	280		10		< 0.11	U
MW-35R	MW-35R-20131017-FD	10/17/2013	220		13			
MW-35R	MW-35R-101713	10/17/2013	200		12		< 0.11	U
MW-35R	MW-35R-201403	3/8/2014	345		14.9		< 0.13	U
MW-35R	MW-35R-201405	5/13/2014	183		6.1		< 0.13	U
MW-35R	MW-35R-201407	7/30/2014	64.7		2.8	J	< 0.50	U
MW-35R	MW-35R-201410	10/14/2014	79.2		2.6	J	< 0.50	U
MW-35R	MW-35R-201501	1/13/2015	10.9		< 0.50	U	< 0.50	U
MW-35R	MW-35R-201504	4/14/2015	39.5		1.3		< 0.50	U
MW-35R	MW-35R-201507	7/21/2015	33.7		1.0		< 0.13	U
MW-35R	MW-35R-201510	10/7/2015	15.4		0.58	J	< 0.13	U
MW-35R	MW-35R-201511	11/4/2015	23.6		0.36	J	< 0.13	U
MW-35R	MW-35R-201512	12/2/2015	0.89	J	< 0.080	U	< 0.13	U
MW-35R	MW-35R-201601	1/11/2016	13.2		0.34	J	< 0.13	U
MW-35R	MW-35R-201605	5/3/2016	19.3		0.49	J	< 0.13	U
MW-36	MW-36-20010328	3/28/2001	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20010913	9/13/2001	< 5	U	< 5	U	< 10	U
MW-36	MW-36L-20020909	9/9/2002	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20030228	2/28/2003	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20031114	11/14/2003	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20040923	9/23/2004	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20050406	4/6/2005	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20060317	3/17/2006	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20061011	10/11/2006	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20070418	4/18/2007	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20070920	9/20/2007	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20080430	4/30/2008	< 5	U	< 5	U	< 10	U
MW-36	MW-36-20081211	12/11/2008	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20090507	5/7/2009	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20090508	5/8/2009	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20090528	5/28/2009	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20091028	10/28/2009	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20100512	5/12/2010	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20101107	11/7/2010	9.9		< 5	U	< 5	U
MW-36	MW-36-20110324	3/24/2011	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-36	MW-36-20121019	10/19/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-36	MW-36-101713	10/17/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-36	MW-36-201403	3/6/2014	0.22	J	< 0.080	U	< 0.13	U
MW-36	MW-36-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-36	MW-36-201407	7/29/2014	0.61	J	< 0.50	U	< 0.50	U
MW-36	MW-36-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-36	MW-36-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-36	MW-36-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-36R	MW-36R-201507	7/20/2015	< 0.17	UJ	< 0.080	UJ	< 0.13	UJ
MW-36R	MW-36R-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-36R	MW-36R-201601	1/11/2016	0.31	J	< 0.080	U	< 0.13	U
MW-36R	MW-36R-201605	5/3/2016	1.7		< 0.080	U	< 0.13	U
MW-37	MW-37-20010914	9/14/2001	5000		340		< 100	U
MW-37	MW-37-20011120	11/20/2001	< 5	U	< 5	U	< 10	U
MW-37	MW-37-20020911	9/11/2002	1400		10000		300	
MW-37	MW-37-20030227	2/27/2003	4050		5660		2500	
MW-37	MW-37-20030717	7/17/2003	2560		1710		316	
MW-37	MW-37-20030924	9/24/2003	3700		7020		973	
MW-37	MW-37-20040413	4/13/2004	5190		3160		1180	
MW-37	MW-37-20040921	9/21/2004	5030		5650		1370	
MW-37	MW-37-20050405	4/5/2005	5310		2360		1030	E
MW-37	MW-37-20050929	9/29/2005	6780		3210		910	E
MW-37	MW-37-20060316	3/16/2006	11200		5020		1730	
MW-37	MW-37-20061013-FD	10/13/2006	13000		5000		1200	
MW-37	MW-37-20061013	10/13/2006	13000		5300		1200	
MW-37	MW-37-20070419	4/19/2007	9490		3010		780	
MW-37	MW-37-20070921	9/21/2007	22000		9100		2800	
MW-37	MW-37-20080430	4/30/2008	16000	0	3300	0	1800	0
MW-37	MW-37-20081210	12/10/2008	24000		6300		1800	
MW-37	MW-37-20090427	4/27/2009	11000		3200		1200	
MW-37	MW-37-20091027	10/27/2009	37000		7400		2200	
MW-37	MW-37-20100511	5/11/2010	33000		7200		2400	
MW-37	MW-37-20101104	11/4/2010	54000		10000		2200	
MW-37	MW-37-20110322	3/22/2011	36000		6000		2300	
MW-37	MW-37-20111026	10/26/2011	57000		9700		2500	
MW-37	MW-37-20120418	4/18/2012	29000		5300		2100	
MW-37	MW-37-20121019	10/19/2012	4800		1100		230	
MW-37	MW-37-20130425	4/25/2013	1700		900		230	
MW-37	MW-37-101713	10/17/2013	1100		1500		1300	
MW-38	MW-38-20010914	9/14/2001	620		90		< 20	U
MW-38	MW-38-20050929	9/29/2005	< 5	U	98.9		2150	
MW-38	MW-38-20061013	10/13/2006	26		130		2000	J
MW-38	MW-38-20081210	12/10/2008	44		110		1400	
MW-38	MW-38-20111026	10/26/2011	580		870		1100	
MW-38	MW-38-20121018	10/18/2012	1000		750		700	
MW-38	MW-38-101613	10/16/2013	2300		1200		560	
MW-38	MW-38-201403	3/8/2014	1790		535		68.4	
MW-38	DUP1-201405	5/14/2014	2040		426	J	98.2	
MW-38	MW-38-201405	5/14/2014	1650		428		97.9	
MW-38	MW-38-201407	7/31/2014	1720		637		197	
MW-38	DUP-06-201410	10/16/2014	6970		869		370	
MW-38	MW-38-201410	10/16/2014	6750		781		321	
MW-38	MW-38-20141204	12/4/2014	3190		697		193	
MW-38	DUP-06-201501	1/15/2015	3910		1190		143	
MW-38	MW-38-201501	1/15/2015	5440		1900		133	
MW-38	MW-38-201504	4/16/2015	3060		2060		33.7	
MW-38	MW-38-201507	7/23/2015	3420		1340		119	
MW-38	MW-38-201510	10/8/2015	2740		1340		190	
MW-38	MW-38-201601	1/13/2016	3680		1180		84.3	
MW-38	MW-38-201605	5/5/2016	3040		950		18.1	
MW-38	MW-38-201611	11/10/2016	2860		1070		597	
MW-38	MW-38-201704	4/28/2017	2550		949		23.9	
MW-38	MW-38-201710	10/26/2017	2240		823		< 0.13	U
MW-38	MW-38-201804	4/19/2018	2560		777		23.6	
MW-38	MW-38-201811	11/15/2018	2340		675		360	
MW-39	MW-39-20030718	7/18/2003	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20031114	11/14/2003	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20040923	9/23/2004	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20050408	4/8/2005	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20060317	3/17/2006	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20061011	10/11/2006	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20070418	4/18/2007	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20080430	4/30/2008	< 5	U	< 5	U	< 10	U
MW-39	MW-39-20081209	12/9/2008	< 5	U	< 5	U	< 5	U
MW-39	MW-39-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-39	MW-39-20091027	10/27/2009	< 5	U	< 5	U	< 5	U
MW-39	MW-39-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-39	MW-39-20101107	11/7/2010	20		< 5	U	< 5	U
MW-39	MW-39-20110324	3/24/2011	< 5	U	< 5	U	< 5	U
MW-39	MW-39-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-39	MW-39-20121019	10/19/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-39	MW-39-101813	10/18/2013	< 1.6	U	< 0.56	U	< 0.11	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-39	MW-39-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-39	MW-39-201405	5/13/2014	0.23	J	< 0.080	U	< 0.13	U
MW-39	MW-39-201407	7/29/2014	0.79	J	< 0.50	U	< 0.50	U
MW-39	MW-39-201410	10/13/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-39	MW-39-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-39	MW-39-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-39R	MW-39R-201507	7/20/2015	< 0.17	UJ	< 0.080	UJ	< 0.13	UJ
MW-39R	MW-39R-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201611	11/7/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	FD-05-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-39R	MW-39R-201811	11/15/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-40	MW-40-20030718	7/18/2003	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20030925	9/25/2003	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20031114-FD	11/14/2003	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20031114	11/14/2003	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20040415	4/15/2004	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20040923	9/23/2004	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20050407	4/7/2005	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20050929	9/29/2005	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20060314	3/14/2006	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20061010	10/10/2006	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20070418	4/18/2007	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20070918	9/18/2007	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20080428	4/28/2008	< 5	U	< 5	U	< 10	U
MW-40	MW-40-20081211	12/11/2008	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20090527	5/27/2009	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20091029	10/29/2009	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20100512	5/12/2010	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20101104	11/4/2010	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20110323	3/23/2011	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-40	MW-40-20120418	4/18/2012	3.9	J	< 5	U	< 5	U
MW-40	MW-40-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-40	MW-40-20130423	4/23/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-40	MW-40-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-40	MW-40-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-40	MW-40-201405	5/12/2014	0.76	J	< 0.080	U	< 0.13	U
MW-40	MW-40-201407	7/29/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-40	MW-40-201410	10/13/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-40	MW-40-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-40	MW-40-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-40R	MW-40R-201507	7/20/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-40R	DUP-03-201510	10/6/2015	0.83	J	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201510	10/6/2015	0.30	J	0.23	J	< 0.13	U
MW-40R	DUP-06-201601	1/12/2016	0.28	J	0.22	J	< 0.13	U
MW-40R	MW-40R-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201611	11/7/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201710	10/24/2017	0.31	J	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-40R	MW-40R-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-41	MW-41-20030718-FD	7/18/2003	964		45.5		< 10	U
MW-41	MW-41-20030718	7/18/2003	972		50.6		< 10	U
MW-41	MW-41-20030925	9/25/2003	722		37.8		< 10	U
MW-41	MW-41-20031114	11/14/2003	331		205		< 10	U
MW-41	MW-41-20040415	4/15/2004	760		54.2		< 10	U
MW-41	MW-41-20040923	9/23/2004	1060		48		< 10	U
MW-41	MW-41-20050407	4/7/2005	1170		58		< 10	U
MW-41	MW-41-20050930	9/30/2005	1120		55.8		< 10	U
MW-41	MW-41-20060317	3/17/2006	917		52.5		< 10	U
MW-41	MW-41-20061013	10/13/2006	970		43		< 10	UJ
MW-41	MW-41-20070418	4/18/2007	900		30.1		< 10	U
MW-41	MW-41-20070920	9/20/2007	850		32		< 10	U
MW-41	MW-41-20080430	4/30/2008	730	0	31	0	< 10	U
MW-41	MW-41-20081211	12/11/2008	820		29		< 5	U
MW-41	MW-41-20090424	4/24/2009	660		25		< 5	U
MW-41	MW-41-20090507	5/7/2009	180		4.7	J	< 5	U
MW-41	MW-41-20090508	5/8/2009	180		4.7	J	< 5	U
MW-41	MW-41-20090527	5/27/2009	230		16		< 5	U
MW-41	MW-41-20091028	10/28/2009	180		4	J	< 5	U
MW-41	MW-41-20100513	5/13/2010	610		19		< 5	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-41	MW-41-20101105	11/5/2010	930		31		< 5	U
MW-41	MW-41-20110304-FS	3/4/2011	120		20		< 0.85	U
MW-41	MW-41-20110523-FS	5/23/2011	370		15			
MW-41	MW-41-20111025	10/25/2011	420		18		< 5	U
MW-41	MW-41-20121020-FD	10/20/2012	550		21		< 0.11	U
MW-41	MW-41-20121020	10/20/2012	620		23		< 0.11	U
MW-41	MW-41-101613	10/16/2013	520		24		< 0.11	U
MW-41	MW-41-201403	3/7/2014	501		19.7		0.68	J
MW-41	MW-41-201405	5/14/2014	518		18.0		0.50	J
MW-41	DUP-2-201407	7/30/2014	511		19.1		< 0.50	U
MW-41	MW-41-201407	7/30/2014	480		19.7		< 0.50	U
MW-41	MW-41-201410	10/15/2014	491		16.9		< 0.50	U
MW-41	MW-41-201501	1/14/2015	425		15.6		< 0.50	U
MW-41	DUP-02-201504	4/15/2015	410		13.5		< 0.50	
MW-41	MW-41-201504	4/15/2015	386		15.2		0.27	J
MW-41R	DUP-03-201507	7/21/2015	43.0		2.8		< 0.13	U
MW-41R	MW-41R-201507	7/21/2015	40.4		3.3		< 0.13	U
MW-41R	DUP-07-201510	10/6/2015	46.4		35.2		0.33	J
MW-41R	MW-41R-201510	10/6/2015	48.7		36.7		0.39	J
MW-41R	DUP-07-201601	1/12/2016	56.6		40.1		0.35	J
MW-41R	MW-41R-201601	1/12/2016	59.9		40.9		0.38	J
MW-41R	DUP-03-201605	5/3/2016	82.9		17.5		0.20	J
MW-41R	MW-41R-201605	5/3/2016	87.8		17.3		0.18	J
MW-42B	MW-42B-20031114	11/14/2003	481		21.1		< 10	U
MW-42B	MW-42B-20040415	4/15/2004	856		29.3		< 10	U
MW-42B	MW-42B-20040923	9/23/2004	400		19.8		< 10	U
MW-42B	MW-42B-20050405	4/5/2005	1310		32		< 10	U
MW-42B	MW-42B-20050927	9/27/2005	1470		27.3		< 10	U
MW-42B	MW-42B-20060315	3/15/2006	2270		37.2		< 10	U
MW-42B	MW-42B-20061010	10/10/2006	2000		35		2	J
MW-42B	MW-42B-20070417	4/17/2007	1600		36.8		< 10	U
MW-42B	MW-42B-20070918	9/18/2007	2100		39		4	J
MW-42B	MW-42B-20080429	4/29/2008	1600	0	33	0	3	J
MW-42B	MW-42B-20081209	12/9/2008	1100		30		< 5	U
MW-42B	MW-42B-20090425	4/25/2009	1500		35		< 5	U
MW-43	MW-43-20031114	11/14/2003	223		18.5		< 10	U
MW-43	MW-43-20040415	4/15/2004	510		12.1		< 10	U
MW-43	MW-43-20040923	9/23/2004	64.7		6.31		< 10	U
MW-43	MW-43-20050405	4/5/2005	304		11.9		< 10	U
MW-43	MW-43-20050927	9/27/2005	518		21.3		< 10	U
MW-43	MW-43-20060315	3/15/2006	1300		35		< 10	U
MW-43	MW-43-20061011	10/11/2006	920		30		< 10	U
MW-43	MW-43-20070417	4/17/2007	220		14.1		< 10	U
MW-43	MW-43-20070918	9/18/2007	350		13		< 10	U
MW-43	MW-43-20080428	4/28/2008	120	0	4	J	< 10	U
MW-43	MW-43-20081209	12/9/2008	150		5.3		< 5	U
MW-43	MW-43-20090425	4/25/2009	120		< 5	U	< 5	U
MW-43	MW-43-20090507	5/7/2009	180		6		< 5	U
MW-43	MW-43-20090508	5/8/2009	180		6		< 5	U
MW-46R	MW-46R-20031114	11/14/2003	39.9		< 5	U	< 10	U
MW-46R	MW-46R-20040415	4/15/2004	77.1		27.2		< 10	U
MW-46R	MW-46R-20040923	9/23/2004	142		21.2		< 10	U
MW-46R	MW-46R-20050406	4/6/2005	210		28.4		< 10	U
MW-46R	MW-46R-20050928	9/28/2005	222		15.6		< 10	U
MW-46R	MW-46R-20060316	3/16/2006	111		6.37		< 10	U
MW-46R	MW-46R-20060406	4/6/2006	300		< 5	U	< 10	U
MW-46R	MW-46R-20061011	10/11/2006	450		8		< 10	U
MW-46R	MW-46R-20070417	4/17/2007	440		12.5		< 10	U
MW-46R	MW-46R-20070918	9/18/2007	420		9		< 10	U
MW-46R	MW-46R-20080429	4/29/2008	430	0	8	0	< 10	U
MW-46R	MW-46R-20081209	12/9/2008	310		19		< 5	U
MW-46R	MW-46R-20090425	4/25/2009	460		11		< 5	U
MW-46R	MW-46R-20090527	5/27/2009	< 5	U	< 5	U	< 5	U
MW-46R	MW-46R-20091027	10/27/2009	390		12		< 5	U
MW-46R	MW-46R-20091221-FS	12/21/2009	410		10		< 1.6	U
MW-46R	MW-46R-20100511	5/11/2010	610		13		< 5	U
MW-46R	MW-46R-20101105	11/5/2010	650		12		< 5	U
MW-46R	MW-46R-20110307-FS	3/7/2011	670		14		< 0.85	U
MW-46R	MW-46R-20110322	3/22/2011	680		11		< 5	U
MW-46R	MW-46R-20110523-FS	5/23/2011	610		13			
MW-46R	MW-46R-20111026	10/26/2011	460		10		< 5	U
MW-46R	MW-46R-20120418	4/18/2012	680		14		< 5	U
MW-46R	MW-46R-20121020	10/20/2012	410		7.9		0.44	J
MW-46R	MW-46R-20130423	4/23/2013	470		7.6		0.91	J
MW-46R	MW-46R-101813	10/18/2013	410		11		< 0.11	U
MW-46R	MW-46R-201403	3/7/2014	469		12.8		0.46	J
MW-46R	MW-46R-201405	5/14/2014	471		12.8		0.76	J
MW-46R	MW-46R-201407	7/29/2014	472		13.7		0.64	J

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-46R	DUP-03-201410	10/16/2014	373		25.2		< 0.50	U
MW-46R	MW-46R-201410	10/16/2014	410		24.6		< 0.50	U
MW-46R	DUP-03-201501	1/13/2015	428		12.0		0.90	J
MW-46R	MW-46R-201501	1/13/2015	452		11.6		0.71	J
MW-46R	DUP-07-201504	4/14/2015	482		13.9		0.51	J
MW-46R	MW-46R-201504	4/14/2015	220	J	13.8		0.47	J
MW-46R	DUP-05-201507	7/21/2015	444		10.3		0.40	J
MW-46R	MW-46R-201507	7/21/2015	460		11.2		0.37	J
MW-46R	MW-46R-201510	10/7/2015	371		10.2		0.43	J
MW-46R	MW-46R-201601	1/12/2016	432		10.9		0.56	J
MW-46R	DUP-10-201605	5/3/2016	461		11.1		0.52	J
MW-46R	MW-46R-201605	5/3/2016	445		12.6		0.40	J
MW-46R	MW-46R-201611	11/8/2016	411		10.3		0.79	J
MW-46R	MW-46R-201704	4/27/2017	486		12.4		0.47	J
MW-46R	MW-46R-201710	10/24/2017	408		10.7		0.51	J
MW-46R	MW-46R-201804	4/18/2018	520		12.6		0.56	J
MW-46R	MW-46R-201811	11/14/2018	603		14.4		1.2	
MW-50	MW-50-20040415	4/15/2004	6.51		< 5	U	< 10	U
MW-50	MW-50-20040923	9/23/2004	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20041210	12/10/2004	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20050406	4/6/2005	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20050928	9/28/2005	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20060317	3/17/2006	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-50	MW-50-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20091027	10/27/2009	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20101105	11/5/2010	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20110323	3/23/2011	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20111025	10/25/2011	< 5	U	< 5	U	< 5	U
MW-50	MW-50-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-50	MW-50-101613	10/16/2013	1.6	J	< 0.56	U	< 0.11	U
MW-50	MW-50-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-50	MW-50-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-50	MW-50-201407	7/28/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-50	MW-50-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-50	MW-50-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-50	MW-50-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-50	MW-50-201710	10/23/2017	0.26	J	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201507	7/21/2015	0.22	J	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201510	10/6/2015	0.35	J	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201601	1/11/2016	0.42	J	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201605	5/2/2016	0.46	J	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201611	11/7/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201804	4/17/2018	0.61	J	< 0.080	U	< 0.13	U
MW-50R	MW-50R-201811	11/13/2018	0.73	J	< 0.080	U	< 0.13	U
MW-55	MW-55-20041209	12/9/2004	< 5	U	< 5	U	< 10	U
MW-55	MW-55-20050408	4/8/2005	< 5	U	< 5	U	< 10	U
MW-55	MW-55-20050928	9/28/2005	< 5	U	< 5	U	< 10	U
MW-55	MW-55-20060316	3/16/2006	< 5	U	< 5	U	< 10	U
MW-55	MW-55-20061013	10/13/2006	2	J	< 5	U	< 10	UJ
MW-55	MW-55-20070419	4/19/2007	2.6	J	< 5	U	< 10	U
MW-55	MW-55-20070919	9/19/2007	5	J	< 5	U	< 10	U
MW-55	MW-55-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-55	MW-55-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-55	MW-55-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-55	MW-55-20091027	10/27/2009	3.6	J	< 5	U	< 5	U
MW-55	MW-55-20100512	5/12/2010	4.2	J	< 5	U	< 5	U
MW-55	MW-55-20101106	11/6/2010	14		< 5	U	< 5	U
MW-55	MW-55-20110323	3/23/2011	5.5		< 5	U	< 5	U
MW-55	MW-55-20111025	10/25/2011	7		< 5	U	< 5	U
MW-55	MW-55-20121020	10/20/2012	9.2		< 0.56	U	< 0.11	U
MW-55	MW-55-101613	10/16/2013	13		< 0.56	U	< 0.11	U
MW-55R	MW-55R-201507	7/20/2015	8.2		0.42	J	0.13	J
MW-55R	MW-55R-201510	10/6/2015	4.4		0.53	J	0.14	J
MW-55R	MW-55R-201601	1/12/2016	0.26	J	< 0.080	U	< 0.13	U
MW-55R	MW-55R-201605	5/2/2016	2.1		< 0.080	U	< 0.13	U
MW-55R	MW-55R-201611	11/7/2016	3.1		< 0.080	U	< 0.13	U
MW-55R	MW-55R-201704	4/27/2017	7.0		0.58	J	< 0.13	U
MW-55R	MW-55R-201710	10/25/2017	10.9		0.77	J	0.15	J
MW-55R	DUP-05-201804	4/18/2018	18.1		0.82	J	0.16	J
MW-55R	MW-55R-201804	4/18/2018	17.0		0.77	J	< 0.13	U
MW-55R	DUP-08-201811	11/15/2018	23.1		0.85	J	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-55R	MW-55R-201811	11/15/2018	22.3		0.91	J	< 0.13	U
MW-56	MW-56-20041210	12/10/2004	90.2		< 5	U	< 10	U
MW-56	MW-56-20050408	4/8/2005	88.2		< 5	U	< 10	U
MW-56	MW-56-20050928	9/28/2005	207		< 5	U	< 10	U
MW-56	MW-56-20060316	3/16/2006	8.7		< 5	U	< 10	U
MW-56	MW-56-20061014	10/14/2006	110		2	J	< 10	UJ
MW-56	MW-56-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-56	MW-56-20070919	9/19/2007	38		< 5	U	< 10	U
MW-56	MW-56-20080429	4/29/2008	4	J	< 5	U	< 10	U
MW-56	MW-56-20081210	12/10/2008	93		< 5	U	< 5	U
MW-56	MW-56-20090424	4/24/2009	14		< 5	U	< 5	U
MW-56	MW-56-20091027	10/27/2009	8.7		< 5	U	< 5	U
MW-56	MW-56-20100512	5/12/2010	230		6.4		< 5	U
MW-56	MW-56-20110323	3/23/2011	71		2.6	J	< 5	U
MW-56	MW-56-20111025	10/25/2011	150		11		1.9	J
MW-56	MW-56-20121020	10/20/2012	470		11		< 0.11	U
MW-56	MW-56-101713	10/17/2013	590		17		< 0.11	U
MW-56	MW-56-201403	3/7/2014	618		15.3		0.15	J
MW-56	MW-56-201405	6/11/2014	307		17.6		0.16	J
MW-56	MW-56-201407	7/29/2014	516		19.3		< 0.50	U
MW-56	MW-56-201410	10/15/2014	408		12.1		< 0.50	U
MW-56	MW-56-201501	1/13/2015	326		10		< 0.50	U
MW-56	MW-56-201504	4/16/2015	495		8.2		< 0.13	U
MW-56R	MW-56R-201507	7/20/2015	156		8.0		0.31	J
MW-56R	MW-56R-201510	10/6/2015	278		18.1		0.42	J
MW-56R	MW-56R-201601	1/11/2016	408		19.2		0.32	J
MW-56R	MW-56R-201605	5/3/2016	734		19.7		0.52	J
MW-56R	MW-56R-201611	11/8/2016	679		27.8		0.37	J
MW-56R	MW-56R-201710	10/24/2017	815		33.8		< 0.13	U
MW-56R	MW-56R-201811	11/14/2018	902		21.1		0.38	J
MW-57	MW-57-20041210	12/10/2004	207		6.72		< 10	U
MW-57	MW-57-20050408	4/8/2005	282		6.83		< 10	U
MW-57	MW-57-20050928	9/28/2005	96		< 5	U	< 10	U
MW-57	MW-57-20060316	3/16/2006	254		7.56		< 10	U
MW-57	MW-57-20061013	10/13/2006	64		< 5	U	< 10	UJ
MW-57	MW-57-20070419	4/19/2007	201		3.77	J	< 10	U
MW-57	MW-57-20070920	9/20/2007	250		5	J	< 10	U
MW-57	MW-57-20080430	4/30/2008	14	0	< 5	U	< 10	U
MW-57	MW-57-20081210	12/10/2008	130		7.4		< 5	U
MW-57	MW-57-20090424	4/24/2009	96		4.2	J	< 5	U
MW-57	MW-57-20091027	10/27/2009	100		2.6	J	< 5	U
MW-57	MW-57-20100512	5/12/2010	210		6		< 5	U
MW-57	MW-57-20110323	3/23/2011	110		2.3	J	< 5	U
MW-57	MW-57-20111025	10/25/2011	59		2	J	< 5	U
MW-57	MW-57-20121020	10/20/2012	120		5.1		< 0.11	U
MW-57	MW-57-101713	10/17/2013	210		7.4		< 0.11	U
MW-57	MW-57-201403	3/7/2014	134		3.0	J	0.14	J
MW-57	MW-57-201405	6/11/2014	167		4.4	J	< 0.13	U
MW-57	MW-57-201407	7/29/2014	308		8.2		< 0.50	U
MW-57	MW-57-201410	10/15/2014	172		4.2	J	< 0.50	U
MW-57	MW-57-201501	1/13/2015	177		5.4		< 0.50	U
MW-57	MW-57-201504	4/16/2015	194		4.8		< 0.50	U
MW-57R	MW-57R-201507	7/20/2015	409		10.6		0.53	J
MW-57R	MW-57R-201510	10/6/2015	400		13.0		0.42	J
MW-57R	MW-57R-201601	1/11/2016	422		15.7		0.48	J
MW-57R	MW-57R-201605	5/3/2016	425		12.8		0.51	J
MW-57R	DUP-07-201611	11/8/2016	453		24.3		0.45	J
MW-57R	MW-57R-201611	11/8/2016	441		23.0		0.44	J
MW-57R	MW-57R-201710	10/24/2017	441		17.5		< 0.13	U
MW-57R	MW-57R-201811	11/14/2018	286		7.7		0.21	J
MW-58	MW-58-20041209	12/9/2004	526		14.5		< 10	U
MW-58	MW-58-20050407	4/7/2005	809		18.8		< 10	U
MW-58	MW-58-20050928	9/28/2005	486		10.9		< 10	U
MW-58	MW-58-20060316	3/16/2006	421		8.66		< 10	U
MW-58	MW-58-20061013	10/13/2006	620		14		< 10	UJ
MW-58	MW-58-20070419-FD	4/19/2007	717		9.54	J	< 25	U
MW-58	MW-58-20070419	4/19/2007	784		30.7		< 25	U
MW-58	MW-58-20070919-FD	9/19/2007	640		16		< 10	U
MW-58	MW-58-20070919	9/19/2007	650		17		< 10	U
MW-58	MW-58-20080430-FD	4/30/2008	580	0	14	0	< 10	U
MW-58	MW-58-20080430	4/30/2008	630	0	15	0	< 10	U
MW-58	MW-58-20081211-FD	12/11/2008	510		13		< 5	U
MW-58	MW-58-20081211	12/11/2008	530		12		< 5	U
MW-58	MW-58-20090425-FD	4/25/2009	580		15		< 5	U
MW-58	MW-58-20090425	4/25/2009	590		14		< 5	U
MW-58	MW-58-20091028-FD	10/28/2009	480		11		< 5	U
MW-58	MW-58-20091028	10/28/2009	480		11		< 5	U
MW-58	MW-58-20100512	5/12/2010	660		14		< 5	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-58	MW-58-20101106-FD	11/6/2010	560		11		< 5	U
MW-58	MW-58-20101106	11/6/2010	580		12		< 5	U
MW-58	MW-58-20110324-FD	3/24/2011	700		14		1.1	J
MW-58	MW-58-20110324	3/24/2011	710		12		< 5	U
MW-58	MW-58-20121020	10/20/2012	440		18		0.84	J
MW-58	MW-58-20131017-FD	10/17/2013	420		12		1.1	J
MW-58	MW-58-101713	10/17/2013	410		13		1.5	J
MW-58	MW-58-201403	3/7/2014	293		22.3		0.93	J
MW-58	MW-58-201405	5/12/2014	397		12.1		0.72	J
MW-58	MW-58-201407	7/29/2014	399		12.7		0.76	J
MW-58	MW-58-201410	10/15/2014	360		10.8		0.68	J
MW-58	MW-58-201501	1/14/2015	385		14.7		0.71	J
MW-58	MW-58-201504	4/16/2015	356		19.7		1.5	
MW-58R	MW-58R-201507	7/21/2015	337		9.5		0.57	J
MW-58R	MW-58R-201510	10/8/2015	299		10.5		0.55	J
MW-58R	DUP-10-201601	1/12/2016	319		29.4		0.66	J
MW-58R	MW-58R-201601	1/12/2016	312		28.7		0.67	J
MW-58R	DUP-04-201605	5/4/2016	308		25.2		0.64	J
MW-58R	MW-58R-201605	5/4/2016	352		29.7		0.81	J
MW-58R	MW-58R-201611	11/10/2016	< 0.17	U	28.5		0.85	J
MW-58R	MW-58R-201612	12/14/2016	265		30.3		0.61	J
MW-58R	MW-58R-201710	10/24/2017	360		10.0		0.65	J
MW-58R	DUP-05-201811	11/15/2018	319		9.8		0.47	J
MW-58R	MW-58R-201811	11/15/2018	312		10.2		0.43	J
MW-60	MW-60-20050401	4/1/2005	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20060317	3/17/2006	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-60	MW-60-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20091027	10/27/2009	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20101104	11/4/2010	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20110323	3/23/2011	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20111025	10/25/2011	< 5	U	< 5	U	< 5	U
MW-60	MW-60-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-60	MW-60-101513	10/15/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-60	MW-60-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-60	MW-60-201405	5/13/2014	0.21	J	< 0.080	U	< 0.13	U
MW-60	MW-60-201407	7/28/2014	1.0	J	< 0.50	U	< 0.50	U
MW-60	MW-60-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-60	MW-60-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-60	MW-60-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-60R	MW-60R-201507	7/21/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201601	1/11/2016	0.22	J	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201710	10/24/2017	0.83	J	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-60R	MW-60R-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-61	MW-61-20050401-FD	4/1/2005	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20050401	4/1/2005	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20060317	3/17/2006	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-61	MW-61-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-61	MW-61-20090424	4/24/2009	4	J	< 5	U	< 5	U
MW-61	MW-61-20091027	10/27/2009	< 5	U	< 5	U	< 5	U
MW-61	MW-61-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-61	MW-61-20101104	11/4/2010	< 5	U	< 5	U	< 5	U
MW-61	MW-61-20110323	3/23/2011	1.8	J	< 5	U	< 5	U
MW-61	MW-61-20111025	10/25/2011	< 5	U	< 5	U	< 5	U
MW-61	MW-61-20121017	10/17/2012	2.4	J	< 0.56	U	< 0.11	U
MW-61	MW-61-101613	10/16/2013	4.0	J	< 0.56	U	< 0.11	U
MW-61	MW-61-201403	3/6/2014	4.7	J	< 0.080	U	< 0.13	U
MW-61	MW-61-201405	5/13/2014	6.6		< 0.080	U	< 0.13	U
MW-61	MW-61-201407	7/28/2014	8.1		< 0.50	U	< 0.50	U
MW-61	MW-61-201410	10/14/2014	7.9		< 0.50	U	< 0.50	U
MW-61	MW-61-201501	1/13/2015	10.2		< 0.50	U	< 0.50	U
MW-61	MW-61-201504	4/14/2015	10.9		< 0.50	U	< 0.50	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-61R	MW-61R-201507	7/21/2015	14.7		< 0.080	U	< 0.13	U
MW-61R	MW-61R-GW-091815	9/18/2015	16.5		< 0.080	U	< 0.13	U
MW-61R	DUP-02-201510	10/8/2015	13.3		< 0.080	U	< 0.13	U
MW-61R	MW-61R-201510	10/8/2015	11.7		< 0.080	U	< 0.13	U
MW-61R	MW-61R-201511	11/4/2015	9.2		1.1		< 0.13	U
MW-61R	MW-61R-201512	12/1/2015	5.0		4.6		< 0.13	U
MW-61R	MW-61R-201601	1/8/2016	3.9		4.6		< 0.13	U
MW-61R	MW-61R-201605	5/3/2016	5.3		3.8		< 0.13	U
MW-61R	MW-61R-201611	11/7/2016	2.3		2.9		< 0.13	U
MW-61R	MW-61R-201704	4/27/2017	2.4		2.6		< 0.13	U
MW-61R	MW-61R-201710	10/23/2017	2.9		2.1		< 0.13	U
MW-61R	MW-61R-201804	4/17/2018	4.0		1.9		< 0.13	U
MW-61R	MW-61R-201807	7/31/2018	7.0		1.8		< 0.13	U
MW-61R	DUP-06-201811	11/13/2018	7.7		1.8		< 0.13	U
MW-61R	MW-61R-201811	11/13/2018	7.7		1.9		< 0.13	U
MW-62	MW-62-20050401	4/1/2005	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20060316	3/16/2006	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20061012	10/12/2006	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20070919	9/19/2007	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-62	MW-62-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-62	MW-62-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-62	MW-62-20091027	10/27/2009	< 5	U	< 5	U	< 5	U
MW-62	MW-62-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-62	MW-62-20110323	3/23/2011	< 5	U	< 5	U	< 5	U
MW-62	MW-62-20111025	10/25/2011	1.9	J	< 5	U	< 5	U
MW-62	MW-62-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-62	MW-62-101713	10/17/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-62	MW-62-201403	3/7/2014	0.18	J	< 0.080	U	< 0.13	U
MW-62	MW-62-201405	5/14/2014	0.62	J	< 0.080	U	< 0.13	U
MW-62	MW-62-201407	7/29/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-62	MW-62-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-62	MW-62-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-62	MW-62-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-62R	MW-62R-201507	7/21/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201611	11/7/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	FD-02-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201710	10/25/2017	0.38	U	0.17	J	< 0.13	U
MW-62R	MW-62R-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-62R	MW-62R-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-63	MW-63-20050401	4/1/2005	8.14		< 5	U	< 10	U
MW-63	MW-63-20050930	9/30/2005	< 5	U	< 5	U	< 10	U
MW-63	MW-63-20060316	3/16/2006	9.76		< 5	U	< 10	U
MW-63	MW-63-20060406	4/6/2006	11.6		< 5	U	< 10	U
MW-63	MW-63-20061012	10/12/2006	4	J	< 5	U	< 10	U
MW-63	MW-63-20070419	4/19/2007	4.08	J	< 5	U	< 10	U
MW-63	MW-63-20070919	9/19/2007	8		< 5	U	< 10	U
MW-63	MW-63-20080430	4/30/2008	3	J	< 5	U	< 10	U
MW-63	MW-63-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-63	MW-63-20090424	4/24/2009	4.3	J	< 5	U	< 5	U
MW-63	MW-63-20091027	10/27/2009	7.7		< 5	U	< 5	U
MW-63	MW-63-20100511	5/11/2010	7.6		< 5	U	< 5	U
MW-63	MW-63-20101106	11/6/2010	11		< 5	U	< 5	U
MW-63	MW-63-20110323	3/23/2011	12		< 5	U	< 5	U
MW-63	MW-63-20111025	10/25/2011	9.8		< 5	U	< 5	U
MW-63	MW-63-20121019	10/19/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-63	MW-63-101713	10/17/2013	7.5		< 0.56	U	< 0.11	U
MW-63	MW-63-201403	3/7/2014	9.4		1.3	J	< 0.13	U
MW-63	MW-63-201405	5/14/2014	12.2		0.61	J	0.13	J
MW-63	MW-63-201407	7/28/2014	8.3		0.99	J	< 0.50	U
MW-63	MW-63-201410	10/14/2014	9.4		0.98	J	< 0.50	U
MW-63	MW-63-201501	1/13/2015	8.2		1.0		< 0.50	U
MW-63	MW-63-201504	4/14/2015	9.2		0.99	J	< 0.50	U
MW-63R	MW-63R-201507	7/21/2015	5.6		0.70	J	< 0.13	U
MW-63R	MW-63R-201510	10/8/2015	3.9		0.70	J	< 0.13	U
MW-63R	MW-63R-201601	1/12/2016	3.2		0.39	J	< 0.13	U
MW-63R	MW-63R-201605	5/2/2016	3.3		0.55	J	< 0.13	U
MW-63R	MW-63R-201611	11/7/2016	2.9		0.21	J	< 0.13	U
MW-63R	MW-63R-201704	4/26/2017	3.8	B	< 0.080	U	< 0.13	U
MW-63R	MW-63R-201710	10/23/2017	4.4		0.85	J	< 0.13	U
MW-63R	DUP-01-201804	4/17/2018	4.9		0.38	J	< 0.13	U
MW-63R	MW-63R-201804	4/17/2018	4.8		0.44	J	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-63R	MW-63R-201811	11/14/2018	4.5		0.66	J	< 0.13	U
MW-65	MW-65-20061011-FD	10/11/2006	560		18		< 10	U
MW-65	MW-65-20061011	10/11/2006	470		19		< 10	U
MW-65	MW-65-20070419	4/19/2007	1350		23.4		< 10	U
MW-65	MW-65-20070920	9/20/2007	580		17		< 10	U
MW-65	MW-65-20080430	4/30/2008	570	0	16	0	< 10	U
MW-65	MW-65-20081211	12/11/2008	460		11		< 5	U
MW-65	MW-65-20090424	4/24/2009	620		19		< 5	U
MW-65	MW-65-20101107	11/7/2010	400		11		< 5	U
MW-65	MW-65-20110304-FS	3/4/2011	370		13		< 0.85	U
MW-65	MW-65-20111025	10/25/2011	310		10		< 5	U
MW-65	MW-65-20121020	10/20/2012	280		8.9		< 0.11	U
MW-65	MW-65-101713	10/17/2013	220		8.6		< 0.11	U
MW-65	MW-65-201403	3/8/2014	199		6.6		< 0.13	U
MW-65	MW-65-201405	5/14/2014	195		6.9		< 0.13	U
MW-65	MW-65-201407	7/30/2014	17.1		< 0.50	U	< 0.50	U
MW-65	MW-65-201410	10/14/2014	30.8		0.54	J	< 0.50	U
MW-65	MW-65-201501	1/13/2015	19.2		< 0.50	U	< 0.50	U
MW-65	MW-65-201504	4/15/2015	16.0		< 0.50	U	< 0.50	U
MW-65	MW-65-201507	7/20/2015	26.3		0.38	J	< 0.13	U
MW-65	MW-65-201510	10/7/2015	0.28	J	< 0.080	U	< 0.13	U
MW-65	MW-65-201511	11/4/2015	7.7		< 0.080	U	< 0.13	U
MW-65	MW-65-201512	12/2/2015	6.6		< 0.080	U	< 0.13	U
MW-65	MW-65-201601	1/11/2016	14.5		0.32	J	< 0.13	U
MW-65	MW-65-201605	5/3/2016	21.5		0.35	J	< 0.13	U
MW-66	MW-66-20060406	4/6/2006	< 5	U	< 5	U	< 10	U
MW-66	MW-66-20061012	10/12/2006	2	J	< 5	U	< 10	U
MW-66	MW-66-20070418	4/18/2007	< 5	U	< 5	U	< 10	U
MW-66	MW-66-20070919	9/19/2007	4	J	< 5	U	< 10	U
MW-66	MW-66-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-66	MW-66-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-66	MW-66-20090425	4/25/2009	< 5	U	< 5	U	< 5	U
MW-66	MW-66-20091028	10/28/2009	< 5	U	< 5	U	< 5	U
MW-66	MW-66-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-66	MW-66-20101103	11/3/2010	< 5	U	< 5	U	< 5	U
MW-66	MW-66-20110324	3/24/2011	1.6	J	< 5	U	< 5	U
MW-66	MW-66-20111026	10/26/2011	1.8	J	< 5	U	< 5	U
MW-66	MW-66-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-66	MW-66-101713	10/17/2013	2.1	J	< 0.56	U	< 0.11	U
MW-66	MW-66-201403	3/7/2014	3.5	J	< 0.080	U	< 0.13	U
MW-66	MW-66-201405	5/13/2014	3.1	J	< 0.080	U	< 0.13	U
MW-66	MW-66-201407	7/28/2014	2.6	J	< 0.50	U	< 0.50	U
MW-66	MW-66-201410	10/13/2014	2.3	J	< 0.50	U	< 0.50	U
MW-66	MW-66-201501	1/14/2015	2.4		< 0.50	U	< 0.50	U
MW-66	MW-66-201504	4/15/2015	2.6		< 0.50	U	< 0.50	U
MW-66	MW-66-201507	7/20/2015	3.3		0.22	J	< 0.13	U
MW-66	MW-66-201510	10/6/2015	2.3		0.18	J	< 0.13	U
MW-66	MW-66-201601	1/11/2016	0.53	J	< 0.080	U	< 0.13	U
MW-66	MW-66-201605	5/2/2016	2.6		0.20	J	< 0.13	U
MW-67	MW-67-20060406	4/6/2006	< 5	U	< 5	U	< 10	U
MW-67	MW-67-20061012	10/12/2006	1	J	< 5	U	< 10	U
MW-67	MW-67-20070419	4/19/2007	< 5	U	< 5	U	< 10	U
MW-67	MW-67-20070918	9/18/2007	< 5	U	< 5	U	< 10	U
MW-67	MW-67-20080429	4/29/2008	< 5	U	< 5	U	< 10	U
MW-67	MW-67-20081210	12/10/2008	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20090425	4/25/2009	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20091028	10/28/2009	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20100511	5/11/2010	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20101103	11/3/2010	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20110324	3/24/2011	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-67	MW-67-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-67	MW-67-101713	10/17/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-67	MW-67-201403	3/7/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-67	MW-67-201405	5/13/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-67	MW-67-201407	7/28/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-67	MW-67-201410	10/13/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-67	MW-67-201501	1/12/2015	1.3		< 0.50	U	< 0.50	U
MW-67	MW-67-201504	4/15/2015	0.77	J	< 0.50	U	< 0.50	U
MW-67R	MW-67R-201507	7/20/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-67R	MW-67R-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-67R	MW-67R-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-67R	MW-67R-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-20090115	1/15/2009	< 5	U	< 5	U	< 5	U
MW-68	MW-68-20090424	4/24/2009	< 5	U	< 5	U	< 5	U
MW-68	MW-68-20091028	10/28/2009	< 5	U	< 5	U	< 5	U
MW-68	MW-68-20100513	5/13/2010	< 5	U	< 5	U	< 5	U
MW-68	MW-68-20101106	11/6/2010	9.5		< 5	U	< 5	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-68	MW-68-20111026	10/26/2011	< 5	U	< 5	U	< 5	U
MW-68	MW-68-20121017	10/17/2012	< 1.6	U	< 0.56	U	< 0.11	U
MW-68	MW-68-101613	10/16/2013	< 1.6	U	< 0.56	U	< 0.11	U
MW-68	MW-68-201403	3/6/2014	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201405	5/14/2014	0.49	J	< 0.080	U	< 0.13	U
MW-68	MW-68-201407	7/29/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-68	MW-68-201410	10/14/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-68	MW-68-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-68	MW-68-201504	4/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-68	MW-68-201507	7/20/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201611	11/7/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201704	4/27/2017	0.22	J	< 0.080	U	< 0.13	U
MW-68	MW-68-201710	10/24/2017	0.31	J	< 0.080	U	< 0.13	U
MW-68	MW-68-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-68	MW-68-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-70	MW-70-20101104	11/4/2010	540		14		< 5	U
MW-70	MW-70-20110322	3/22/2011	170		9.2		1.2	J
MW-70	MW-70-20111026	10/26/2011	320		7.7		< 5	U
MW-70	MW-70-20120418	4/18/2012	330		11		< 5	U
MW-70	MW-70-20121018	10/18/2012	200		11		< 0.11	U
MW-70	MW-70-20130423	4/23/2013	180		3.6	J	0.32	J
MW-70	MW-70-101613	10/16/2013	270		7.2		0.30	J
MW-71	MW-71-20091028	10/28/2009	190		6.3		< 5	U
MW-71	MW-71-20100513	5/13/2010	160		7.4		< 5	U
MW-71	MW-71-20101104	11/4/2010	250		7.2		< 5	U
MW-71	MW-71-20110322	3/22/2011	76		1.6	J	< 5	U
MW-71	MW-71-20111026	10/26/2011	130		2.7	J	< 5	U
MW-71	MW-71-20120418	4/18/2012	160		5.3		< 5	U
MW-71	MW-71-20121020	10/20/2012	210		7.3		< 0.11	U
MW-71	MW-71-20130423	4/23/2013	220		4.8	J	0.23	J
MW-71	MW-71-101613	10/16/2013	160		6.1		0.57	J
MW-71	MW-71-201403	3/7/2014	166		5.8		0.19	J
MW-71	MW-71-201405	5/13/2014	164		5.3		0.33	J
MW-71	MW-71-201407	7/29/2014	181		6.4		< 0.50	U
MW-71	MW-71-201410	10/14/2014	185		6.0		< 0.50	U
MW-71	MW-71-201501	1/14/2015	170		6.0		< 0.50	U
MW-71	MW-71-201504	4/14/2015	156		5.7		< 0.50	U
MW-71	MW-71-201507	7/20/2015	165		5.3		0.48	J
MW-71	MW-71-201510	10/6/2015	179		6.5		0.43	J
MW-71	MW-71-201601	1/11/2016	171		6.1		0.40	J
MW-71	MW-71-201605	5/3/2016	140		5.3		0.23	J
MW-81	MW-81-201405	5/29/2014	512		14.3		0.21	J
MW-81	20140708-GW-MW-81	7/9/2014	518		11.4		< 0.50	U
MW-81	MW-81-201409	9/11/2014	463		13.5		< 0.50	U
MW-81	MW-81-201501	1/13/2015	385		9.9		< 0.50	U
MW-81	MW-81-201504	4/15/2015	198		4.2		< 0.50	U
MW-81	MW-81-201507	7/22/2015	275		7.7		< 0.13	U
MW-81	MW-81-201510	10/8/2015	160		3.8		< 0.13	U
MW-81	MW-81-201511	11/5/2015	233		6.5		< 0.13	U
MW-81	MW-81-201512	12/2/2015	56.1		0.84	J	< 0.13	U
MW-81	MW-81-201601	1/11/2016	157		3.9		< 0.13	U
MW-81	MW-81-201605	5/4/2016	256		8.3		< 0.13	U
MW-82	MW-82-201405	5/28/2014	285		4.8	J	0.14	J
MW-82	20140708-GW-MW-82	7/9/2014	48.2		1.2	J	< 0.50	U
MW-82	MW-82-201409	9/11/2014	50.0		1.1	J	< 0.50	U
MW-82	MW-82-201501	1/13/2015	66.0		1.2		< 0.50	U
MW-82	MW-82-201504	4/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-82	MW-82-201507	7/22/2015	5.3		< 0.080	U	< 0.13	U
MW-82	MW-82-201510	10/6/2015	4.2		< 0.080	U	< 0.13	U
MW-82	MW-82-201601	1/11/2016	5.6		0.18	J	< 0.13	U
MW-82	MW-82-201605	5/4/2016	31.7		0.81	J	< 0.13	U
MW-82	MW-82-201611	11/9/2016	36.2		0.24	J	< 0.13	U
MW-82	FD-03-201710	10/24/2017	34.1		0.80	J	< 0.13	U
MW-82	MW-82-201710	10/24/2017	34.3		0.80	J	< 0.13	U
MW-82	MW-82-201811	11/15/2018	60.3		1.2		< 0.13	U
MW-83	MW-83-20140523	5/23/2014	470		8.3		< 0.13	U
MW-83	MW-83-201409	9/12/2014	213		4.9	J	< 0.50	U
MW-83	MW-83-20141023	10/23/2014	210		5.2		< 0.50	U
MW-83	MW-83-201501	1/15/2015	101		1.8		< 0.50	U
MW-83	MW-83-201504	4/16/2015	151		2.8		< 0.50	U
MW-83	MW-83-201507	7/22/2015	27.9		0.49	J	< 0.13	U
MW-83	MW-83-201510	10/8/2015	9.8		0.25	J	< 0.13	U
MW-83	MW-83-201511	11/5/2015	3.2		< 0.080	U	< 0.13	U
MW-83	MW-83-201512	12/2/2015	1.3		< 0.080	U	< 0.13	U
MW-83	MW-83-201601	1/7/2016	1.1		< 0.080	U	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-83	MW-83-201605	5/4/2016	3.3		< 0.080	U	< 0.13	U
MW-83	MW-83-201611	11/9/2016	0.63	J	< 0.080	U	< 0.13	U
MW-83	MW-83-201710	10/25/2017	4.8		< 0.080	U	< 0.13	U
MW-83	MW-83-201811	11/14/2018	34.2		0.63	J	< 0.13	U
MW-84	MW-84-201405	5/27/2014	214		4.6	J	0.16	J
MW-84	MW-84-201409A	9/12/2014	0.93	J	< 0.50	U	< 0.50	U
MW-84	MW-84-20141023	10/23/2014	0.68	J	< 0.50	U	< 0.50	U
MW-84	MW-84-201501	1/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-84	MW-84-201504	4/16/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-84	MW-84-201507	7/23/2015	0.29	J	< 0.080	U	< 0.13	U
MW-84	MW-84-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-84	MW-84-201601	1/7/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-84	MW-84-201605	5/5/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-84	MW-84-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-84	MW-84-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-84	MW-84-201710	10/25/2017	0.98	U	< 0.080	U	< 0.13	U
MW-84	MW-84-201804	4/18/2018	0.54	J	< 0.080	U	< 0.13	U
MW-84	MW-84-201811	11/14/2018	1.5		< 0.080	U	< 0.13	U
MW-85	MW-85-201405	5/29/2014	1970		99.4		23.1	
MW-85	20140708-GW-MW-85	7/8/2014	3780		133		3.9	
MW-85	MW-85-201409	9/11/2014	5820		226	J	35.3	
MW-85	MW-85-20141205	12/5/2014	27700		280		7.7	
MW-85	MW-85-201501	1/15/2015	5940		167		1.1	
MW-85	MW-85-201504	4/16/2015	256		16.8		< 0.50	U
MW-85	MW-85-201507	7/23/2015	132		6.3		< 0.13	U
MW-85	MW-85-201510	10/8/2015	12000		52.6		1.8	
MW-85	MW-85-201601	1/13/2016	6980		32.8		0.70	J
MW-85	MW-85-201605	5/5/2016	678		12.0		0.82	J
MW-86	MW-86-201405	5/29/2014	533000		1220	J	341	J
MW-86	MW-86-201409	9/11/2014	129000		91.6		4.1	
MW-86	MW-86-20141205	12/5/2014	169000		290	E	24.7	
MW-86	MW-86-201501	1/15/2015	81200		128		4.5	
MW-86	MW-86-201504	4/16/2015	46700		128		5.8	
MW-86	MW-86-201507	7/23/2015	65100		292	J	46.7	
MW-86	MW-86-201510	10/8/2015	131000		1020		127	
MW-86	MW-86-201601	1/13/2016	95500		610	J	57.1	
MW-86	MW-86-201605	5/5/2016	64900		348	J	35.7	
MW-86	MW-86-201611	11/9/2016	75100		< 80.0	U	65.4	J
MW-86	MW-86-201704	4/28/2017	29900		1330		< 0.13	U
MW-86	MW-86-201710	10/26/2017	61300		2210		< 130	U
MW-86	MW-86-201804	4/19/2018	61200		2450		171	
MW-86	MW-86-201811	11/16/2018	188000		19500		2780	
MW-87	20140625-GW-MW-87	6/25/2014	564		41.8		< 0.50	U
MW-87	MW-87-201410	10/16/2014	594		47.8		< 0.50	U
MW-87	MW-87-201501	1/14/2015	661		51.3		< 0.50	U
MW-87	MW-87-201504	4/16/2015	758		58.6		0.33	J
MW-87	MW-87-201507	7/23/2015	758		56.5		0.34	J
MW-87	MW-87-201510	10/7/2015	708		54.5		0.31	J
MW-87	DUP-09-201601	1/13/2016	781		63.2		0.40	J
MW-87	MW-87-201601	1/13/2016	757		61.9		0.47	J
MW-87	MW-87-201605	5/5/2016	839		51.6		0.36	J
MW-87	DUP-05-201611	11/8/2016	948	J	49.0		0.39	J
MW-87	MW-87-201611	11/8/2016	701	J	51.9		0.25	J
MW-87	MW-87-201710	10/26/2017	486		36.4		< 0.13	U
MW-87	MW-87-201811	11/15/2018	397		28.3		0.77	J
MW-88	20140624-GW-MW-88	6/24/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-88	MW-88-201410	10/16/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-88	MW-88-201501	1/13/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-88	MW-88-201504	4/16/2015	0.58	J	< 0.50	U	< 0.50	
MW-88	MW-88-201507	7/23/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-88	MW-88-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-88	MW-88-201601	1/12/2016	0.58	J	< 0.080	U	< 0.13	U
MW-88	MW-88-201605	5/4/2016	0.25	J	< 0.080	U	< 0.13	U
MW-89	20140624-GW-MW-89	6/24/2014	19.5		< 0.50	U	< 0.50	U
MW-89	MW-89-201410	10/15/2014	11.3		< 0.50	U	< 0.50	U
MW-89	MW-89-201501	1/13/2015	11.4		< 0.50	U	< 0.50	U
MW-89	MW-89-201504	4/16/2015	15.9		< 0.50	U	< 0.50	
MW-89	MW-89-201507	7/23/2015	14.5		0.18	J	< 0.13	U
MW-89	MW-89-201510	10/7/2015	12.7		0.24	J	< 0.13	U
MW-89	MW-89-201601	1/12/2016	11.6		0.20	J	< 0.13	U
MW-89	MW-89-201605	5/3/2016	14.0		0.30	J	< 0.13	U
MW-89	MW-89-201611	11/8/2016	13.4		< 0.080	U	< 0.13	U
MW-89	MW-89-201710	10/26/2017	11.3		0.48	J	< 0.13	U
MW-89	MW-89-201811	11/14/2018	9.7		0.53	J	< 0.13	U
MW-90	20140625-GW-MW-90	6/25/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-90	MW-90-201410	10/16/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-90	MW-90-201501	1/12/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-90	MW-90-201504	4/15/2015	< 0.50	U	< 0.50	U	< 0.50	

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-90	MW-90-201507	7/22/2015	0.38	J	< 0.080	U	< 0.13	U
MW-90	MW-90-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-90	MW-90-201601	1/12/2016	0.25	J	< 0.080	U	< 0.13	U
MW-90	MW-90-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-91	20140625-GW-MW-91	6/25/2014	234		21.7		< 0.50	U
MW-91	MW-91-201410	10/16/2014	319		28.8		< 0.50	U
MW-91	DUP-07-201501	1/13/2015	317		31.0		< 0.50	U
MW-91	MW-91-201501	1/13/2015	354		31.5		< 0.50	U
MW-91	MW-91-201504	4/16/2015	438		36.6		0.18	J
MW-91	MW-91-201507	7/23/2015	411		34.8		0.23	J
MW-91	DUP-08-201510	10/7/2015	442		35.7		0.19	J
MW-91	MW-91-201510	10/7/2015	405		35.2		0.17	J
MW-91	DUP-08-201601	1/13/2016	422		38.6		0.24	J
MW-91	MW-91-201601	1/13/2016	413		36.1		0.24	J
MW-91	DUP-02-201605	5/4/2016	459		33.4		0.26	J
MW-91	MW-91-201605	5/4/2016	530		37.8		0.23	J
MW-91	DUP-03-201611	11/10/2016	599		40.6		0.38	J
MW-91	MW-91-201611	11/10/2016	574		41.6		0.36	J
MW-91	DUP-04-201704	4/27/2017	556		42.6		0.15	J
MW-91	MW-91-201704	4/27/2017	605		44.3		0.20	J
MW-91	MW-91-201710	10/25/2017	534		36.4		0.27	J
MW-91	MW-91-201804	4/19/2018	557		38.6		0.21	J
MW-91	MW-91-201811	11/15/2018	437		33.4		0.30	J
MW-92	MW-92-20141022	10/22/2014	2160		16.0		7.2	
MW-92	MW-92-20141204	12/4/2014	2200		23.4		10.3	
MW-92	MW-92-201501	1/15/2015	1410		10.4		4.6	
MW-92	MW-92-201504	4/16/2015	736		5.4		2.1	
MW-92	MW-92-201507	7/23/2015	617		6.7		1.0	
MW-92	MW-92-201510	10/8/2015	1400		10.8		1.4	
MW-92	MW-92-201601	1/13/2016	1840		7.1		0.66	J
MW-92	DUP-08-201605	5/4/2016	1840		25.7		1.7	
MW-92	MW-92-201605	5/4/2016	2210		25.5		1.8	
MW-93	MW-93-20141022	10/22/2014	18200		145		5.0	
MW-93	MW-93-20141204	12/4/2014	14600		85.7		2.5	
MW-93	MW-93-201501	1/15/2015	18000		131		3.4	
MW-93	MW-93-201504	4/16/2015	21500		160		3.9	
MW-93	MW-93-201507	7/23/2015	20800		164		3.4	
MW-93	MW-93-201510	10/8/2015	21100		120		3.3	
MW-93	MW-93-201601	1/13/2016	21200		103		2.6	
MW-93	MW-93-201605	5/5/2016	17300		127		7.6	
MW-93	MW-93-201611	11/9/2016	18300		98.8		0.93	J
MW-93	MW-93-201704	4/28/2017	28200		127		5.8	
MW-93	MW-93-201710	10/26/2017	16600		111		9.1	
MW-93	MW-93-201804	4/19/2018	17000		97.9		4.5	
MW-93	MW-93-201811	11/15/2018	16300		106		3.6	
MW-94	MW-94-20141022	10/22/2014	11100		309	J	2.5	
MW-94	MW-94-20141204	12/4/2014	9570		250	J	3.0	
MW-94	MW-94-201501	1/15/2015	9530		297		2.4	
MW-94	MW-94-201504	4/16/2015	11800		325		1.3	
MW-94	MW-94-201507	7/23/2015	3890		119		0.61	J
MW-94	MW-94-201510	10/8/2015	1990		59.5		0.25	J
MW-94	MW-94-201601	1/13/2016	936		30.3		< 0.13	U
MW-94	MW-94-201605	5/5/2016	424		15.6		< 0.13	U
MW-95	MW-95-20141022	10/22/2014	22300		151		25.7	
MW-95	MW-95-20141204	12/4/2014	20900		159		29.9	
MW-95	MW-95-201501	1/15/2015	21100		177		25.6	
MW-95	MW-95-201504	4/16/2015	26700		184		14.9	
MW-95	MW-95-201507	7/23/2015	25200		181		17.1	
MW-95	MW-95-201510	10/8/2015	26300		161		32.0	
MW-95	MW-95-201601	1/13/2016	24700		161		31.0	
MW-95	MW-95-201605	5/5/2016	21600		164		14.8	
MW-95	MW-95-201611	11/9/2016	28700		191		46.9	J
MW-95	MW-95-201704	4/28/2017	36300		181		10.7	
MW-95	MW-95-201710	10/26/2017	23900		198		51.2	
MW-95	MW-95-201804	4/19/2018	24100		153		13.1	
MW-95	MW-95-201811	11/15/2018	20300		152		39.6	
MW-96	MW-96-20141022	10/22/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-96	MW-96-201501	1/15/2015	0.59	J	< 0.50	U	< 0.50	U
MW-96	DUP-06-201504	4/16/2015	< 0.50	U	< 0.50	U	< 0.50	
MW-96	MW-96-201504	4/16/2015	< 0.50	U	< 0.50	U	< 0.50	
MW-96	DUP-06-201507	7/23/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201507	7/23/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-96	MW-96-201804	4/19/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-96	MW-96-201811	11/15/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-20141022	10/22/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-97	MW-97-201501	1/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-97	MW-97-201504	4/16/2015	< 0.50	U	< 0.50	U	< 0.50	
MW-97	MW-97-201507	7/23/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201510	10/7/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201605	5/5/2016	< 0.17	U	0.28	J	< 0.13	U
MW-97	MW-97-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201804	4/19/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-97	MW-97-201811	11/15/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-GW-2014 1029	10/29/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-98	MW-98-201501	1/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-98	MW-98-201504	4/16/2015	< 0.50	U	< 0.50	U	< 0.50	
MW-98	MW-98-201507	7/23/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201704	4/27/2017	0.21	J	0.23	J	< 0.13	U
MW-98	MW-98-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-98	MW-98-201811	11/14/2018	0.29		< 0.080	U	< 0.13	U
MW-99	MW-99-20141022	10/22/2014	< 0.50	U	< 0.50	U	< 0.50	U
MW-99	MW-99-201501	1/15/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-99	MW-99-201504	4/16/2015	< 0.50	U	< 0.50	U	< 0.50	
MW-99	MW-99-201507	7/23/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-99	MW-99-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-99	MW-99-201601	1/11/2016	0.21	J	< 0.080	U	< 0.13	U
MW-99	MW-99-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-99	MW-99-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-99	MW-99-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-99	MW-99-201804	4/18/2018	1.3		0.12	J	< 0.13	U
MW-99	MW-99-201811	11/13/2018	8.1		0.64	J	< 0.13	U
MW-172	MW-172-20141022	10/22/2014	3010		21.4		2.4	
MW-172	MW-172-20141205	12/5/2014	1810		15.6		1.3	J
MW-172	MW-172-201501	1/15/2015	3600		22.4		1.2	
MW-172	MW-172-201504	4/16/2015	1740		11.9		0.92	J
MW-172	MW-172-201507	7/23/2015	2140		12.4		0.69	J
MW-172	MW-172-201510	10/8/2015	2110		12.4		0.51	J
MW-172	MW-172-201601	1/13/2016	3190		13.5		< 0.13	U
MW-172	MW-172-201605	5/5/2016	2160		13.3		< 0.13	U
MW-173	MW-173-201504	4/15/2015	< 0.50	U	< 0.50	U	< 0.50	
MW-173	MW-173-201507	7/22/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-173	MW-173-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-173	MW-173-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-173	MW-173-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-174	MW-174-GW-20150120	1/20/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-174	MW-174-201504	4/14/2015	0.68	J	< 0.50	U	< 0.50	
MW-174	MW-174-201507	7/21/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-174	MW-174-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-174	MW-174-201601	1/12/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-174	MW-174-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-175	MW-175-GW-20150120	1/20/2015	123		2.0		< 0.50	U
MW-175	MW-175-201504	4/15/2015	98.8		1.5		< 0.50	
MW-175	MW-175-201507	7/21/2015	20.3		0.32	J	< 0.13	U
MW-175	MW-175-201510	10/7/2015	78.6		1.6		0.19	J
MW-175	MW-175-201601	1/11/2016	52.6		1.1		< 0.13	U
MW-175	MW-175-201605	5/3/2016	54.9		1.2		< 0.13	U
MW-175	MW-175-201611	11/8/2016	50.9		0.49	J	< 0.13	U
MW-175	MW-175-201704	4/28/2017	53.2		1.3		< 0.13	U
MW-175	MW-175-201710	10/24/2017	72.2		0.27	J	< 0.13	U
MW-175	MW-175-201804	4/18/2018	117		1.9		0.15	J
MW-175	MW-175-201811	11/13/2018	70.7		1.5		0.17	J
MW-176	MW-176-GW-20150120	1/20/2015	720		16.8		0.57	J
MW-176	MW-176-201504	4/14/2015	528		16.7		0.69	J
MW-176	MW-176-201507	7/21/2015	575		21.5		0.79	J
MW-176	MW-176-201510	10/6/2015	420		111		1.2	
MW-176	MW-176-201601	1/12/2016	306		125		1.3	
MW-176	MW-176-201605	5/3/2016	389		93.7		0.45	J
MW-176	MW-176-201611	11/8/2016	320		202		1.6	
MW-176	MW-176-201704	4/28/2017	355		140		0.63	J
MW-176	MW-176-201710	10/24/2017	281		187		0.29	J
MW-176	MW-176-201804	4/17/2018	426		105		1.1	
MW-176	MW-176-201811	11/13/2018	397		127		2.1	

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-177	MW-177-GW-20150121	1/21/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-177	MW-177-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-177	MW-177-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-177	MW-177-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-177	MW-177-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-178	MW-178-GW-20150118	1/18/2015	5.2		0.99	J	< 0.50	U
MW-178	MW-178-201504	4/16/2015	5.0		1.3		< 0.50	U
MW-178	MW-178-201507	7/22/2015	4.6		1.1		< 0.13	U
MW-178	MW-178-201510	10/7/2015	5.8		1.4		< 0.13	U
MW-178	MW-178-201611	11/10/2016	3.2		0.15	J	< 0.13	U
MW-178	MW-178-201704	4/27/2017	4.6		1.3		< 0.13	U
MW-178	FD-06-201710	10/25/2017	3.6		0.96	J	< 0.13	U
MW-178	MW-178-201710	10/25/2017	3.9		0.97	J	< 0.13	U
MW-178	MW-178-201804	4/18/2018	5.3		1.4		< 0.13	U
MW-178	MW-178-201811	11/14/2018	4.5		1.4		< 0.13	U
MW-179	MW-179-201504	4/16/2015	41.2		1.6		< 0.50	
MW-179	MW-179-201507	7/22/2015	27.3		1.1		< 0.13	U
MW-179	MW-179-201601	1/13/2016	30.6		1.1		< 0.13	U
MW-179	MW-179-201605	5/4/2016	6.6		< 0.080	U	< 0.13	U
MW-179	MW-179-201704	4/28/2017	20.4		1.0		< 0.13	U
MW-179	MW-179-201710	10/26/2017	10.7		0.35	J	< 0.13	U
MW-179	MW-179-201804	4/19/2018	21.7		0.85	J	< 0.13	U
MW-179	MW-179-201811	11/13/2018	1.4		< 0.080	U	< 0.13	U
MW-180	MW-180-GW-20150119	1/19/2015	23.7		3.4		< 0.50	U
MW-180	MW-180-201504	4/16/2015	21.4		3.8		< 0.50	
MW-180	MW-180-201507	7/22/2015	22.1		3.0		< 0.13	U
MW-180	MW-180-201510	10/7/2015	18.5		3.0		< 0.13	U
MW-180	MW-180-201601	1/14/2016	10.6		1.5		< 0.13	U
MW-180	MW-180-201605	5/5/2016	10.3		1.4		< 0.13	U
MW-181	MW-181-GW-20150121	1/21/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-181	MW-181-201504	4/14/2015	< 0.50	U	< 0.50	U	< 0.50	U
MW-181	MW-181-201507	7/21/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-181	MW-181-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-181	MW-181-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-182	MW-182-201507	7/23/2015	193		17.8		0.28	J
MW-182	MW-182-201510	10/5/2015	196		17.2		0.25	J
MW-182	MW-182-201601	1/13/2016	258		19.9		0.30	J
MW-182	DUP-09-201605	5/4/2016	271		16.6		0.32	J
MW-182	MW-182-201605	5/4/2016	283		18.9		0.31	J
MW-182	DUP-02-201611	11/9/2016	204		15.5		0.20	J
MW-182	MW-182-201611	11/9/2016	192		14.6		0.28	J
MW-182	MW-182-201710	10/24/2017	92.2		5.7		< 0.13	U
MW-182	DUP-06-201804	4/19/2018	59.3		4.1		< 0.13	U
MW-182	MW-182-201804	4/19/2018	58.3		3.9		< 0.13	U
MW-182	MW-182-201811	11/15/2018	40.8		2.5		< 0.13	U
MW-183	MW-183-201510	10/6/2015	2.0		0.30	J	< 0.13	U
MW-183	MW-183-201601	1/12/2016	2.7		0.32	J	< 0.13	U
MW-183	MW-183-201605	5/4/2016	2.8		0.34	J	< 0.13	U
MW-183	MW-183-201611	11/9/2016	5.3		< 0.080	U	< 0.13	U
MW-183	DUP-03-201704	4/26/2017	1.9		0.17	J	< 0.13	U
MW-183	MW-183-201704	4/26/2017	2.0		0.26	J	< 0.13	U
MW-183	MW-183-201710	10/25/2017	2.8		0.24	J	< 0.13	U
MW-183	MW-183-201804	4/18/2018	1.9		0.14	J	< 0.13	U
MW-183R	MW-183R-201811	11/14/2018	1.1		< 0.080	U	< 0.13	U
MW-184	MW-184-201510	10/5/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-184	MW-184-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-184	MW-184-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-184	MW-184-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-184	MW-184-201704	4/28/2017	0.45		< 0.080	U	< 0.13	U
MW-184	MW-184-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-184	MW-184-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-184	MW-184-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-185	MW-185-GW-091615	9/16/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-185	MW-185-201510	10/5/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-185	MW-185-201601	1/11/2016	0.87	J	< 0.080	U	< 0.13	U
MW-185	MW-185-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-185	MW-185-201611	11/8/2016	3.1		< 0.080	U	< 0.13	U
MW-185	MW-185-201704	4/26/2017	8.0		< 0.080	U	< 0.13	U
MW-185	MW-185-201710	10/24/2017	12.7		< 0.080	U	< 0.13	U
MW-185	DUP-07-201804	4/19/2018	11.1		1.4		< 0.13	U
MW-185	MW-185-201804	4/19/2018	12.0		1.4		< 0.13	U
MW-185	MW-185-201807	7/31/2018	11.7		1.4		< 0.13	U
MW-185	MW-185-201811	11/14/2018	11.7		2.6		< 0.13	U
MW-186	MW-186-GW-091415	9/14/2015	< 0.17	U	0.37	J	< 0.13	U
MW-186	MW-186-201510	10/5/2015	1.2		2.4		< 0.13	U
MW-186	MW-186-201601	1/7/2016	3.0		3.2		< 0.13	U
MW-186	MW-186-201605	5/4/2016	4.0		3.0		< 0.13	U
MW-186	MW-186-201611	11/7/2016	5.2		3.3		0.16	J
MW-186	DUP-02-201704	4/26/2017	5.0	B	2.8		< 0.13	U
MW-186	MW-186-201704	4/26/2017	4.7		2.7		< 0.13	U

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-186	FD-04-201710	10/24/2017	7.8		3.8		0.16	J
MW-186	MW-186-201710	10/24/2017	7.8		4.1		0.14	J
MW-186	DUP-01-20180402	4/2/2018	12.9		4.7		0.21	J
MW-186	MW-186-20180402	4/2/2018	13.1		4.2		0.22	J
MW-186	MW-186-201804	4/19/2018	14.2		4.8		0.23	J
MW-186	MW-186-201807	8/3/2018	17.7		4.5		0.15	J
MW-186	MW-186-201811	11/14/2018	10.2	F1	6.5		< 0.65	U
MW-187	MW-187-GW-091415	9/14/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-187	MW-187-201510	10/5/2015	< 0.17	U	0.21	J	< 0.13	U
MW-187	MW-187-201601	1/8/2016	0.22	J	0.27	J	< 0.13	U
MW-187	MW-187-201605	5/4/2016	0.56	J	0.59	J	< 0.13	U
MW-187	MW-187-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-187	MW-187-201704	4/26/2017	0.46	J	0.55	J	< 0.13	U
MW-187	MW-187-201710	10/24/2017	0.65	J	0.73	J	< 0.13	U
MW-187	MW-187-201804	4/18/2018	< 0.17	U	0.77	J	< 0.13	U
MW-187	MW-187-201811	11/14/2018	0.86	J	0.81	J	< 0.13	U
MW-188	MW-188A-GW-091715	9/17/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	MW-188-201510	10/5/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	MW-188-201601	1/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	MW-188-201605	5/3/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	MW-188-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	MW-188-201704	4/27/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	MW-188-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-188	DUP-04-201804	4/19/2018	0.18	J	< 0.080	U	< 0.13	U
MW-188	MW-188-201804	4/19/2018	0.20	J	< 0.080	U	< 0.13	U
MW-188	MW-188-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-189	MW-189A-GW-091715	9/17/2015	2.4		3.1		< 0.13	U
MW-189	MW-189-201510	10/5/2015	4.1		4.5		0.14	J
MW-189	MW-189-201601	1/7/2016	4.5		5.4		0.19	J
MW-189	MW-189-201605	5/4/2016	5.5		6.1		0.19	J
MW-189	MW-189-201611	11/7/2016	10.2		9.7		0.31	J
MW-189	MW-189-201704	4/26/2017	30.1		11.1		0.29	J
MW-189	MW-189-201710	10/25/2017	195		9.5		0.40	J
MW-189	MW-189-201804	4/19/2018	385		11.1		0.48	J
MW-189	MW-189-201811	11/15/2018	670		11.3		0.64	J
MW-190	MW-190-GW-091415	9/14/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201510	10/5/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-190	MW-190-201804	4/18/2018	0.58	J	< 0.080	U	< 0.13	U
MW-190	MW-190-201811	11/15/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-GW-091515	9/15/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201510	10/5/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201611	11/8/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201710	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-191	MW-191-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-GW-091615	9/16/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201510	10/5/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201601	1/11/2016	0.30	J	< 0.080	U	< 0.13	U
MW-192	MW-192-201605	5/4/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201710	10/25/2017	0.25	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	DUP-07-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-192	MW-192-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-193	MW-193-201510	10/6/2015	< 0.17	U	< 0.080	U	< 0.13	U
MW-193	MW-193-201601	1/11/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-193	MW-193-201605	5/2/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-194	MW-194-GW-080516	8/5/2016	6.6		0.66	J	< 0.13	U
MW-194	MW-194-201611	11/7/2016	12.7		< 0.080	U	< 0.13	U
MW-194	MW-194-201704	4/26/2017	10.8		< 0.080	U	< 0.13	U
MW-194	MW-194-201710	10/23/2017	15.4		1.1		< 0.13	U
MW-194	MW-194-201804	4/17/2018	9.4		0.57	J	< 0.13	U
MW-194	MW-194-201807	7/31/2018	13.3		0.79	J	< 0.13	U
MW-194	MW-194-201811	11/14/2018	10.7		0.87	J	< 0.13	U
MW-195	MW-195-GW-080516	8/5/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-195	MW-195-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-195	MW-195-201704	4/28/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-195	MW-195-201710	10/23/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-195	DUP-02-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-195	MW-195-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-195	MW-195-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-196	MW-196-GW-080516	8/5/2016	< 0.17	U	< 0.080	U	< 0.13	U

RAMBOLL

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
MW-196	MW-196-201611	11/9/2016	< 0.17	U	< 0.080	U	< 0.13	U
MW-196	MW-196-201704	4/26/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-196	MW-196-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
MW-196	MW-196-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
MW-196	MW-196-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
RW-69	RW-69-20090115	1/15/2009	170		7.1		< 5	U
RW-69	RW-69-20090424	4/24/2009	62		< 5	U	< 5	U
RW-69	RW-69-20090527	5/27/2009	290		10		< 5	U
RW-69	RW-69-20091221-FS	12/21/2009	200		6.3		< 1.6	U
RW-69	RW-69-20100513	5/13/2010	170		8.2		< 5	U
RW-69	RW-69-20101104	11/4/2010	320		9		< 5	U
RW-69	RW-69-20110303-FS	3/3/2011	200		7.1		< 0.85	U
RW-69	RW-69-20110523-FS	5/23/2011	130		3.0	J		
RW-69	RW-69-20111026	10/26/2011	210		5.7		< 5	U
RW-69	RW-69-20120418	4/18/2012	150		3.6	J	< 5	U
RW-69	RW-69-20121018	10/18/2012	180		5.0		< 0.11	U
RW-69	RW-69-20130423	4/23/2013	190		2.8	J	< 0.11	U
RW-69	RW-69-101613	10/16/2013	190		7.7		< 0.11	U
RW-69	RW-69-201403	3/7/2014	105		3.5	J	0.41	J
RW-69	RW-69-201405	5/13/2014	110		3.3	J	0.30	J
RW-69	RW-69-201407	7/29/2014	164		5.6		0.50	J
RW-69	RW-69-201410	10/14/2014	173		6.9		< 0.50	U
RW-69	RW-69-201501	1/14/2015	115		4.7		< 0.50	U
RW-69	RW-69-201504	4/14/2015	113		4.5		< 0.50	U
RW-69	RW-69-201507	7/21/2015	135		5.5		0.31	J
RW-69	RW-69-201510	10/6/2015	184		6.7		0.24	J
RW-69	RW-69-201601	1/12/2016	128		4.6		< 0.13	U
RW-69	RW-69-201605	5/3/2016	91.1		4.1		< 0.13	U
RW-69	RW-69-201611	11/9/2016	185		6.2		0.26	J
RW-69	RW-69-201704	4/27/2017	158		4.6		< 0.13	U
RW-69	RW-69-201710	10/24/2017	159		5.2		0.21	J
RW-69	RW-69-201804	4/18/2018	110		5.0		0.19	J
RW-69	RW-69-201811	11/14/2018	141	M1	5.4		0.53	J
TMW-01	TMW-01-062613-GW	6/26/2013	< 1.6	U	< 0.56	U		
TMW-01	TMW-01-062613-LL	6/26/2013					< 0.11	U
TMW-02	TMW-02-062613-GW	6/26/2013	< 1.6	U	< 0.56	U		
TMW-02	TMW-02-062613-LL	6/26/2013					< 0.11	U
TMW-04	TMW-04-062613-GW	6/26/2013	< 1.6	U	< 0.56	U		
TMW-04	TMW-04-062613-LL	6/26/2013					< 0.11	U
TMW-05	TMW-05-062613-GW	6/26/2013	< 1.6	U	< 0.56	U		
TMW-05	TMW-05-062613-LL	6/26/2013					< 0.11	U
TMW-10	TMW-10-GW-091815	9/18/2015	190		1.9		< 0.13	U
TMW-10	TMW-10-201510	10/8/2015	102		1.1		< 0.13	U
TMW-10	TMW-10-201511	11/4/2015	120		0.72	J	< 0.13	U
TMW-10	TMW-10-201512	12/1/2015	114		0.88	J	< 0.13	U
TMW-10	TMW-10-201601	1/8/2016	103		3.1		< 0.13	U
TMW-10	TMW-10-201605	5/4/2016	123		12.9		< 0.13	U
TMW-10	TMW-10-201611	11/8/2016	95.4		4.4		< 0.13	U
TMW-10	DUP-05-201704	4/27/2017	102		5.9		0.38	J
TMW-10	TMW-10-201704	4/27/2017	96.2		5.1		0.32	J
TMW-10	TMW-10-201710	10/24/2017	89.5		4.5		0.91	J
TMW-10	TMW-10-201804	4/18/2018	85.0		5.2		0.46	J
TMW-10	TMW-10-201807	7/31/2018	91.1		5.9		0.66	J
TMW-10	TMW-10-201811	11/13/2018	14.3		15.0		6.2	
TMW-11	TMW-11-GW-091815	9/18/2015	31.1		0.15	J	< 0.13	U
TMW-11	TMW-11-201510	10/8/2015	14.3		< 0.080	U	< 0.13	U
TMW-11	TMW-11-201511	11/4/2015	6.3		2.5		< 0.13	U
TMW-11	TMW-11-201512	12/1/2015	0.63	J	5.8		< 0.13	U
TMW-11	TMW-11-201601	1/8/2016	3.1		5.3		< 0.13	U
TMW-11	TMW-11-201605	5/3/2016	8.1		3.6		< 0.13	U
TMW-11	TMW-11-201611	11/8/2016	1.2		4.7		< 0.13	U
TMW-11	TMW-11-201704	4/27/2017	0.85	J	3.6		0.36	J
TMW-11	TMW-11-201710	10/23/2017	0.62	J	1.7		0.70	J
TMW-11	TMW-11-201804	4/17/2018	0.67	J	1.2		0.59	J
TMW-11	TMW-11-201811	11/13/2018	0.40	J	0.73	J	0.46	J
TMW-12	TMW-12-201704	4/27/2017	463		12.0		0.34	J
TMW-12	TMW-12-201804	4/18/2018	563		12.0		0.37	J
TMW-12	DUP-04-201811	11/15/2018	470		12.8		0.37	J
TMW-12	TMW-12-201811	11/15/2018	429		13.7		0.41	J
TMW-13	TMW-13-201704	4/27/2017	193		4.2		0.15	J
TMW-14	TMW-14-201704	4/27/2017	10.9		0.29	J	< 0.13	U
TMW-14	DUP-03-201804	4/18/2018	2.0		< 0.080	U	< 0.13	U
TMW-14	TMW-14-201804	4/18/2018	2.1		< 0.080	U	< 0.13	U
TMW-14	TMW-14-201811	11/14/2018	0.24		< 0.080	U	< 0.13	U
TMW-15	TMW-15-201704	4/26/2017	5.3		0.41	J	< 0.13	U
TMW-16	TMW-16-201704	4/25/2017	682		8.4		0.57	J
TMW-16	TMW-16-201710	10/24/2017	956		10.4		< 0.13	U
TMW-16	TMW-16-20180402	4/2/2018	985		11.5		0.78	J
TMW-16	TMW-16-201804	4/19/2018	1030		13.6		0.90	J
TMW-16	TMW-16-201807	8/2/2018	988		15.1		0.81	J
TMW-16	TMW-16-201811	11/16/2018	368		29.1		1.6	J

TABLE 7
HISTORICAL SUMMARY OF GROUNDWATER CONCENTRATIONS FOR TCE AND DAUGHTER-PRODUCTS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Sample Name	Date	Trichloroethene		cis-1,2-Dichloroethene		Vinyl Chloride	
TMW-17	TMW-17-201704	4/25/2017	154		7.6		0.37	J
TMW-18	TMW-18-201704	4/25/2017	0.60	J	0.72	J	< 0.13	U
TMW-19	DUP-01-201704	4/25/2017	0.30	J	< 0.080	U	< 0.13	U
TMW-19	TMW-19-201704	4/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-19	TMW-19-201710	10/24/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-19	TMW-19-201804	4/19/2018	0.41	J	0.32	J	< 0.13	U
TMW-19	TMW-19-201811	11/14/2018	0.97	J	0.69	J	< 0.13	U
TMW-20	TMW-20-201710	10/10/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-20	FD-01-201710	10/23/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-20	TMW-20-20171023	10/23/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-20	TMW-20-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-20	DUP-01-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-20	TMW-20-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-21	TMW-21-201710	10/10/2017	375		8.7		0.16	J
TMW-21	TMW-21-20171024	10/24/2017	461		9.2		< 0.13	U
TMW-21	TMW-21-201804	4/18/2018	340		7.4		< 0.13	U
TMW-21	TMW-21-20180419	4/19/2018	420		10.0		0.21	J
TMW-21	TMW-21-201807	7/31/2018	564		12.6		0.31	J
TMW-21	TMW-21-201811	11/15/2018	22.1		86.3		0.52	J
TMW-22	TMW-22-20171013	10/13/2017	636		13.9		< 0.13	U
TMW-22	TMW-22-201710	10/24/2017	486		9.8		< 0.13	U
TMW-22	TMW-22-201804	4/18/2018	224		20.1		< 0.13	U
TMW-22	TMW-22-201807	8/1/2018	460		28.7		0.20	J
TMW-22R	TMW-22R-201811	11/15/2018	347		71.2		0.16	J
TMW-23	TMW-23-20171013	10/13/2017	131		2.0		< 0.13	U
TMW-23	TMW-23-201710	10/25/2017	62.2		0.89	J	< 0.13	U
TMW-23	TMW-23-201804	4/18/2018	125		1.5		< 0.13	U
TMW-23	DUP-03-201811	11/16/2018	116		1.6		< 0.13	U
TMW-23	TMW-23-201811	11/16/2018	110		1.2		< 0.13	U
TMW-24	TMW-24-201710	10/10/2017	309		7.7		0.18	J
TMW-24	TMW-24-20171024	10/24/2017	385		8.1		< 0.13	U
TMW-24	TMW-24-201804	4/18/2018	601		11.9		0.25	J
TMW-24	TMW-24-201811	11/15/2018	540		10.9		0.25	J
TMW-25	TMW-25-201710	10/11/2017	140		8.8		0.19	J
TMW-25	TMW-25-20171025	10/25/2017	245		11.2		0.41	J
TMW-25	TMW-25-201804	4/19/2018	240		10.9		0.29	J
TMW-25	TMW-25-201811	11/15/2018	58.6		11.0		< 0.65	U
TMW-26	TMW-26-201710	10/11/2017	185		4.2		0.23	J
TMW-26	TMW-26-20171024	10/24/2017	36.3		< 0.080	U	< 0.13	U
TMW-26	TMW-26-20180402	4/2/2018	35.4		0.98	J	< 0.13	U
TMW-26	TMW-26-201804	4/19/2018	28.3		1.1		< 0.13	U
TMW-26	TMW-26-201807	8/2/2018	96.1		2.5		0.23	J
TMW-26	TMW-26-201811	11/15/2018	54.4		11.1		< 0.65	U
TMW-27	TMW-27-201710	10/11/2017	0.20	J	< 0.080	U	< 0.13	U
TMW-27	TMW-27-20171025	10/25/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-27	TMW-27-20180402	4/2/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-27	TMW-27-201804	4/18/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-27	TMW-27-201811	11/14/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-28	TMW-28-20171010	10/12/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-29	TMW-29-20171010	10/12/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-29	TMW-29-201710	10/23/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-29	TMW-29-201804	4/17/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-29	TMW-29-201811	11/13/2018	< 0.17	U	< 0.080	U	< 0.13	U
TMW-30	TMW-30-20171013	10/13/2017	< 0.17	U	< 0.080	U	< 0.13	U
TMW-30	TMW-30-201710	10/24/2017	0.55	J	< 0.080	U	< 0.13	U
TMW-30	TMW-30-20180402	4/2/2018	1.5		0.49	J	< 0.13	U
TMW-30	TMW-30-201811	11/14/2018	< 4.2	U	< 2.0	U	< 3.2	U
TMW-31	TMW-31-20180403	4/3/2018	< 0.85	U	< 0.40	U	< 0.65	U
TMW-32	TMW-32-20180403	4/3/2018	65.8		3.3		< 0.13	U
TMW-32	TMW-32-201804	4/18/2018	101		3.7		< 0.13	U
TMW-32	TMW-32-201807	8/3/2018	83.5		3.4		< 0.13	U
TMW-32	TMW-32-201811	11/16/2018	16.0		1.9		0.35	J
TMW-33	TMW-33-20180403	4/3/2018	55.8		2.3		0.17	J
TMW-33	TMW-33-SHALLOW-20180405	4/5/2018	156		3.0		0.26	J
TMW-34	TMW-34-201811	11/14/2018	7.4		1.5		< 0.13	U
TMW-188	MW-188-GW-091415	9/14/2015	2.0	J	2.4	J	< 0.65	U
TMW-189	MW-189-GW-091515	9/15/2015	2.6		4.7		0.22	J

TABLE 8
SUMMARY OF STATISTICAL TEMPORAL TREND ANALYSIS (2009 - 2018)
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Start Date	End Date	Number of Samples	Trichloroethene	cis-1,2-Dichloroethene	Vinyl Chloride
Northern Plume Wells						
MW-24	4/27/2009	11/15/2018	21	Decreasing	Decreasing	<PQL
MW-27	5/12/2010	11/13/2018	20	No Trend	<PQL	ND
MW-28	10/29/2009	11/13/2018	22	Decreasing	ND	ND
MW-39	4/24/2009	11/15/2018	23	No Trend	ND	ND
MW-40	4/24/2009	11/14/2018	26	<PQL	<PQL	ND
MW-46R	4/25/2009	11/14/2018	29	Stable	Stable	Increasing
MW-50/MW-50R	4/24/2009	11/13/2018	23	Increasing	ND	ND
MW-55/MW-55R	4/24/2009	11/15/2018	17	Increasing	<PQL	<PQL
MW-56/MW-56R	4/24/2009	11/14/2018	20	Increasing	Increasing	<PQL
MW-57/MW-57R	4/24/2009	11/14/2018	20	Increasing	Increasing	<PQL
MW-58/MW-58R	4/25/2009	11/15/2018	22	Decreasing	Stable	Stable
MW-60/MW-60R	4/24/2009	11/14/2018	23	Increasing	ND	ND
MW-61/MW-61R	4/24/2009	11/13/2018	23	Increasing	Increasing	ND
MW-62/MW-62R	4/24/2009	11/14/2018	21	No Trend	ND	ND
MW-63/MW-63R	4/24/2009	11/14/2018	23	Decreasing	Increasing	<PQL
MW-68	1/15/2009	11/13/2018	23	No Trend	ND	ND
RW-69	1/15/2009	11/14/2018	28	Decreasing	Stable	<PQL
IW-73	4/23/2009	11/14/2018	22	Decreasing	No Trend	No Trend
IW-77	4/23/2009	11/15/2018	31	Decreasing	Decreasing	<PQL
IW-78	10/25/2011	11/15/2018	12	Decreasing	Decreasing	ND
MW-82	5/28/2014	11/15/2018	12	No Trend	No Trend	<PQL
MW-83	5/23/2014	11/14/2018	12	Decreasing	Decreasing	ND
MW-84	5/27/2014	11/14/2018	14	No Trend	Decreasing	<PQL
MW-194	8/5/2016	11/14/2018	7	Stable	Stable	ND
MW-195	8/5/2016	11/13/2018	7	ND	ND	ND
MW-196	8/5/2016	11/13/2018	7	ND	ND	ND
TMW-10	10/8/2015	11/13/2018	8	Decreasing	Increasing	Increasing
TMW-11	10/8/2015	11/13/2018	8	Decreasing	Stable	<PQL
Southern Plume Wells (includes Source Area Wells as indicated by bold font well ID)						
ITMW-1	10/27/2011	11/15/2018	18	Decreasing	Decreasing	ND
ITMW-2	11/3/2010	11/13/2018	20	<PQL	<PQL	ND
ITMW-5	4/27/2009	11/15/2018	15	Increasing	Stable	Increasing
ITMW-7	4/27/2009	11/15/2018	24	Decreasing	Decreasing	No Trend
ITMW-9	4/27/2009	11/15/2018	22	No Trend	Decreasing	No Trend
ITMW-10	4/27/2009	11/14/2018	22	Increasing	Decreasing	Decreasing
ITMW-16	11/6/2010	11/13/2018	19	Decreasing	ND	ND
ITMW-18	4/27/2009	11/14/2018	23	Decreasing	Decreasing	<PQL
ITMW-19	4/27/2009	11/15/2018	23	Decreasing	Decreasing	<PQL
ITMW-20	10/29/2009	11/14/2018	23	No Trend	ND	<PQL
ITMW-21	10/27/2009	11/15/2018	23	Decreasing	<PQL	ND
MW-22	10/27/2009	11/14/2018	20	<PQL	ND	ND
MW-24	4/27/2009	11/15/2018	21	Decreasing	Decreasing	<PQL
MW-25	4/27/2009	11/16/2018	24	Stable	No Trend	Decreasing
MW-26	10/29/2009	11/14/2018	23	Increasing	ND	ND
MW-29	10/29/2009	11/15/2018	21	<PQL	<PQL	ND
MW-38	10/26/2011	11/15/2018	19	Stable	Stable	Decreasing
MW-86	5/29/2014	11/16/2018	14	Decreasing	Increasing	Increasing
MW-93	10/22/2014	11/15/2018	13	Stable	Decreasing	Stable
MW-95	10/22/2014	11/15/2018	13	Stable	Stable	Stable
MW-182	7/23/2015	11/15/2018	8	Decreasing	Decreasing	<PQL
MW-185	10/5/2015	11/14/2018	8	Increasing	Increasing	ND
MW-186	10/5/2015	11/14/2018	8	Increasing	Increasing	<PQL
MW-187	10/5/2015	11/14/2018	8	<PQL	<PQL	ND
MW-188	10/5/2015	11/14/2018	8	<PQL	ND	ND
MW-189	10/5/2015	11/15/2018	8	Increasing	Increasing	<PQL
MW-190	10/5/2015	11/15/2018	8	<PQL	ND	ND
MW-191	10/5/2015	11/14/2018	8	No Trend	ND	No Trend
MW-192	10/5/2015	11/14/2018	8	No Trend	ND	ND
Northeast Corner Wells						
MW-87	6/25/2014	11/15/2018	11	Stable	Stable	<PQL
MW-89	6/24/2014	11/14/2018	11	Decreasing	<PQL	ND
MW-91	6/25/2014	11/15/2018	13	Increasing	Increasing	<PQL
MW-96	10/22/2014	11/15/2018	12	<PQL	ND	ND
MW-97	10/22/2014	11/15/2018	12	ND	<PQL	ND
MW-98	10/29/2014	11/14/2018	12	Increasing	<PQL	ND
MW-99	10/22/2014	11/13/2018	11	Increasing	<PQL	ND
MW-183/MW-183R	10/5/2015	11/14/2018	8	Stable	<PQL	ND
MW-184	10/5/2015	11/14/2018	8	No Trend	ND	ND

Notes:
ND = Result is Not Detected at the associated method quantitation limit
<PQL = Analyte qualified as estimated because it was detected
Bolded text = source well

RAMBOLL

TABLE 9
SUMMARY OF WATER QUALITY PARAMETERS (MW-61R PILOT TEST)
Whirlpool Facility - Fort Smith, Arkansas

Well	Time - Time Stamp	TOC Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Fe(II) (mg/L)	Notes
MW-61R	9/18/2015 15:07	459.31	4.5	454.81	25.09	687	0.38	6.22	-147.3	ND	Pilot Pre-Injection Baseline
	9/30/2015 12:51	459.31	3.05	456.26							During Pilot Injection
	9/30/2015 14:25	459.31	7.72	451.59	24.06	531	1.37	6.29	79.1	2.4	
	9/30/2015 14:44	459.31	8.14	451.17	23.93	526	1.25	6.29	84.6	3.3	
	9/30/2015 15:46	459.31	8.80	450.51	23.80	530	1.31	6.23	78.8		
	9/30/2015 17:04	459.31	14.14	445.17	23.00	564	0.32	6.47	15.4		
	10/1/2015 10:46	459.31	2.96	456.35							
	10/1/2015 11:19	459.31	8.40	450.91	23.49	646	3.75	6.28	111.3	ND	
	10/1/2015 13:13	459.31	13.13	446.18	22.98	678	1.46	6.34	65.5	3.3	
	10/1/2015 14:00	459.31	14.84	444.47	22.71	680	1.06	6.35	58.4	3.3	
	10/1/2015 17:30	459.31			23.64	658	5.00	6.45	94.8		
	10/2/2015 8:44	459.31	1.85	457.46							
	10/2/2015 9:18	459.31			23.33	720	2.99	6.28	-33.8		
	10/2/2015 13:44	459.31			23.33	1189	3.08	6.29	-50	3.3	
	10/2/2015 15:26	459.31			23.91	1090	2.74	6.24	-57.2	3.3	
	10/8/2015 9:40	459.31	3.08	456.23							6 days post pilot injection
	10/8/2015 10:25	459.31	6.65	452.66	24.55	4238	1.30	5.52	-13.1	>3.3	
	10/22/2015 9:35	459.31	7.15	452.16	23.96	2190	0.00	6.20	-152	3.0	20 days post pilot injection
	11/4/2015 14:31	459.31	5.45	453.86	23.77	1790	0.07	6.50	-105.6	3.3	30 days post pilot injection
	12/1/2015 15:55	459.31	6.49	452.82	19.70	1802	0.08	6.85	-148.7	2.8	60 days post pilot injection
	1/8/2016 8:30	459.31	7.10	452.21	16.18	1207	0.21	6.82	-117.3	>3.0	90 days post pilot injection
	5/3/2016 12:10	459.31	6.40	452.91	18.18	1250	0.17	6.79	-124.8	>3.3	210 days post pilot injection
	11/7/2016 0:00	459.31	7.60	451.71	21.34	1063	0.63	7.67	-170.5	>3.3	405 days post pilot injection
	4/27/2017 9:26	459.31	7.60	451.71	18.10	1073	0.18	6.81	-66.5	3.3	575 days post pilot injection
	10/23/2017 16:52	459.31	6.53	452.78	23.90	1204	0.18	6.95	-119.3	3.3	754 days post pilot injection
	4/17/2018 14:00	459.31	7.05	452.26	17.86	1077	0.12	6.89	-125.5	>3.3	930 days post pilot injection
	7/31/2018 11:15	459.31	5.75	453.56	24.30	915	0.07	6.78	-87.4	>3.00	Phase II Injection Baseline**
	11/13/2018 14:20	459.31	6.85	452.46	19.75	951	0.12	6.54	-108.9	1.15	90 days post phase II injection***
TMW-10	9/18/2015 13:40	460.75	4.2	456.55	23.96	932	0.78	6.31	-183.9	ND	Pilot Test Pre-Injection Baseline
	9/30/2015 11:34	460.75	3.34	457.41							During Pilot Injection
	9/30/2015 17:57	460.75	4.95	455.80	21.1	753	1.79	6.47	167.1		
	10/1/2015 18:03	460.75			21.75	906	6.61	6.53	162.0		
	10/2/2015 8:59	460.75	1.89	458.86							
	10/2/2015 9:42	460.75			21.25	866	4.84	6.40	132.1	0.41	
	10/2/2015 11:22	460.75			21.59	868	5.08	6.38	190.1	3.3	

RAMBOLL

TABLE 9
SUMMARY OF WATER QUALITY PARAMETERS (MW-61R PILOT TEST)
Whirlpool Facility - Fort Smith, Arkansas

Well	Time - Time Stamp	TOC Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Fe(II) (mg/L)	Notes
TMW-10	10/8/2015 12:15	460.75	0	460.75							6 days post injection
	10/8/2015 12:57	460.75	1.16	459.59	23.13	833	4.24	6.40	101.4	>3.3	
	11/4/2015 13:05	460.75	2.6	458.15	21.65	871	3.00	6.34	97.6		30 days post pilot injection
	12/1/2015 13:58	460.75	3.91	456.84	19.67	800	2.02	6.29	136.2	1.4	60 days post pilot injection
	1/8/2016 8:40	460.75	5.00	455.75	16.94	822	2.17	6.19	209.8	0.14	90 days post pilot injection
	5/4/2016 10:10	460.75	5.70	455.05	17.10	869	1.12	6.40	135.5	0.13	210 days post pilot injection
	11/8/2016 0:00	460.75	4.61	456.14	20.32	892	0.50	6.31	187	0.67	405 days post pilot injection
	4/27/2017 12:09	460.75	7.42	453.33	17.87	829	0.29	6.30	-3.2	0.08	575 days post pilot injection
	10/24/2017 14:15	460.75	4.93	455.82	21.59	904	0.18	6.33	55.1	0.08	754 days post pilot injection
	4/18/2018 13:10	460.75	7.30	453.45	18.36	864	0.11	6.33	155.8	0.03	930 days post pilot injection
	7/31/2018 17:20	460.75	4.70	456.05	21.75	833	0.03	6.22	32.5	0.05	Phase II Injection Baseline**
	11/13/2018 16:55	460.75	5.69	455.06	16.46	3499	0.47	6.63	-127.6	>3.00	90 days post phase II injection***
TMW-11	9/18/2015 10:05	460.20	3.49	456.71	23.93	1005	3.07	6.52	12.4	ND	Pilot Pre-Injection Baseline
	10/1/2015 9:34	460.20	2.51	457.69							During Pilot Injection
	10/1/2015 10:31	460.20	3.49	456.71	22.07	985	2.58	6.75	126.8	ND	
	10/1/2015 18:08	460.20			21.27	968	6.71	6.86	166		
	10/2/2015 13:58	460.20			21.00	1147	4.06	6.62	28.3	3.3	
	10/2/2015 15:46	460.20			21.39	1033	3.05	6.58	37		
	10/8/2015 13:02	460.20	6.44	453.76	23.35	5448	1.01	5.72	-61.9	3.0	6 days post injection
	11/4/2015 14:00	460.20	1.98	458.22	21.59	4,196	5.16	6.24	-18.4	3.3	30 days post pilot injection
	12/1/2015 13:35	460.20	3.25	456.95	17.07	5,609	0.11	6.74	-150.3	>3.0	60 days post pilot injection
	1/8/2016 8:53	460.20	4.43	455.77	15.83	3,793	0.16	7.19	-128	>3.0	90 days post pilot injection
	5/3/2016 15:10	460.20	4.96	455.24	18.93	2,512	0.15	7.17	-153.8	*	210 days post pilot injection
	11/8/2016 0:00	460.20	3.75	456.45	22.83	1,834	0.21	7.1	-131.1	>3.3	405 days post pilot injection
	4/27/2017 10:46	460.20	6.53	453.67	17.55	1,694	-0.05	7.1	-115	3.3	575 days post pilot injection
	10/23/2017 16:00	460.20	4.00	456.20	22.99	1,510	0.07	7.07	-137.9	3.3	754 days post pilot injection
	4/17/2018 12:50	460.20	9.58	450.62	19.29	1,332	0.06	7.16	-130.9	>3.3	930 days post pilot injection
	8/2/2018 11:00	460.20	1.72	458.48	22.40	5,132	--**	6.39	-138.1	--	Phase II Injection Baseline**
	11/13/2018 16:45	460.20	5.34	454.86	16.96	2,157	0.05	6.98	-162.1	1.91	90 days post phase II injection***

Notes:

µS/cm = MicroSiemens per centimeter
mg/L = Miligrams per liter
ND = Not detected
TOC = Top of casing
DO = Dissolved oxygen
ORP = Oxidation reduction potential
mV = Millivolts
* = Inconclusive test
NA= Not Analyzed
** 1035 days post pilot injection
*** 1140 days post pilot injection

Injection intervals: 8 to 10 feet (ft) below ground surface (bgs) and 10 to 12 ft., bgs (see boring logs for modification of injection intervals).
Injection pressures: 150 psi air surge to clear injection rod ports and develop pathway-breakout, injection pressures 80 to 100 psi at injection pump.
Injection solution at each depth interval: 85.2 pounds (lbs) Provectus IR; 7.5 (lbs) MgO; 0.15 lbs DHC inoculum; (55 gallons total solution).
10/1/15, 15:08 hours, pressurization, gurgling TMW-10 during injection at IP-34.
10/1/15, 15:52 hours, pressurization, gurgling MW-61R during injection at IP-12.
10/2/15, 10:06 hours, pressurization, TMW-11 well cap displaced during injection at IP-26.
10/2/15, yellow GW, solids, yeast-odor MW-61R.
10/2/15, yellow GW, solids, yeast-odor TMW-11.
10/23/2017, light gray tint to GW
Phase II injection event occurred July 30 through August 17, 2018.

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TABLE 10
GROUNDWATER SAMPLE ANALYTICAL RESULTS ISCR PILOT WELLS (July 2015 - November 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	MW-61R	TMW-10	TMW-10
Field Sample ID		MW-61R-201507	MW-61R-GW-091815	MW-61R-201510	DUP-02-201510	MW-61R-201511	MW-61R-201512	MW-61R-201601	MW-61R-201605	MW-61R-201611	MW-61R-201704	MW-61R-201710	MW-61R-201804	MW-61R-201807	MW-61R-201811	TMW-10-GW-091815	TMW-10-201510
Lab Sample ID(s)	Remedial Action Levels per ADEQ RADD Issued Dec 2013	057MG030, 161940005, 60198937025	167200003, 60203213003	086MJ09, 169690006, 60204767001	60204767002	60206665003	175080003, 60208468003	179040010, 021NA08	190510021, 190770016, 60218288008, 002NE033	60231722001, 209510002, 037NK05	60243014005	60256266011	60268487008	60276306001	60286720002	167200002, 60203213002	60204791002
Sample Date		7/21/2015	9/18/2015*	10/8/2015	10/8/2015	11/4/2015	12/1/2015	1/8/2016	5/3/2016	11/07/2016	4/27/2017	10/23/2017	4/17/2018	7/31/2018**	11/13/2018	9/18/2015*	10/8/2015
Sample Method		Low Flow		Low Flow	Low Flow			Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow		Low Flow
Comments					Field Duplicate												
Volatile Organic Compounds																	
Acetone	12000	U (1.9)	U (1.9)	U (1.9)	U (1.9)	58.1 (1.9)	148 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	3.6 J (1.9)	3.7 J (1.9)	U (1.9)	3.4 J (1.9)
Benzene	5	U (0.060)	U (0.060)	0.099 J (0.060)	0.11 J (0.060)	U (0.060)	0.10 J (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)
Bromomethane	7	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	0.80 (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	U (0.59)	243 (0.59)	269 (0.59)	155 (0.59)	233 (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	3.6 J (0.59)
Carbon Disulfide	720	U (0.12)	U (0.12)	0.34 J (0.12)	0.59 J (0.12)	0.49 J (0.12)	0.27 J (0.12)	U (0.12)	U (0.12)	UJ (0.12)	U (0.12)	U (0.12)	0.46 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Chloroform	80	0.45 J (0.14)	0.18 J (0.14)	0.20 J (0.14)	0.26 J (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	0.52 J (0.080)	0.27 J (0.080)	U (0.080)	0.21 JB (0.080)	NM	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.050)	U (0.050)	U (0.12)	U (0.12)	0.17 J (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	7	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.26 J (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	U (0.080)	U (0.080)	U (0.080)	U (0.080)	1.1 (0.080)	4.6 (0.080)	4.6 (0.080)	3.8 (0.080)	2.9 (0.080)	2.6 (0.080)	2.1 (0.080)	1.9 (0.080)	1.8 (0.080)	1.9 (0.080)	1.9 (0.080)	1.1 (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.36 J (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
1,2-Dichloropropane	5	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	NM	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
1,3-Dichloropropene (total)	0.41	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	NM	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
cis-1,3-Dichloropropene		U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	NM	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
trans-1,3-Dichloropropene		U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	NM	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	0.28 J (0.18)	NM	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	NM	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	1.5 J (0.42)	1.5 J (0.42)	U (0.42)	0.61 J (0.42)	U (0.42)	U (0.42)	UJ (0.42)	U (0.42)	U (0.42)	0.93 J (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	5	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	0.26 (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Styrene	100	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	NM	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1,2,2-Tetrachloroethene	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	0.16 J (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	0.22 J (0.17)	0.32 J (0.17)	U (0.17)	0.46 J (0.17)	0.23 J (0.17)	U (0.17)	0.48 J (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5	14.7 (0.17)	16.5 (0.17)	11.7 (0.17)	13.3 (0.17)	9.2 (0.17)	5.0 (0.17)	3.9 (0.17)	5.3 (0.17)	2.3 (0.17)	2.4 (0.17)	2.9 (0.17)	4.0 (0.17)	7.0 (0.17)	7.7 (0.17)	190 (0.17)	102 (0.17)
Vinyl Chloride	2	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)
Xylenes (total)	10000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	NM	U (0.42)	U (0.42)	U (0.13)	U (0.42)	U (0.42)	U (0.42)
Metals																	
Iron	NE	3790 (50.0)	4110 (50.0)	74000 M1 (50.0)	NM	NM	52400 (50.0)	27300 (50.0)	22000 (50.0)	11600 (50.0)	NM	12000 (50.0)	NM	11900 (50.0)	10700 (50.0)	755 (50.0)	NM
Manganese	NE	1480 (5.0)	NM	20000 M1 (5.0)	NM	NM	6320 (5.0)	2850 (5.0)	1710 (5.0)	1020 (5.0)	NM	1120 (5.0)	NM	NM	NM	NM	NM
Monitored Natural Attenuation Parameters (Laboratory)																	
Acetic acid	NE	U (5000)	U (5000)	1800000 (100000)	NM	NM	13000 (5000)	U (5000)	U (5000)	NM	NM	NM	NM	U (5000)	1900 (1000)	U (5000)	NM
Total Alkalinity	NE	124000 (20000)	NM	1190000 (40000)	NM	NM	862000 (20000)	U (20000)	384000 (20000)	362000 (20000)	NM	411,000 (20000)	NM	NM	NM	NM	NM
Ammonia	NE	U (100)	NM	8100 (500)	NM	NM	NM	980 (100)	2000 (100)	1000 M1 (100)	NM	870 (100)	NM	NM	NM	NM	NM
Bicarbonate Alkalinity	NE	124000 (20000)	NM	1190000 (40000)	NM	NM	862000 (20000)	U (20000)	384000 (20000)	362000 (20000)	NM	411,000 (20000)	NM	NM	NM	NM	NM
Butyric acid	NE	U (5000)	U (5000)	280000 (100000)	NM	NM	U (5000)	U (5000)	U (5000)	NM	NM	NM	NM	U (5000)	U (1000)	U (5000)	NM
Carbon Dioxide	NE	265000 (20000)	NM	8230000 (20000)	NM	NM	1000000 (20000)	U (20000)	463000 (20000)	NM	NM	NM	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	U (1000)	U (1000)	1620000 (200000)	NM	NM	NM	7700 (2000)	2800 (1000)	3400 (1000)	NM	1200 (1000)	NM	860 J (1000)	710 J (1000)	U (1000)	NM
Organic Carbon (dissolved)	NE	NM	U (1000)	NM	NM	NM	NM	4000 (1000)	2500 (1000)	1700 (100)	NM	NM	NM	830 J (1000)	810 J (1000)	U (1000)	NM
Carbonate Alkalinity	NE	U (20000)	NM	U (40000)	NM	NM	U (20000)	U (20000)	U (20000)	U (20000)	NM	U (20000)	NM	NM	NM	NM	NM
Chloride	NE	110000 (10000)	108000 (10000)	130000 (20000)	NM	NM	NM	81200 (5000)	83600 (10000)	87300 (10000)	NM	96500 (10000)	NM	102000 (10000)	120000 (50000)	177000 (10000)	NM
2-Chloroethanol	NE	U (10000)	U (10000)	U (10000)	NM	NM	NM	U (10000)	U (10000)	NM	NM	NM	NM	NM	NM	U (10000)	NM
Iron, Ferric	NE	2000 (200)	4100 (200)	70700 (200)	NM	NM	NM	24300 (200)	18600 (200)	NM	NM	NM	NM	8600 (200)	9550 (0.50)	760 (200)	NM
Lactic Acid	NE	U (10000)	U (10000)	U (20000)	NM	NM	U (10000)	U (10000)	U (10000)	NM	NM	NM	NM	U (10000)	2000 U (2000)	U (10000)	NM
Nitrogen	NE	1300 M1 (100)	1400 (100)	110 M1 (100)	NM	NM	NM	U (100)	U (100)	NM	NM	U (100)	NM	U (100)	U (100)	280 (100)	NM
Nitrogen, Nitrate (As N)	NE	1300 (100)	1400 (100)	110 M1 (100)	NM	NM	U (1000)	U (100)	U (100)	NM	NM	U (100)	NM	U (100)	U (100)	280 (100)	NM
Nitrogen, Nitrite	NE	U (100)	U (100)	U (100)	NM	NM	U (1000)	U (100)	U (100)	NM	NM	U (100)	NM	U (100)	U (100)	U (100)	NM
pH [PH UNITS]	NE	6.2 (0.10)	NM	5.5 (0.10)	NM	NM	6.8 (0.10)	6.8 (0.10)	6.8 (0.10)	NM	NM	NM	NM	NM	NM	NM	NM
Phosphates (total)	NE	130 M1 (30)	NM	3600 (310)	NM	NM	NM	180 (30)	590 (30)	260 M1 (30)	NM	NM	NM	NM	NM	NM	NM
Propionic Acid	NE	U (5000)	U (5000)	140000 (100000)	NM	NM	76000 (5000)	U (5000)	U (5000)	NM	NM	NM	NM	U (5000)	U (1000)	U (5000)	NM
Pyruvic Acid	NE	U (5000)	U (5000)	U (10000)	NM	NM	U (5000)	U (5000)	U (5000)	NM	NM	NM	NM	U (5000)	U (1000)	U (5000)	NM
Sulfide (total)	NE	U (50)	NM	21 J (50)	NM	NM	NM	U (50)	U (50)	U (50)	NM	21 J (50)	NM	NM	NM	NM	NM
Sulfate	NE	14800 (1000)	11000 (1000)	79000 (5000)	NM	NM	7400 (1000)	12100 (1000)	7500 (1000)	7900 (1000)	NM	8900(1000)	NM	9100 (1000)	8000 (1000)	2100 (1000)	NM
Gases																	
Acetylene	NE	U (0.50)	NM	U (0.50)	NM	NM	U (0.50)	U (0.50)	U (0.50)	U (0.50)	NM	NM	NM	NM	NM	NM	NM
Methane	NE	4.5 (0.50)	2.1 (0.50)	4.3 (0.50)	NM	NM	10000 (0.50)	12000 (0.50)	12000 (0.50)	9400 (0.50)	NM	14000 (0.02)	NM	8400 (0.50)	6600 (0.50)	U (0.50)	NM
Ethane	NE	1.4 (0.10)	0.31 (0.10)	0.33 (0.10)	NM	NM	0.41 (0.10)	1.7 (0.10)	2.0 (0.10)	1.1 (0.10)	NM	0.71 (0.007)	NM	0.26 (0.10)	0.70 (0.10)	U (0.10)	NM
Ethene	NE	1.1 (0.10)	0.48 (0.10)	1.2 (0.10)	NM	NM	2.7 (0.10)	1.7 (0.10)	0.58 (0.10)	0.18 (0.10)	NM	0.16 (0.005)	NM	U (0.10)	0.10 (0.10)	U (0.10)	NM
Hydrogen (H2) [NM]4*	NE	2.0 (0.60)	NM	500 d (12)	NM	NM	NM	0.98 (0.60)	1.1 (0.60)	4.2 (2.4)	NM	1.3 (0.16)	NM	NM	NM	NM	NM
Molecular Analyses																	
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	U (0.5)	NM	1.9 (1)	NM	NM	NM	U (1)	U (1.25)	6.2 (0.5)	NM	U (1.1)	NM	NM	NM	NM	NM
Dehalococcoides (DHC) [cells/mL]	NE	U (0.5)	NM	184 (1)	NM	NM	NM	30 (1)	44.1 (1.25)	163 (0.5)	NM	U (1.1)	NM	NM	NM	NM	NM
tceA Reductase [cells/mL]	NE	U (0.5)	NM	U (1)	NM	NM	NM	U (1)	U (1.25)	0.6 (0.5)	NM	U (1.1)	NM	NM	NM	NM	NM
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	U (0.5)	NM	0.3 J (1)	NM	NM	NM	U (1)	U (1.25)	16.6 (0.5)	NM	U (1.1)	NM	NM	NM	NM	NM

Notes:

1 All concentrations are presented in ug/L except where noted.
2 All compounds are shown.
3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.
U = Not detected
J = Estimated concentration
( ) = Method detection limit for VOCs; reporting limit for all other parameters
H1 - Analysis conducted outside the EPA method holding time
B - Analyte was detected in the associated method blank
F1 - The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.

RADD = Remedial action decision document
ADEQ = Arkansas Department of Enviro'NMental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
mL = Milliliters
NE = Not established
NM = Not measured
*Pilot Test ISCR Injection Baseline
**Phase II ISCR Injection Baseline

RAMBOLL

TABLE 10
GROUNDWATER SAMPLE ANALYTICAL RESULTS ISCR PILOT WELLS (July 2015 - November 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-10	TMW-11	TMW-11	TMW-11	TMW-11	TMW-11	TMW-11
Field Sample ID		TMW-10-201511	TMW-10-201512	TMW-10-201601	TMW-10-201605	TMW-10-201611	TMW-10-201704	DUP-05-201704	TMW-10-201710	TMW-10-201804	TMW-10-201807	TMW-10-201811	TMW-11-GW-091815	TMW-11-201510	TMW-11-201511	TMW-11-201512	TMW-11-201601	TMW-11-201605
Lab Sample ID(s)	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60206665001	175080001, 60208468001	60210924001	190520001, 190770017, 60218387004, 002NE037	60231848024, 209510003, 037NK07	60243014026	60243014015	60256365032	60268532020	60276306005	60286720008	167200001, 60203213001	60204791001	60206665002	175080002, 60208468002	179040011, 021NA010	190510020, 190770018, 60218288007, 002NE032
Sample Date		11/4/2015	12/1/2015	1/8/2016	5/4/2016	11/08/2016	4/27/2017	4/27/2017	10/24/2017	4/18/2018	7/31/2018**	11/13/2018	9/18/2015*	10/8/2015	11/4/2015	12/1/2015	1/8/2016	5/3/2016
Sample Method				Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow		Low Flow			Low Flow	Low Flow
Comments																		
Volatile Organic Compounds																		
Acetone	12000	8.4 J (1.9)	2.0 (1.9)	U (1.9)	U (1.9)	U (1.9)	3.1 J (1.9)	U (1.9)	U (1.9)	U (1.9)	2.8 J (1.9)	128 (1.9)	U (1.9)	104 (1.9)	636 (1.9)	1420 (9.4)	1120 (9.4)	15.4 (1.9)
Benzene	5	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	0.10 J (0.060)	U (0.060)	0.27 J (0.060)	U (0.060)	0.15 J (0.060)	0.11 J (0.060)	0.11 J (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)
Bromomethane	7	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	1.4 J (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	1.8 J (0.16)	U (0.16)	U (0.16)	U (0.16)
2-Butanone	4900	8.6 J (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	307 (0.59)	U (0.59)	135 (0.59)	810 (0.59)	1410 (3.0)	902 (0.59)	19.7 (0.59)	
Carbon Disulfide	720	0.31 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	0.56 J (0.12)	U (0.12)	0.92 J (0.12)	2.6 J (0.12)	0.38 J (0.12)	0.68 J (0.12)	0.56 J (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	0.48 J (0.15)	U (0.15)	U (0.15)	
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	0.29 J (0.080)	0.14 J (0.080)	U (0.080)	U (0.080)	NM	NM	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	0.46 J (0.080)	0.31 J (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	0.14 J B (0.12)	0.16 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	7	U (0.20)	U (0.20)	U (0.20)	0.23 J (0.20)	U (0.20)	0.92 J (0.20)	1.0 J (0.20)	0.22 J (0.20)	U (0.20)	U (0.20)	0.26 J (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	0.72 J (0.080)	0.88 J (0.080)	3.1 (0.080)	12.9 (0.080)	4.4 (0.080)	5.1 (0.080)	5.9 (0.080)	4.5 (0.080)	5.2 (0.080)	5.9 (0.080)	15.0 (0.080)	0.15 J (0.080)	U (0.080)	2.5 (0.080)	5.8 (0.080)	5.3 (0.080)	3.6 (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.64 J (0.20)	U (0.20)	U (0.20)
1,2-Dichloropropane	5	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	NM	NM	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)
1,3-Dichloropropene (total)	0.41	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	NM	NM	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
cis-1,3-Dichloropropene		U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	NM	NM	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
trans-1,3-Dichloropropene		U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	NM	NM	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	NM	NM	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	NM	NM	U (1.2)	U (1.2)	U (1.2)	3.7 J (1.2)	U (1.2)	3.6 J (1.2)	5.3 J (1.2)	3.9 J (1.2)	U (1.2)	
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	1.1 J (0.42)	U (0.42)	4.0 J (0.42)	2.0 J (0.42)	1.6 J (0.42)	1.1 J (0.42)	0.89 J (0.42)
Methylene Chloride	5	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	0.66 (0.15)	U (0.15)	0.30 (0.15)	U (0.15)	U (0.15)
Styrene	100	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	NM	NM	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	0.25 J (0.17)	U (0.17)	0.46 J (0.17)	U (0.17)	0.57 J (0.17)	0.44 J (0.17)	0.90 J (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5	120 (0.17)	114 (0.17)	103 (0.17)	123 (0.17)	95.4 (0.17)	96.2 (0.17)	102 (0.17)	89.5 (0.17)	85.0 (0.17)	91.1 (0.17)	14.3 (0.17)	31.1 (0.17)	14.3 (0.17)	6.3 (0.17)	0.63 J (0.17)	3.1 (0.17)	8.1 (0.17)
Vinyl Chloride	2	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	0.32 J (0.13)	0.38 J (0.13)	0.91 J (0.13)	0.46 J (0.13)	0.66 J (0.13)	6.2 (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)
Xylenes (total)	10000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	NM	NM	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Metals																		
Iron	NE	NM	1730 (50.0)	NM	2160 (50.0)	133 (50.0)	NM	NM	276,000 (50,000)	NM	122 B (50.0)	105000 (50.0)	5220 (50.0)	NM	NM	193000 (50.0)	20900 (50.0)	11700 (50.0)
Manganese	NE	NM	37.4 (5.0)	NM	20.6 (5.0)	NM	NM	NM	37,800 (5,000)	NM	NM	NM	NM	NM	NM	35900 (50.0)	4090 (5.0)	1850 (5.0)
Monitored Natural Attenuation Parameters (Laboratory)																		
Acetic acid	NE	NM	U (5000)	NM	U (5000)	NM	NM	NM	NM	NM	U (5000)	130000 (10000)	U (5000)	NM	NM	1600000 (25000)	18000 (5000)	U (5000)
Total Alkalinity	NE	NM	154000 (20000)	NM	171000 (20000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2630000 (60000)	1750000 (40000)	967000 (20000)
Ammonia	NE	NM	NM	NM	U (100)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1900 (100)	6600 (100)
Bicarbonate Alkalinity	NE	NM	154000 (20000)	NM	171000 (20000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2630000 (60000)	1750000 (40000)	967000 (20000)
Butyric acid	NE	NM	U (5000)	NM	U (5000)	NM	NM	NM	NM	NM	U (5000)	54000 (10000)	U (5000)	NM	NM	600000 (25000)	U (5000)	U (5000)
Carbon Dioxide	NE	NM	294000 (20000)	NM	287000 (20000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	3270000 (20000)	1770000 (20000)	982000 (20000)
Organic Carbon (total)	NE	NM	NM	NM	510 J (1000)	750 J (1000)	NM	NM	260 J (1,000)	NM	280 J (1000)	2240000 (300000)	U (1000)	NM	NM	NM	306000 (100000)	46200 (10000)
Organic Carbon (dissolved)	NE	NM	NM	NM	570 (1000)	NM	NM	NM	NM	NM	320 J (1000)	2060000 (500000)	U (1000)	NM	NM	NM	284000 (50000)	22500 (2000)
Carbonate Alkalinity	NE	NM	U (20000)	NM	U (20000)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	U (60000)	U (40000)	U (20000)
Chloride	NE	NM	NM	NM	154000 (20000)	NM	NM	NM	167,000 (10,000)	NM	170000 (10000)	276000 (50000)	149000 (10000)	NM	NM	NM	131000 (20000)	145000 (10000)
2-Chloroethanol	NE	NM	NM	NM	U (10000)	NM	NM	NM	NM	NM	NM	NM	U (10000)	NM	NM	NM	NM	U (10000)
Iron, Ferric	NE	NM	NM	NM	2000 (200)	U (200)	NM	NM	NM	NM	72 (50.0)	102000 (50.0)	5200 (200)	NM	NM	NM	17900 (200)	11000 (200)
Lactic Acid	NE	NM	U (10000)	NM	U (10000)	NM	NM	NM	NM	NM	U (10000)	6800 (2000)	U (10000)	NM	NM	160000 (10000)	64000 (10000)	U (10000)
Nitrogen	NE	NM	NM	NM	140 (100)	2100 (100)	NM	NM	U (100)	NM	U (100)	120 (100)	U (100)	NM	NM	NM	U (100)	U (100)
Nitrogen, Nitrate (As N)	NE	NM	1900 (1000)	NM	140 (100)	1100 (100)	NM	NM	U (100)	NM	U (100)	U (100)	U (100)	NM	NM	U (1000)	U (100)	U (100)
Nitrogen, Nitrite	NE	NM	U (1000)	NM	U (100)	970 (100)	NM	NM	U (100)	NM	U (100)	110 (100)	U (100)	NM	NM	U (1000)	U (100)	U (100)
pH [PH UNITS]	NE	NM	6.3 (0.10)	NM	6.4 (0.10)		NM	NM	NM	NM	NM	NM	NM	NM	NM	6.7 (0.10)	7.2 (0.10)	7.2 (0.10)
Phosphates (total)	NE	NM	NM	NM	210 (30)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	350 (30)	1800 (30)
Propionic Acid	NE	NM	U (5000)	NM	U (5000)	NM	NM	NM	NM	NM	U (5000)	4100000 (100000)	U (5000)	NM	NM	550000 (25000)	260000 (5000)	U (5000)
Pyruvic Acid	NE	NM	U (5000)	NM	U (5000)	NM	NM	NM	NM	NM	U (5000)	43000 (10000)	U (5000)	NM	NM	U (5000)	U (5000)	U (5000)
Sulfide (total)	NE	NM	NM	NM	U (50)	U (50)	NM	NM	U (50)	NM	NM	43.0 J (50.0)	NM	NM	NM	NM	NM	U (50)
Sulfate	NE	NM	3700 (1000)	NM	2300 (1000)	2400 (1000)	NM	NM	2,000 (1,000)	NM	1900 (1000)	10400 (10000)	3300 (1000)	NM	NM	910 J (1000)	1200 (1000)	2400 (1000)
Gases																		
Acetylene	NE	NM	U (0.50)	NM	U (0.50)	U (0.50)	NM	NM	NM	NM	NM	U (0.50)	NM	NM	NM	U (0.50)	U (0.50)	U (0.50)
Methane	NE	NM	1.3 (0.50)	NM	700 (0.50)	24 (0.50)	NM	NM	410 (0.02)	NM	490 (0.50)	11000 (0.50)	0.57 (0.50)	NM	NM	12000 (0.50)	15000 (0.50)	17000 (0.50)
Ethane	NE	NM	U (0.10)	NM	0.36 (0.10)	U (0.10)	NM	NM	U (0.007)	NM	U (0.10)	0.28 (0.10)	U (0.10)	NM	NM	0.16 (0.10)	0.36 (0.10)	0.67 (0.10)
Ethene	NE	NM	U (0.10)	NM	0.15 (0.10)	0.25 (0.10)	NM	NM	0.54 (0.005)	NM	0.38 (0.10)	1.8 (0.10)	U (0.10)	NM	NM	2.6 (0.10)	2.4 (0.10)	0.80 (0.10)
Hydrogen (H2) [NM]4*	NE	NM	NM	NM	0.95 (0.60)	1.8 (0.60)	NM	NM	1.9 (0.16)	NM	NM	11 (1.0)	NM	NM	NM	NM	NM	1.2 (0.60)
Molecular Analyses																		
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	NM	NM	NM	U (2)	0.5 (0.5)	NM	NM	U (0.6)	NM	NM	U (2)	NM	NM	NM	NM	U (8.33)	U (3.33)
Dehalococcoides (DHC) [cells/mL]	NE	NM	NM	NM	U (2)	158 (0.5)	NM	NM	555	NM	NM	U (2)	NM	NM	NM	NM	48.9 (8.33)	14.2 (3.33)
tceA Reductase [cells/mL]	NE	NM	NM	NM	U (2)	14.3 (0.5)	NM	NM	537	NM	NM	U (2)	NM	NM	NM	NM	3.2 J (8.33)	U (3.33)
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	NM	NM	NM	U (2)	10.8 (0.5)	NM	NM	786	NM	NM	U (2)	NM	NM	NM	NM	U (8.33)	U (3.33)

Notes:

1 All concentrations are presented in ug/L except where noted.
2 All compounds are shown.
3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.
U = Not detected
J = Estimated concentration
( ) = Method detection limit for VOCs; reporting limit for all other parameters
H1 - Analysis conducted outside the EPA method holding time
B - Analyte was detected in the associated method blank
F1 -The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.

RADD = Remedial action decision document
ADEQ = Arkansas Department of Enviro'NMental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
mL = Milliliters
NE = Not established
NM = Not measured
*Pilot Test ISCR Injection Baseline

TABLE 10
GROUNDWATER SAMPLE ANALYTICAL RESULTS ISCR PILOT WELLS (July 2015 - November 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location		TMW-11	TMW-11	TMW-11	TMW-11	TMW-11
Field Sample ID		TMW-11-201611	TMW-11-201704	TMW-11-201704	TMW-11-201804	TMW-11-201811
Lab Sample ID(s)	Remedial Action Levels per ADEQ RADD Issued Dec 2013	60231848015, 209510007, 037NK03	60243014009	60243014009	60268487011	60286720007
Sample Date		11/08/2016	4/27/2017	10/23/2017	4/17/2018	11/13/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments						
Volatile Organic Compounds						
Acetone	12000	5.0 J (1.9)	5.2 J (1.9)	U (1.9)	U (1.9)	5.9 J (1.9)
Benzene	5	0.10 J (0.060)	U (0.060)	0.11 J (0.060)	U (0.060)	0.11 J (0.060)
Bromodichloromethane	80	U (0.19)	U (0.19)	U (0.19)	U (0.19)	U (0.19)
Bromoform	80	U (0.070)	U (0.070)	U (0.070)	U (0.070)	U (0.070)
Bromomethane	7	U (0.16)	U (0.16)	U (0.16)	0.42 (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	4.6 J (0.59)	U (0.59)	U (0.59)	U (0.59)
Carbon Disulfide	720	0.26 J (0.12)	0.20 (0.12)	U (0.12)	U (0.12)	U (0.12)
Carbon Tetrachloride	5	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
Chloroethane	12000	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	NM	U (0.080)	U (0.080)	U (0.080)
Dibromochloromethane	80	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)
1,2-Dichloroethane	5	U (0.12)	U (0.12)	U (0.12)	U (0.12)	0.18 J (0.12)
1,1-Dichloroethene	7	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	4.7 (0.080)	3.6 (0.080)	1.7 (0.080)	1.2 (0.080)	0.73 J (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	0.22 J (0.20)	U (0.20)
1,2-Dichloropropane	5	U (0.16)	NM	U (0.16)	U (0.16)	U (0.16)
1,3-Dichloropropene (total)	0.41	U (0.14)	NM	U (0.14)	U (0.14)	U (0.14)
cis-1,3-Dichloropropene		U (0.14)	NM	U (0.14)	U (0.14)	U (0.14)
trans-1,3-Dichloropropene		U (0.12)	NM	U (0.12)	U (0.12)	U (0.12)
Ethyl Benzene	700	U (0.18)	NM	U (0.18)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	NM	U (1.2)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	1.1 J (0.42)	0.77 J (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	5	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Styrene	100	U (0.12)	NM	U (0.12)	U (0.12)	U (0.12)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	5	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	1000	0.87 J (0.17)	0.33 J (0.17)	0.47 J (0.17)	0.43 J (0.17)	1.1 (0.17)
1,1,1-Trichloroethane	200	U (0.11)	U (0.11)	U (0.11)	U (0.11)	U (0.11)
1,1,2-Trichloroethane	5	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
Trichloroethene	5	1.2 (0.17)	0.85 J (0.17)	0.62 J (0.17)	0.67 J (0.17)	0.40 J (0.17)
Vinyl Chloride	2	U (0.13)	0.36 J (0.13)	0.70 J (0.13)	0.59 J (0.13)	0.46 J (0.13)
Xylenes (total)	10000	U (0.42)	NM	U (0.42)	U (0.42)	U (0.42)
Metals						
Iron	NE	7730 (50.0)	NM	8800 (50.0)	NM	10800 (50.0)
Manganese	NE	NM	NM	NM	NM	NM
Monitored Natural Attenuation Parameters (Laboratory)						
Acetic acid	NE	NM	NM	NM	NM	2500 (1000)
Total Alkalinity	NE	NM	NM	566000 H1 (20000)	NM	NM
Ammonia	NE	NM	NM	3000 H1 (100)	NM	NM
Bicarbonate Alkalinity	NE	NM	NM	566000 H1 (20000)	NM	NM
Butyric acid	NE	NM	NM	NM	NM	U (1000)
Carbon Dioxide	NE	NM	NM	NM	NM	NM
Organic Carbon (total)	NE	29400 (3000)	NM	3700 (1000)	NM	13200 (2000)
Organic Carbon (dissolved)	NE	NM	NM	NM	NM	9200 (1000)
Carbonate Alkalinity	NE	NM	NM	U (20000)	NM	NM
Chloride	NE	NM	NM	NM	NM	161000 (50000)
2-Chloroethanol	NE	NM	NM	NM	NM	NM
Iron, Ferric	NE	4400 (200)	NM	NM	NM	8890 (50.0)
Lactic Acid	NE	NM	NM	NM	NM	2000 U (2000)
Nitrogen	NE	U (100)	NM	110 H1 (100)	NM	U (100)
Nitrogen, Nitrate (As N)	NE	U (100)	NM	U H1 (100)	NM	U (100)
Nitrogen, Nitrite	NE	19 J (100)	NM	65 J H1 B (100)	NM	U (100)
pH [PH UNITS]	NE	NM	NM	NM	NM	NM
Phosphates (total)	NE	NM	NM	NM	NM	NM
Propionic Acid	NE	NM	NM	NM	NM	NM
Pyruvic Acid	NE	NM	NM	NM	NM	NM
Sulfide (total)	NE	U (50)	NM	U H1 (50)	NM	96 (50.0)
Sulfate	NE	680 J (1000)	NM	740 J H1 (1000)	NM	U (1000)
Gases						
Acetylene	NE	U (0.50)	NM	NM	NM	U (0.50)
Methane	NE	15000 (0.50)	NM	16000 (0.02)	NM	16000 (0.50)
Ethane	NE	0.85 (0.10)	NM	0.48 (0.007)	NM	0.58 (0.10)
Ethene	NE	0.55 (0.10)	NM	1.4 (0.005)	NM	0.90 (0.10)
Hydrogen (H2) [NM]*	NE	2.2 (0.60)	NM	1.7 (0.16)	NM	6.7 (1.0)
Molecular Analyses						
BAV1 Vinyl Chloride Reductase [cells/mL]	NE	26.9 (0.5)	NM	U (1)	NM	U (2)
Dehalococcoides (DHC) [cells/mL]	NE	715 (0.5)	NM	100	NM	U (2)
tceA Reductase [cells/mL]	NE	1.7 (0.5)	NM	396	NM	U (2)
Vinyl Chloride Reductase (vrcA) [cells/mL]	NE	115 (0.5)	NM	263	NM	U (2)

Notes:

1 All concentrations are presented in ug/L except where noted.
2 All compounds are shown.
3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.
U = Not detected
J = Estimated concentration
( ) = Method detection limit for VOCs; reporting limit for all other parameters
H1 - Analysis conducted outside the EPA method holding time
B - Analyte was detected in the associated method blank
F1 - The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.

RADD = Remedial action decision document
ADEQ = Arkansas Department of Enviro'NMental Quality
VOC = Volatile organic compounds
µg/L = Micrograms per liter
mL = Milliliters
NE = Not established
NM = Not measured
*Pilot Test ISCR Injection Baseline

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TABLE 11
SUMMARY OF TCE CONCENTRATIONS (ISCR PILOT STUDY)
Whirlpool Facility - Fort Smith, Arkansas

Event	Date(s)	MW-61R	TMW-10	TMW-11
Pilot Baseline	9/18/2015	16.5	190	31.1
4Q monitoring (6 days post pilot)	10/8/2015	11.7	102	14.3
30 days after pilot injection	11/5/2015	9.2	120	6.3
60 days after pilot injection	12/1/2015	5	114	0.63
90 days after pilot injection	1/8/2016	3.9	103	3.1
210 days after pilot injection	5/3/2016	5.3	123	8.1
405 days after pilot injection	11/7/2016	2.3	95.4	1.2
575 days after pilot injection	4/27/2017	2.4	102	0.85
754 days after pilot injection	10/23-24/2017	2.9	89.5	0.62
930 days after pilot injection	4/17-18/2018	4.0	85.0	0.67
Phase II Injection Baseline*	7/30/2018	7.0	91.1	NS
90 days post phase II injection**	11/12/2018	7.7	14.3	0.40
	Percent Reduction	53.3%	92.5%	98.7%

NOTES:

TCE = Trichloroethylene

Concentrations in micrograms per liter (µg/L)

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Figures

Notes

1. [illegible]
2. [illegible]

Brazil Ave

Ingersoll Ave

Jacobs Ave

Ferguson

Jenny Lind Rd

Boys Club

455 456 457 458 459 460 461 462 463

454 453 452 451 450

2018 ANNUAL SAMPLING POTENTIOMETRIC SURFACE

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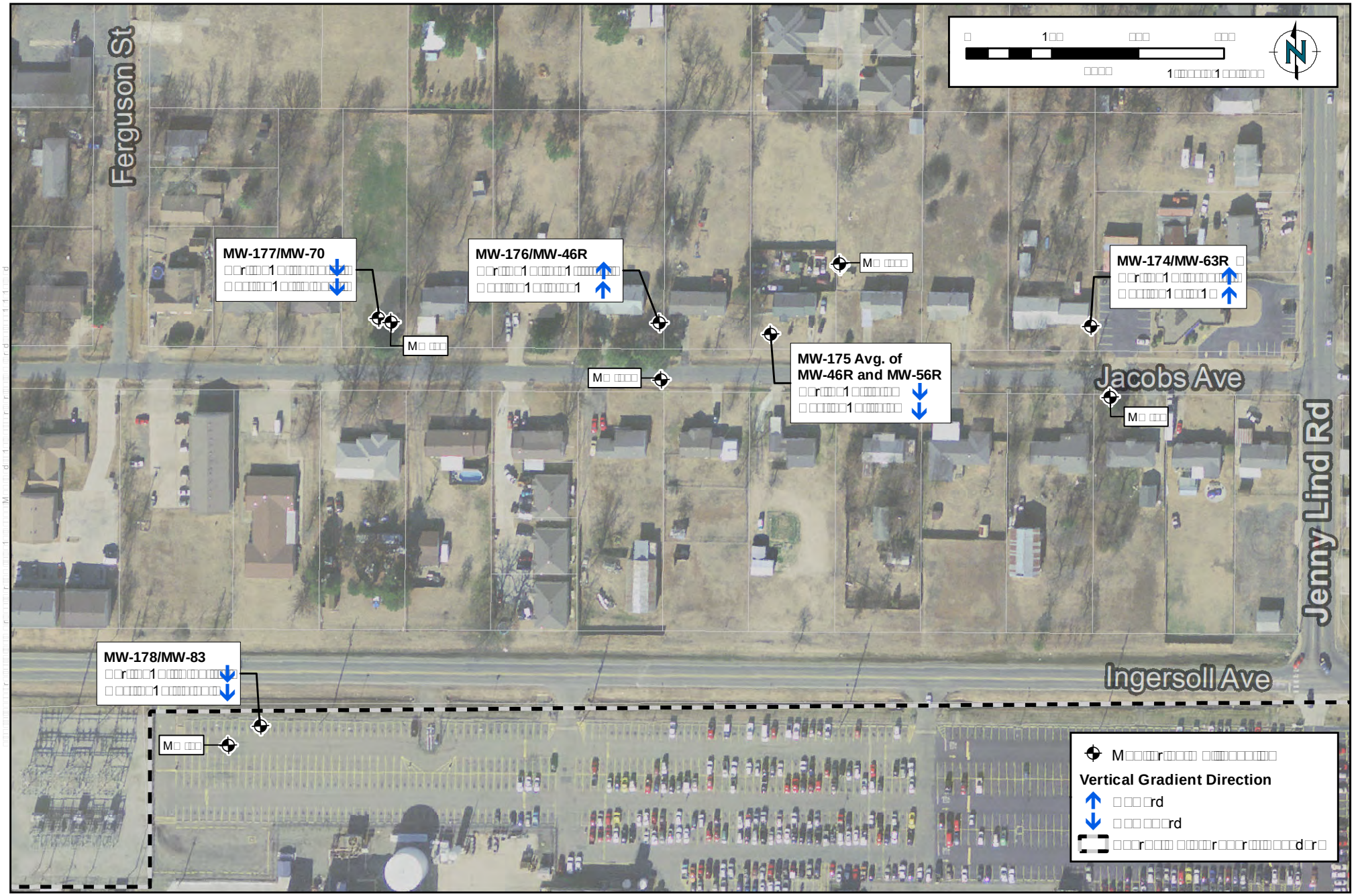
1A



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VERTICAL GROUNDWATER GRADIENTS OBSERVED IN NESTED WELLS
APRIL 2018 / NOVEMBER 2018

FILE: L:\Loop Project Files\Whirlpool Fort Smith\2018 Annual M&R\mxd\2018 Annual TCE Isoconcentration Map - N and NE Plume_20190205.mxd

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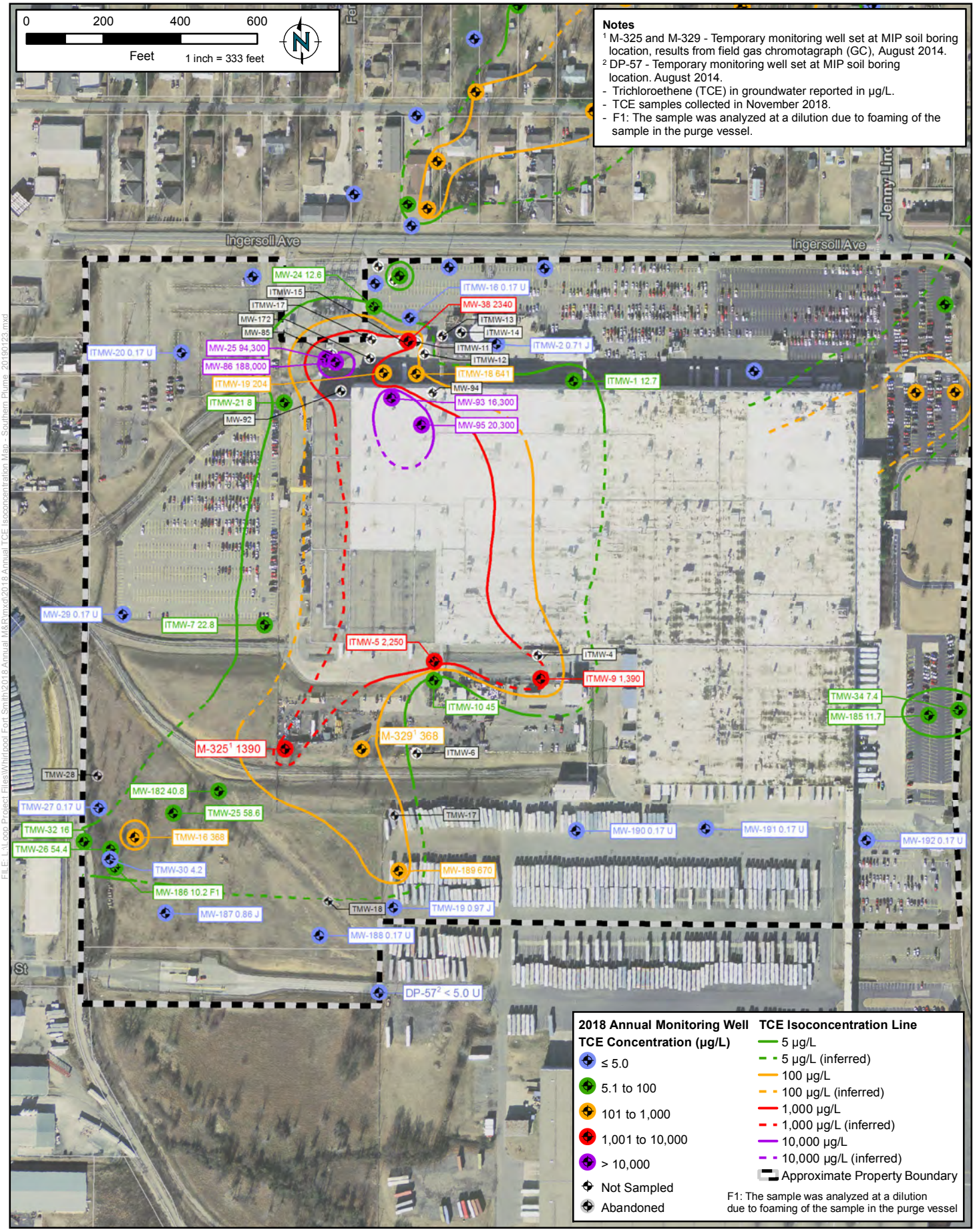
DRAFTED BY: FK | DATE: 02/05/2019

2018 ANNUAL TCE ISOCONCENTRATION MAP NORTHERN AND NORTHEASTERN PLUMES

Whirlpool Facility - Fort Smith, Arkansas

Figure 2A

PROJECT: 1690010633



FILE: L:\Loop Project Files\Whirlpool Fort Smith\2018 Annual M&R\mxd\2018 Annual TCE Isoconcentration Map - Southern Plume_20190123.mxd

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2018 ANNUAL TCE ISOCONCENTRATION MAP SOUTHERN PLUME

Whirlpool Facility - Fort Smith, Arkansas

Figure 2B

DRAFTED BY: FK | DATE: 01/23/2019 | PROJECT: 1690010633

Attachment A
Calibration Logs

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/13/18

Calibrated by: NZ

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GB770 **Exp:** 2/19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/22

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB872 **Exp:** 2/20
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB644 **Exp:** 2/20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** FEB506 **Exp:** 2/20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0800 + 10min = 0810
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.46 in. x 25.4 = 773.684 mmHg - 15.169 = 758.515 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 13H100508

1. Specific Conductance: 1,413 µs/cm
2. ORP: 240 mV
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 10.01
4. DO: 98.9%

Turbidity Meter Model/Serial Number: 030495

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Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/14/18

Calibrated by: NZ

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GB770 **Exp:** 2/19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/22

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB872 **Exp:** 2/20
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB644 **Exp:** 2/20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB506 **Exp:** 2/20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0705 + 10min = 0715
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.50 in. x 25.4 = 774.700 mmHg - 15.169 = 759.531 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 13H 100508

1. Specific Conductance: 1,413 µs/cm
2. ORP: 240.0 mV
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 9.88
4. DO: 99.9 %

Turbidity Meter Model/Serial Number: 030495

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/18

Calibrated by: NZ

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GB770 **Exp:** 2/19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/22

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB87 **Exp:** 2/20
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB644 **Exp:** 2/20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB506 **Exp:** 2/20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0535 + 10min = 0545
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.27 in. x 25.4 = 768.858 mmHg - 15.169 = 753.689 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 13H100508

1. Specific Conductance: 1,413 us/cm
2. ORP: 240 mV
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 10.00
4. DO: 99.2%

Turbidity Meter Model/Serial Number: 030495

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Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/16/18

Calibrated by: NC

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GB770 **Exp:** 2/19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/22

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB872 **Exp:** 2/20
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB644 **Exp:** 2/20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB506 **Exp:** 2/20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0525 + 10min = 0535
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.13 in. x 25.4 = 765.302 mmHg - 15.169 = 750.133 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 13H100508

1. Specific Conductance: 1,413 µs/cm
2. ORP: 240.0 mV
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 10.01
4. DO: 98.7 %.

Turbidity Meter Model/Serial Number: 030495

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Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/13/18

Calibrated by: H. Ankers

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GF875 **Exp:** 8/31/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/2022

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA687 **Exp:** 1/30/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA190 **Exp:** 1/30/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA361 **Exp:** 1/30/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0820 + 10min = 0830
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.46 in. x 25.4 = 773.684 mmHg - 15.169 = 758.515 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 11H100865

1. Specific Conductance: 1,414 µS/cm
2. ORP: 240.1
3. pH:
   - Point 1: 6.99
   - Point 2: 4.00
   - Point 3: 9.92
4. DO: 99.8 %

Turbidity Meter Model/Serial Number: 2020 we / 4949-4114

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/14/18

Calibrated by: H. Ahlers

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GF875 **Exp:** 8/31/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/2022

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA687 **Exp:** 1/30/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA190 **Exp:** 1/30/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA361 **Exp:** 1/30/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0814 + 10min = 0824
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.50 in. x 25.4 = 774.7 mmHg - 15.169 = 759.531 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: ~~14~~ 11H100865

1. Specific Conductance: 1,413
2. ORP: ~~1,413mA~~ 240.2
3. pH:
   - Point 1: 6.99
   - Point 2: 3.98
   - Point 3: 9.90
4. DO: 99.8 %

Turbidity Meter Model/Serial Number: 2020 we / 4949-4114

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/18

Calibrated by: H. Ahlers

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GF875 **Exp:** 8/31/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/2022

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA687 **Exp:** 1/30/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA190 **Exp:** 1/30/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.

9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA361 **Exp:** 1/30/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0610 + 10min = 0620
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   29.79 in. x 25.4 = 756.666 mmHg - 15.169 = 741.497 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 11H100865

1. Specific Conductance: 1.413
2. ORP: 240.0
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 10.03
4. DO: 97.6 %

Turbidity Meter Model/Serial Number: 2020 we / 4949-4114

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/16/18

Calibrated by: H. Anders

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GF875 **Exp:** 8/31/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/2022

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA687 **Exp:** 1/30/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA190 **Exp:** 1/30/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GA361 **Exp:** 1/30/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0603 + 10min = 0613
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.13 in. x 25.4 = 765.302 mmHg - 15.169 = 750.133 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 11H100865

1. Specific Conductance: 1,413 µS/cm
2. ORP: 240.0 mv
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 9.98
4. DO: 98.7%

Turbidity Meter Model/Serial Number: 2020 we/ 4949-414

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/18

Calibrated by: AM

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** NA **Exp:** 12/31/18 1397 µs/cm ~~1542 µs/cm~~

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/2022

241.2

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** BCB386 **Exp:** 2/29/20

6.91

2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GI837 **Exp:** 9/30/19

4.18

6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** NA **Exp:** NA
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below

10.14

12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes): 0744

1. Ensure unit has been on for at least 10 minutes: Initial time: ~~0715~~ + 10min = 0725
2. Enter the local barometric pressure.

~~0745~~

(Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)

30.28 in. x 25.4 = 769.112 mmHg - 15.169 = 753.943 mmHg

3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number:

1. Specific Conductance:
2. ORP:
3. pH:
   - Point 1:
   - Point 2:
   - Point 3:
4. DO:

Turbidity Meter Model/Serial Number:

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/16/18

Calibrated by: AM

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** – (see 11/15) **Exp:** 12/31/18

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below. 1432
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** – (see 11/15) **Exp:** –

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below. 233.2
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB386 **Exp:** 2/29/2020
2. Allow *1 minute* for temperature stabilization. 6.99 7.0
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** see 11/15 **Exp:** 9/30/19 4.09
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** see 11/15 **Exp:** 10.10
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below 9.20 4.09
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0747 + 10min = 0757
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.15 in. x 25.4 = 765.81 mmHg - 15.169 = 750.641 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize. 98.6 %
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number:

1. Specific Conductance:
2. ORP:
3. pH:
   - Point 1:
   - Point 2:
   - Point 3:
4. DO:

Turbidity Meter Model/Serial Number:

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/13/16

Calibrated by: J Kyrk

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 868770 **Exp:** Feb/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 3054 **Exp:** 06/2023

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868877 **Exp:** Feb/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868644 **Exp:** Feb/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.

9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868506 **Exp:** Feb/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 08:11 + 10min = 0821
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.46 in. x 25.4 = 773.684 mmHg - 15.169 = 758.515 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 16A104336

1. Specific Conductance: 1.327 -0 1.413
2. ORP: 240.0
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 9.99
4. DO: 99.9%

Turbidity Meter Model/Serial Number: La Motte 2020we turbidimeter 3471 - 5113

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/14/18

Calibrated by: J Ivec

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 868770 **Exp:** Feb/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 3054 **Exp:** 06/2023

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868877 **Exp:** Feb/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868644 **Exp:** Feb/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.

9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868506 **Exp:** Feb/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 7:29 + 10min = 7:39
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.53 in. x 25.4 = 775.462 mmHg - 15.169 = 760.293 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 16A104336

1. Specific Conductance: 1413
2. ORP: 240.0
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 9.98
4. DO: 100.0%

Turbidity Meter Model/Serial Number: La Motte 2020wi Turbidimeter 3971-5113

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/18

Calibrated by: S Krock

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 868770 **Exp:** Feb/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 3051 **Exp:** 06/2023

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868877 **Exp:** Feb/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868644 **Exp:** Feb/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.

9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 868506 **Exp:** Feb/2020
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0730 + 10min = 0740
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.28 in. x 25.4 = 769.112 mmHg - 15.169 = 753.943 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 16A109336

1. Specific Conductance: 1413
2. ORP: 240.0
3. pH:
   - Point 1: 7.00
   - Point 2: 4.00
   - Point 3: 10.00
4. DO: 99.2%

Turbidity Meter Model/Serial Number: LaMotte 2020we Turbidimeter 3971-5113

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/13/18

Calibrated by: Victoria Sivaglen

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 76400 **Exp:** 12/31/18

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2002 **Exp:** 10/31/22

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 86C117 **Exp:** 3/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 161537 **Exp:** 9/30/2019
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 76L070 **Exp:** 12/31/19
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0746 + 10min = 0756
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   ____ in. x 25.4 = ____ mmHg - 15.169 = 758.52 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 20058

1. Specific Conductance: 1.359 ms/cm
2. ORP: 201.5
3. pH:
   - Point 1: 7.16
   - Point 2: 3.99
   - Point 3: 9.99
4. DO: 101.1

Turbidity Meter Model/Serial Number:

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/4/18

Calibrated by: Victoria Spraglen

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 76L102 **Exp:** 12/31/18

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2202 **Exp:** 10/31/22

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 86C117 **Exp:** 3/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 76J837 **Exp:** 9/30/19
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** _____ **Exp:** _____
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0708 + 10min = 0718
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.53 in. x 25.4 = 775.462 mmHg - 15.169 = 760.293 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 20058

1. Specific Conductance: 1414 µS/cm
2. ORP: ~~[illegible]~~ 256.0
3. pH:
   - Point 1: 0.98
   - Point 2: 3.95
   - Point 3: ~~6.45~~ 9.99
4. DO: 97.7

Turbidity Meter Model/Serial Number: 340333

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/18

Calibrated by: Victoria Sieglen

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 76L100 **Exp:** 12/31/18

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:**_____ **Exp:** _____

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GC117 **Exp:** 3/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 76F837 **Exp:** 9/30/19
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 76L070 **Exp:** 12/31/19
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0712 + 10min = 0722
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.28 in. x 25.4 = 769.112 mmHg - 15.169 = 753.943 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 20056

1. Specific Conductance: 1413
2. ORP: 238.4
3. pH:
   - Point 1: 6.89
   - Point 2: 4.00
   - Point 3: 10.02
4. DO: 91.0

Turbidity Meter Model/Serial Number:

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/16/18

Calibrated by: Victoria Siegler

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 7GL200 **Exp:** 12/31/18

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:**_____ **Exp:** _____

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GC117 **Exp:** 3/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GI837 **Exp:** 9/30/19
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GL010 **Exp:** 12/31/19
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0710 + 10min = 0720
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.13 ~~30.46~~ in. x 25.4 = 765.302 mmHg - 15.169 = 750.133 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 20056

1. Specific Conductance: 1425
2. ORP: 240.9
3. pH:
   - Point 1: 6.92
   - Point 2: 3.82
   - Point 3: 9.98
4. DO: 104.2

Turbidity Meter Model/Serial Number:

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/13/2018

Calibrated by: Nick Martin

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 8GB770 **Exp:** 2/2019

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 3054 **Exp:** 6/2023

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB872 **Exp:** 2/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB644 **Exp:** 2/2020
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 76W112 **Exp:** 8/2019
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0843 + 10min = 0853
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.46 in. x 25.4 = 773.684 mmHg - 15.169 = 758.515 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 19858

1. Specific Conductance: 1413 µs/cm
2. ORP: 240.0
3. pH:
   - Point 1: 7.00
   - Point 2: ~~10.00~~ 4.00
   - Point 3: 10.00
4. DO: 105.3% → 100%

Turbidity Meter Model/Serial Number: LaMotte 2020we / 25106

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: ~~11/14/2018~~ 11/14/2018

Calibrated by: Nick Mann

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 7GL100 **Exp:** 12/31/2018

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/2022

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB386 **Exp:** 2/24/2022
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GL837 **Exp:** 9/30/2019
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.

9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GL670 **Exp:** 12/31/2019
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0710 + 10min = 0720
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.53 in. x 25.4 = 775.462 mmHg - 15.169 = 760.293 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup. 0715 →
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:
YSI – Serial Number: 19858 → ~~Actual~~ 45J Professional Plus

	Actual	Plus calibrated to
1. Specific Conductance:	1342 µs/cm	1413 µS/cm
2. ORP:	220.5 mV	240 mV
3. pH:		
• Point 1:	7.05	7
• Point 2:	4.06	4
• Point 3:	9.98	10
4. DO:	101.7%	100% @ 760.293 mmHg

Turbidity Meter Model/Serial Number: LaMotte 2020 We / 25106

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/2018

Calibrated by: Nick Martin

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 76L100 **Exp:** 12/31/2018

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/2021

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 8GB 386 **Exp:** 2/24/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GB 837 **Exp:** 9/30/2019
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 7GL030 **Exp:** 12/31/2019
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0710 + 10min = 0720
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.28 in. x 25.4 = 769.112 mmHg - 15.169 = 753.943 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize. 0737 →
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: YSI Professional Plus – 19858

	Actual	Calibrated to
1. Specific Conductance:	~~1380~~ µs/cm	1413 µs/cm
2. ORP:	241.2 mV	240 mV
3. pH:		
• Point 1:	6.98	7.00
• Point 2:	3.98	4.00
• Point 3:	10.01	10.00
4. DO:	97.9%	100%

Turbidity Meter Model/Serial Number: LaMotte, 2020 we / 25106

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/13

Calibrated by: AMM

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 86B770 **Exp:** Feb 19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below. 1.44 ~~1.336~~ mS/cm
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 3054 **Exp:** 6/2023 240.0 mV

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 86B872 **Exp:** Feb 20 7.0
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 86D644 **Exp:** Feb 20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water. 4.03
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 86B506 **Exp:** Feb 20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below 10.02
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes): 99.7% ~~96.9%~~

1. Ensure unit has been on for at least 10 minutes: Initial time: _____ + 10min =_____
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.46 in. x 25.4 = 773.684 mmHg - 15.169 = 758.515 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 12L101300

1. Specific Conductance: 1.414 mS/cm
2. ORP: 240.0
3. pH:
   - Point 1: 7.0
   - Point 2: 4.03
   - Point 3: 10.02
4. DO: 99.7%

Turbidity Meter Model/Serial Number: LaMotte #4416-2019

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/14/18

Calibrated by: AM/JPP

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** NA **Exp:** 12/31/2018

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below. 1.50 mS/cm
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 2062 **Exp:** 10/31/2022

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below. 240.2
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 86B386 **Exp:** 2/29/2020
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 761670 **Exp:** 9/30/2019
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 761837 **Exp:** 12/31/2019
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0750 + 10min = 0805
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.50 in. x 25.4 = 774.70 mmHg - 15.169 = 759.531 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number:

1. Specific Conductance: 1500 µS/cm
2. ORP: 240.2
3. pH: 6.96
   - Point 1: 6.96
   - Point 2: 10.04
   - Point 3: 4.00
4. DO: 112.1

Turbidity Meter Model/Serial Number: Lamotte #4416-2014

RAMBOLL

Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/15/19

Calibrated by: JP

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 16B770 **Exp:** 2/19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 30554 **Exp:** 06/23

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 16B872 **Exp:** 2/20
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 16B649 **Exp:** 2/20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 16B566 **Exp:** 2/20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0740 + 10min = 0755
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.28 in. x 25.4 = 769.112 mmHg - 15.169 = 753.943 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 12L101300

1. Specific Conductance: 1.413 mS/cm
2. ORP: 240.0
3. pH:
   - Point 1: 6.98
   - Point 2: 4.16
   - Point 3: 10.00
4. DO: 96.41.

Turbidity Meter Model/Serial Number: LaMotte #4416-2014

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Whirlpool Ft. Smith Field Equipment Calibration Checklist

Date: 11/16/18

Calibrated by: JP

Turn on YSI. Note time in DO section Line 1.

Specific Conductance calibration (should take *at least* 1.5 minutes): **Lot #:** 16B770 **Exp:** 2/19

1. Pour conductivity standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in specific conductance. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

ORP calibration (should take *at least* 1.5 minutes): **Lot #:** 3054 **Exp:** 06/2023

1. Pour ORP (Zobell) standard into calibration cup and immerse sensor.
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in ORP. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.

3-Point pH calibration (should take *at least* 4.5 minutes):

1. Pour pH 7.0 standard into the calibration cup and immerse pH sensor. **Lot #** 16B872 **Exp:** 2/20
2. Allow *1 minute* for temperature stabilization.
3. Press "calibrate" after *30 seconds* of no significant change in pH. Note below.
4. Discard used calibration standard, and rinse calibration cup and probes with DI water.
5. Pour pH 4.0 standard into the calibration cup and immerse pH sensor. **Lot #** 16B644 **Exp:** 2/20
6. Allow *1 minute* for temperature stabilization.
7. Press "calibrate" after *30 seconds* of no significant change in pH. Note standard below.
8. Discard used calibration standard, and rinse calibration cup and probes with DI water.
9. Pour pH 10.0 standard into the calibration cup and immerse pH sensor. **Lot #** 16B506 **Exp:** 2/20
10. Allow *1 minute* for temperature stabilization.
11. Press "calibrate" after *30 seconds* of no significant change in pH. Note below
12. Discard used calibration standard, and rinse calibration cup and probes with DI water.

Dissolved Oxygen (% DO) calibration (should take *at least* 10 minutes):

1. Ensure unit has been on for at least 10 minutes: Initial time: 0746 + 10min = 0756
2. Enter the local barometric pressure.
   (Note: to convert from inches (common on a weather app or forecast) to mmHg, multiply by 25.4, then to correct to Ft. Smith's altitude, subtract 15.169 mmHg.)
   30.26 in. x 25.4 = 768.604 mmHg - 15.169 = 753.435 mmHg
3. Place ~3mm of DI water in the bottom of the calibration cup.
4. Lightly screw on the calibration cup (only 1 or 2 threads!)
5. Allow *10 minutes* for the air in the cup to become water-saturated and temp to stabilize.
6. Press "calibrate" after *30 seconds* of no significant change in DO. Note below.
7. Discard used DI water, and rinse calibration cup and probes with DI water.

Turbidity calibration:

1. Select "measure" on the main menu, then "Turbidity – With Blank"
2. Scan a sample using the 0.0 NTU Blank solution. "Scan Blank"
3. Scan a sample using the 10 NTU standard. "Scan Sample"
4. Select "Calibrate," then use the arrow buttons to adjust the value to the standard (10.0 NTU).

Field Notebook calibration entry:

YSI – Serial Number: 12L101300

1. Specific Conductance: 1.424 ms/cm
2. ORP: 240.1 mV
3. pH:
   - Point 1: 7.00
   - Point 2: 10.00
   - Point 3: 4.05
4. DO: 14.23 mg/L

Turbidity Meter Model/Serial Number: Lamotte #4416 – 2014

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Attachment B

Annual 2018 Soil Vapor Monitoring and Vapor Intrusion Assessment Report

ATTACHMENT B

Annual 2018 Soil Vapor Monitoring and Vapor Intrusion Assessment Report

Whirlpool Corporation
Fort Smith, Arkansas

Prepared for:
Whirlpool Corporation

Prepared by:
Ramboll US Corporation

Date:
February 2019

Project Number:
16900010633

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1 Introduction

Ramboll US Corporation (Ramboll) has prepared this Annual 2018 SV (SV) Monitoring and VI (VI) Assessment Report for the Fort Smith, Arkansas, site (Site) on behalf of Whirlpool Corporation (Whirlpool) in accordance with the Revised Groundwater Monitoring Plan (RGWMP) approved by the Arkansas Department of Environmental Quality (ADEQ) in September 2016; the Remedial Action Decision Document (RADD) issued by ADEQ on December 27, 2013, and revised in November 2015 (Revised RADD); and ADEQ comment letters and Ramboll/Whirlpool responses to previous SV monitoring and VI assessment reports. This report is Attachment B of the 2018 Annual Report for the Site.

Whirlpool has been monitoring groundwater at the Site since 1989. In 2012, the potential for VI from groundwater into residential buildings in the neighborhood north of the Site and the onsite building were evaluated using multiple lines of evidence in a human health risk assessment (HHRA), which was presented as Appendix A of the Revised Risk Management Plan (RRMP) (ENVIRON 2013). The risk assessment included the use of groundwater and SV data in the evaluation of the potential for VI. In January 2016, the risk assessment was updated with the monitoring data collected after the 2013 risk assessment (Ramboll Environ 2016b). The use of multiple lines of evidence in these risk assessments is consistent with United States Environmental Protection Agency's (USEPA's) recommendations in its 2015 VI guidance documents (USEPA 2015a, USEPA 2015b).

Monitoring data collected during the 2018 annual sampling event from groundwater monitoring wells and vapor monitoring points are evaluated in this report for residential buildings in the neighborhood north of the Site, using the methods and assumptions described in the 2013 and 2016 risk assessment reports.

Monitoring data to assess potential for VI for the onsite building was assessed in April and November 2015. The onsite building is being renovated by the current owner Phoenix Investors LLC to facilitate future use for warehousing purposes. The building renovation has included removal of equipment, filling of former pits, interior painting and subdividing the interior of the building. An indoor air and sub-slab vapor monitoring event is scheduled to occur before mid-2019 to assess current indoor air conditions after renovation of the building is complete.

SV, VI and indoor air conditions have been monitored and assessed in the neighborhood north of the Site and the onsite building since 2014 as noted in the following monitoring reports:

- Four quarterly monitoring events in 2014 consisting of:
  - First Quarter 2014 Quarterly SV Monitoring/VI Report, May 15, 2014;
  - Second Quarter 2014 Quarterly SV Monitoring/VI Report, August 15, 2014;
  - Third Quarter 2014 Quarterly SV Monitoring/VI Report, November 14, 2014; and
  - Fourth Quarter 2014 Quarterly SV Monitoring/VI Report, February 13, 2015.
- 2014 Remedial Action Effectiveness Report, January 2015

- Four quarterly monitoring events in 2015 consisting of:
  - First Quarter 2015 Quarterly SV Monitoring/VI Report, May 8, 2015;
  - Second Quarter 2015 Quarterly SV Monitoring/VI Report, August 13, 2015 (including outdoor, crawl space and indoor air samples from Parcel 3 on April 22 and 23, 2015);
  - Third Quarter 2015 Quarterly SV Monitoring/VI Report, November 13, 2015; and
  - Fourth Quarter 2015 Quarterly SV Monitoring/VI Report, January 12, 2016 (including outdoor, crawl space and indoor air samples from Parcel 3 on November 5, 2015).
- 2015 Two Year Technical Review Report, January 28, 2016
- Human Health Risk Assessment Update, January 29, 2016
- Two quarterly of monitoring events in 2016 consisting of:
  - First Quarter 2016 Quarterly SV Monitoring/VI Report, May 12, 2016; and
  - Second Quarter 2016 Quarterly SV Monitoring/VI Report, August 15, 2016.
- Onsite Indoor Air and Sub-slab SV Data Report, April 27, 2016
- Onsite Indoor Air and Sub-slab SV Data Report, Second Monitoring Event, August 26, 2016
- Annual 2016 SV Monitoring and VI Assessment Report, February 2, 2017
- 2017 Semi-Annual SV Monitoring and VI Assessment Report, July 2017
- Annual 2017 SV Monitoring and VI Assessment Report, January 5, 2018
- 2018 Semi-Annual SV Monitoring and VI Assessment Report, July 2018

2 Vapor Intrusion Assessment Sampling

The most recent samples for VI assessment were collected on November 13-15, 2018, in accordance with the Revised Groundwater Monitoring Plan, section "Shallow Groundwater Monitoring for VI Assessment" and Table 1 (Ramboll Environ 2016g). Groundwater samples for VI assessment[1] were collected from MW-175, MW-176, MW-178 and MW-179, which are located at two parcels (Parcels 2 and 3) in the neighborhood and at one parcel (Parcel 5) south of the neighborhood. SV sampling was attempted at associated SV monitoring points VP-7, VP-8, VP-9, VP-10 and VP-14. Water was encountered in all of the SV monitoring points, except VP-9. The sampling was performed following USEPA and industry standard methods.

SV sampling was also attempted at VP-12 (at Parcel 4). Although Parcel 4 is not included for VI assessment in the Revised Groundwater Monitoring Plan (2016g), data from this location are evaluated in this assessment.

Perched water filled the vapor monitoring points VP-7, VP-8, VP-10, VP-12 and VP-14 and the water from these monitoring points could not be purged from the sampling train. Water samples were collected from these vapor points, per the sampling modifications discussed in the Second Quarter 2014 SV Monitoring/VI Report. Table 1a summarizes the matrices encountered at the vapor monitoring points at each Parcel and the types of samples that were collected during the November 2018 sampling event, as well as the sampling events since 2014. Table 1a also shows that indoor air, crawl space and outdoor air data were collected in April and October 2015 at Parcel 3 to provide additional lines of evidence for supporting the VI assessment.

Table 1b summarizes the groundwater monitoring wells and vapor monitoring points sampled in November 2018, or in a previous sampling event. The table includes a column that indicates whether a sampling location is for VI assessment per the Revised Groundwater Monitoring Plan (Ramboll Environ 2016g). These sampling locations are shown on Figure 1.

Information regarding the installation of the vapor monitoring points can be found in the Fourth Quarter 2015 SV Monitoring and VI Assessment Report (Ramboll Environ 2015f). The field procedures used during the SV sampling attempts were consistent with the methodology described in the First Quarter 2014 SV Monitoring/VI Report (ENVIRON 2014a) and the modifications discussed in the Second Quarter 2014 SV Monitoring/VI Report (ENVIRON 2014b); the sampling attempts on November 15 were preceded by at least five consecutive days with less than 0.1 inch of rain. Precipitation data for November 2018 are provided in Appendix B.

The volatile organic compound (VOC) results for the groundwater, SV and perched water samples collected during the 2018 Annual Sampling Event are discussed in Section 3. The analytical data reports for the samples are provided in Appendix A.

[1] According to the Revised Groundwater Monitoring Plan (2016g), MW-55R (in Parcel 6) is sampled for purposes other than VI assessment. Parcel 6 is no longer included for VI assessment.

3 Results

3.1 Summary of Prior Assessments

The data collected over the groundwater plume in the neighborhood prior to Fourth Quarter 2018 continued to show that trichloroethylene (TCE) VI from groundwater is not indicative of a public health concern. These findings, based on multiple lines of evidence involving the evaluation of groundwater, SV, crawl space air and indoor air data corroborate the original groundwater VI modeling results which indicate VI from groundwater is not occurring at levels that would present a public health concern

3.2 Current Assessment

Groundwater data from monitoring wells (which have identifiers beginning with "MW-") in the neighborhood collected during the 2018 annual sampling event in November are summarized in Table 2a. Groundwater data from the monitoring wells south of the neighborhood are summarized on Table 2b. Figure 2 shows the locations of the groundwater monitoring wells included in Tables 2a and 2b. Perched water data and SV data from SV points sampled during the 2018 annual sampling event are included in Table 3a and Table 3b, respectively. As discussed in the 2018 Annual Report, the TCE groundwater concentrations in the neighborhood have been stable or decreasing since May 2012.

The maximum detected groundwater concentrations among the monitoring wells in the neighborhood that were sampled in November 2018 are summarized in Table 4. These concentrations were used to calculate upper-bound risk estimates for potential VI from groundwater into residences in the neighborhood, using the approach in Section 6.5.2 of the ADEQ-approved RRMP which was also used in the 2016 risk assessment. The calculation of and input parameters for these risk estimates are included as Appendix C. As shown in Table 4, the calculations resulted in upper-bound cumulative cancer risk and non-cancer hazard index (HI) estimates of $3x10^{-6}$ and 0.7, respectively. These risk estimates are below ADEQ's risk management limits of 10^{-4} and 1, respectively, for reasonable maximum exposure (RME) risks (ADEQ 2005). The calculations for risk estimates discussed in this section are included in Appendix C. Toxicity values used in the risk calculations are current as of December 2018.

SV monitoring points and nearby groundwater monitoring wells were installed at five parcels in January 2015 and one additional parcel in June 2015 to provide additional lines of evidence to evaluate the potential for VI from groundwater. Where SV data could not be collected but perched water samples could be collected from the SV monitoring points, data from these samples were used to confirm the conclusions of the groundwater VI risk assessment.

The following sections describe the evaluation of groundwater, SV and perched water data from the co-located vapor points and monitoring wells at each of the three parcels sampled for VI assessment in November 2018 per the Revised Groundwater Monitoring Plan. Perched water data from Parcel 4 are also evaluated, even though Parcel 4 was excluded from the VI

assessment (Ramboll Environ 2016g). The parcels within the neighborhood are discussed in Section 3.2.1 and the parcel south of the neighborhood is discussed in Section 3.2.2.

3.2.1 Parcels in the Neighborhood

3.2.1.1 Parcel 2

At Parcel 2, VI risks were estimated based on the groundwater data from MW-175 and the approach discussed above for groundwater. As shown in Table 5, the upper-bound cumulative cancer risk and non-cancer HI estimates for groundwater water at MW-175 are $3x10^{-7}$ and 0.05, respectively, which are well within ADEQ's risk management limits for RME risks.

Upper-bound risk estimates were also calculated using the perched water data from VP-7 and VP-8 as an additional line of evidence for assessing the degree of VI from groundwater. The risk estimates were calculated using the approach discussed above for groundwater, except the depth to water was decreased to 5.5 feet below ground surface (bgs) for VP-7 and 10.5 feet bgs for VP-8. As shown in Table 5, the upper-bound cumulative cancer risk and non-cancer HI estimates for perched water at VP-7 are $5x10^{-9}$ and 0.00005, respectively; the upper-bound cumulative cancer risk and non-cancer HI estimates for perched water at VP-8 are $2x10^{-8}$ and 0.004, respectively. These risk estimates are well within ADEQ's risk management limits for RME risks.

These results confirm that VI from groundwater does not pose an unacceptable risk at Parcel 2. Only perched water data were evaluated at Parcel 2 because an SV sample could not be collected from the vapor monitoring points at this parcel.

3.2.1.2 Parcel 3

At Parcel 3, VI risks were estimated based on the groundwater data from MW-176 and the approach discussed above for groundwater. As shown in Table 5, the upper-bound cumulative cancer risk and non-cancer HI estimates for groundwater at MW-176 are $2x10^{-6}$ and 0.3, respectively, which are well within ADEQ's risk management limits for RME risks.

Vapor intrusion risks were also calculated based on the perched water data from VP-10, which is located adjacent to MW-176, as an additional line of evidence. The risk estimates were calculated using the approach discussed above for groundwater, except the depth to water was decreased to 11 feet bgs. As shown in Table 5, the upper-bound cumulative cancer risk and non-cancer HI estimates for water at VP-10 are $1x10^{-6}$ and 0.2, respectively, which are within ADEQ's risk management limits for RME risks.

Upper-bound risk estimates were also calculated using the SV concentrations from VP-9, which is located adjacent to VP-10, as an additional line of evidence for assessing the degree of VI from groundwater. These risk estimates were calculated using USEPA's highly conservative generic sub-slab SV attenuation factor of 0.03 (the 95th percentile of empirical values in its 2012 database; USEPA 2015). As shown in Table 5, the upper-bound cumulative cancer risk and

non-cancer HI estimates for SV at VP-9 are $2x10^{-5}$ and 3, respectively. The upper-bound HI estimate exceeds ADEQ's noncancer risk management limit of 1 for RME risks.

The elevated HI is the result of TCE that was detected at a concentration of 230 microgram per cubic meter (µg/m^3) on November 15, 2018. This vapor concentration has decreased since April 2018 when the TCE SV concentration was 540 µg/m^3. In November 2015, TCE was detected at a concentration of 1,200 µg/m^3 in the vapor at VP-9. Because of the large increase in the TCE SV concentration in November 2015, outdoor, crawl space and indoor air samples were collected at Parcel 3 on November 4-5, 2015. As discussed in Section 3.2.1.3 of the Fourth Quarter 2015 SV Monitoring and VI Assessment Report, the low TCE concentrations detected in the outdoor (< 0.034 µg/m^3), crawl space (< 0.062 µg/m^3) and indoor air (< 0.032 µg/m^3) samples were determined to not be associated with groundwater conditions related to the Site (Ramboll Environ 2015). The absence of detectable plume-related concentrations in the air data indicated an incomplete VI pathway from the groundwater plume. This determination is the same as that based on the outdoor, crawl space and indoor air data collected at Parcel 3 in April 2015 (all TCE concentrations were below detection limits of 0.039 µg/m^3 or less) at the request of the resident (when VP-9 had a TCE vapor concentration of 0.25 µg/m^3).

The findings from the November 2015 VI assessment are still considered to be valid, since the November 2018 TCE SV concentration at VP-9 (230 µg/m^3) is lower than November 2015 TCE SV concentration (1,200 µg/m^3). The upper-bound risk estimates in Table 5 are lower than those in November 2015 when air sampling data demonstrated that the VI pathway from groundwater did not actually exist.

Although the upper-bound risk estimates for SV from VP-9 are higher than the risk estimates based on the perched water data from VP-10, they should not be interpreted as an indication that the risk estimates from the water data are not adequately conservative. Rather, the interpretation should be that the risk estimates based on applying USEPA's generic attenuation factor to the SV data are upper-bound rather than reasonable worst-case and thus, are more conservative than necessary. As discussed in Section 6.8.2 of the RRMP, these risk estimates ignore the substantial attenuation due to the approximately 5 feet of silty clay between the SV sample depth and ground surface. Accounting for such attenuation would result in risk estimates for VP-9 that are substantially lower than those shown in Table 5.

Using multiple lines of evidence that include crawl space and indoor air data, the November 2018 results do not indicate VI from groundwater is posing an unacceptable risk at Parcel 3.

Since the shallow groundwater at Parcel 3 has had the highest TCE concentrations in the plume under the neighborhood, the 2015 crawl space and indoor air results at Parcel 3 also provide a relevant line of evidence for other residential properties in the neighborhood overlying the plume. As shown in Table 6, the highest TCE concentrations in shallow groundwater in the neighborhood since 2015 were at MW-176 and VP-10, which are located at Parcel 3. Since the crawl space and indoor air data at Parcel 3 do not show evidence of a complete VI pathway, it is reasonable to expect the same findings at properties where TCE concentrations in shallow groundwater are lower.

3.2.1.3 Parcel 4

At Parcel 4, VI risks were estimated based on the perched water data from VP-12 and the approach discussed above for groundwater, except the depth to water was increased to 12.5 feet bgs. As shown in Table 5, the upper-bound cumulative cancer risk and non-cancer HI estimates from groundwater at VP-12 are $7x10^{-10}$ and 0.000007, respectively, which are well within ADEQ's risk management limits for RME risks.

The results from VP-12 confirm that VI from groundwater does not pose an unacceptable risk at Parcel 4. Only perched water data were evaluated at Parcel 4 because an SV sample could not be collected from the vapor monitoring point at this location.

3.2.2 South of the Neighborhood – Parcel 5

Risk estimates for potential VI from groundwater into residential buildings were estimated based on the data collected at Parcel 5, which is a vacant non-residential property located south of Ingersoll Avenue and the residential neighborhood. Groundwater VI risks were calculated using the groundwater data from MW-179 and the approach discussed above for groundwater. As shown in Table 7, the upper-bound cumulative cancer risk and non-cancer HI estimates from groundwater at MW-179 are $5x10^{-9}$ and 0.001, respectively, which are below ADEQ's risk management limits for RME risks.

Upper-bound risk estimates were also calculated using the perched water data from VP-14 and MW-178, which are located adjacent to MW-179. The risk estimates were calculated using the approach discussed above for groundwater, except the depth to water was decreased to 7.5 feet bgs and 10.5 feet bgs, respectively. As shown in Table 7, the upper-bound cumulative cancer risk and non-cancer HI estimates for groundwater at VP-14 are $2x10^{-7}$ and 0.05, respectively; the upper-bound cumulative cancer risk and non-cancer HI estimates for groundwater at MW-178 are $2x10^{-8}$ and 0.004, respectively. The risk estimates at both of these sample points are well within ADEQ's risk management limits for RME risks.

In previous monitoring events, VI risk was also calculated using groundwater data from MW-33R as an additional line of evidence (see Table 1b). However, MW-33R was abandoned during the 2016 annual event due to road construction.

The results from MW-179, VP-14 and MW-178 confirm that VI from groundwater would not pose an unacceptable risk if there was a residence at Parcel 5.

4 Summary and Conclusion

- The concentrations of TCE in groundwater are stable or decreasing compared to previous reporting periods and historic results.
- Risk estimates for VI from groundwater in the neighborhood are below ADEQ's risk management limits of 10^{-4} and 1 for cumulative cancer risk and non-cancer hazards, respectively.
- VI modeling using perched water and soil gas confirms the modeling results using VOC concentrations in water collected from groundwater monitoring wells, except at Parcel 3 where the TCE vapor concentration in VP-9 resulted in an upper-bound HI that exceeds 1. However, this concentration is lower than that at VP-9 in November 2015, when data from outdoor, crawl space and indoor air sampling demonstrated that VI from groundwater was not occurring.

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Tables

TABLE 1a
SUMMARY OF MATRICES ENCOUNTERED AND SAMPLED AT SOIL VAPOR MONITORING POINTS
Whirlpool Facility - Fort Smith, Arkansas

Quarter of Collection	Date of Collection	In Neighborhood										South of Neighborhood	
		Parcel 1		Parcel 2		Parcel 3			Parcel 4		Parcel 6	Parcel 5	
		VP-5	VP-6	VP-7	VP-8	OA/CS/IA~	VP-9	VP-10	VP-1S+	VP-1D / VP-12#	VP-15	VP-2S+	VP-2D / VP-14#
Annual 2018	11/2018	--	--	**Water**	**Water**	NS	**Air**	**Water**	--	**Water**	--	--	**Water**
Semi-Annual 2018	4/2018	--	--	**Water**	**Water**	NS	**Air**	**Water**	--	**Water**	--	--	**Water**
Annual 2017	10/2017	--	--	**Water**	**Water**	NS	**Air**	**Water**	--	**Water**	--	--	**Water**
Semi-Annual 2017	5/2017	--	--	**Water**	**Water**	NS	**Air**	**Water**	--	**Water**	--	--	**Water**
Annual 2016	11/2016	**Water**	**Water**	**Water**	**Water**	NS	**Air**	**Water**	--	**Water**	NS	--	NS
2nd Q 2016	5/2016	**Water**	**Water**	**Water**	**Water**	NS	NS	**Water**	--	**Water**	**Water**	--	**Water**
1st Q 2016	1/2016	**Water**	**Water**	**Water**	**Water**	NS	NS	**Water**	--	**Water**	**Water**	--	**Water**
4th Q 2015	10/2015	**Water**	**Water**	**Air**	**Water**	**Air**	**Air**	**Water**	--	**Water**	**Water**	--	**Water**
3rd Q 2015	7/2015	**Water**	**Water**	**Air**	**Water**	NS	**Water**	**Water**	--	**Water**	**Water**	--	**Water**
2nd Q 2015	4/2015	**Water**	**Water**	**Air**	**Water**	**Air**	**Air**	**Water**	--	**Water**	--	--	*Water*
1st Q 2015	1/2015	**Air**	**Water**	**Air**	*Water*	--	**Air**	**Water**	--	**Water**	--	--	**Air**
4th Q 2014	10/2014	--	--	--	--	--	--	--	**Water**	*Air*	--	**Water**	**Water**
3rd Q 2014	9/2014	--	--	--	--	--	--	--	**Water**	*Air**	--	**Water**	**Water**
3rd Q 2014	7/2014	--	--	--	--	--	--	--	*Water*	*Water*	--	**Water**	**Water**
2nd Q 2014	5/2014	--	--	--	--	--	--	--	Water	**Air**	--	Water	Water
1st Q 2014	3/2014	--	--	--	--	--	--	--	**Air**	**Air**	--	Water	**Air**

Notes:
Shaded and **bolded** cells indicate that a sample was collected.
Italicized cells indicate that insufficient volume was available for sample collection.
Dashes (--) indicate the location was not installed or was abandoned during this sampling event.
Prior to the Third Quarter 2014, water encountered in the soil vapor monitoring points was not sampled per the quarterly sampling plan.
Per the September 2016 RMP, only vapor points associated with groundwater wells MW-175 through MW-179 will be sampled. In the Semi-Annual 2017 sampling, VP-12 was sampled.
"NS" indicates the location was not sampled during this sampling event.
* During the September 2014 sampling event, no air or water sample could be collected at VP-1D; a water sample was collected at the nearby port SV-04D to characterize VOC concentrations in the area.
~ Outdoor (OA), crawl space (CS), and indoor air (IA) samples were collected in the Second Quarter 2015 and Fourth Quarter 2015 at Parcel 3 at the request of the property owner
+ During the First Quarter 2015, VP-1S and VP-2S were abandoned and installation of VP-11 and VP-13 was attempted in Parcels 4 and 5, respectively. However, because of water in the borings for VP-11 and VP-13, monitoring wells MW-181
# During the First Quarter 2015, locations VP-1D and VP-2D were replaced by VP-12 and VP-14, respectively.

TABLE 1b
SUMMARY OF SCREEN INTERVALS AT SOIL VAPOR MONITORING POINTS
Whirlpool Facility - Fort Smith, Arkansas

Area	Parcel	Location	Screen Interval (ft bgs)	Included in 2016 Revised Groundwater Sampling Plan for Vapor Intrusion Assessment	Notes	Annual 2018
						11/2018
In Neighborhood	1	MW-173	5-6	No		NS
In Neighborhood	1	VP-5	7.25-7.75	No		NS
In Neighborhood	1	MW-174	10-11	No		NS
In Neighborhood	1	VP-6	13.75-14.25	No		NS
In Neighborhood	2	VP-7	5.25-5.75	Yes	Water in VP	Water
In Neighborhood	2	VP-8	10.25-10.75	Yes	Water in VP	Water
In Neighborhood	2	MW-175	14-15	Yes		Water
In Neighborhood	3	VP-9	5.25-5.75	Yes		Air
In Neighborhood	3	VP-10	10.75-11.25	Yes	Water in VP	Water
In Neighborhood	3	MW-176	13.5-14.5	Yes		Water
In Neighborhood	4	MW-181 (VP-11)+	5.5-6.5	No		NS
In Neighborhood	4	MW-177	9-10	No		NS
In Neighborhood	4	MW-71	12#	No		NS
In Neighborhood	4	VP-12 (VP-1D)*	12.25-12.75	No	Water in VP	Water
In Neighborhood	6	VP-15	5.25-5.75	No		NS
In Neighborhood	6	MW-55R	19-21	No&		Water
South of Neighborhood	5	MW-180 (VP-13)+	6-7	No		NS
South of Neighborhood	5	MW-178	7-8	Yes		Water
South of Neighborhood	5	VP-14 (VP-2D)*	10.25-10.75	Yes	Water in VP	Water
South of Neighborhood	5	MW-179	12-13	Yes		Water
South of Neighborhood	5	MW-33R^	19-21	No		NS

Notes:

Italicized cells indicate that insufficient volume was available for sample collection.

Dashes ("--") indicate the location was not installed or was abandoned during this sampling event.

Prior to the Third Quarter 2014, water encountered in the soil vapor monitoring points was not sampled per the quarterly sampling plan.

"NS" indicates the location was not sampled during this sampling event.

* During the First Quarter 2015, locations VP-1D and VP-2D were replaced by VP-12 and VP-14, respectively.
respectively. However, because of water in the borings for VP-11 and VP-13, monitoring wells MW-181 and MW-180, respectively, were installed.

Well screen information is not available for MW-71. The typical depth to groundwater of 12 feet bgs was substituted for the screen depth.

& MW-55R is included in the Revised Groundwater Monitoring Plan for purposes other than the Vapor Intrusion Assessment.

^ MW-33R was abandoned in April 2016.

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TABLE 2a
ANNUAL 2018 GROUNDWATER VOC DATA FOR MONITORING WELLS IN THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Location	MW-39R	MW-40R	MW-46R	MW-50R	MW-55R	MW-55R	MW-56R
Field Sample ID	MW-39R-201811	MW-40R-201811	MW-46R-201811	MW-50R-201811	MW-55R-201811	DUP-08-201811	MW-56R-201811
Lab Sample ID	60287044027	60286849012	60286849010	60286720009	60287044009	60287044010	60286849008
Sample Date	11/15/2018	11/14/2018	11/14/2018	11/13/2018	11/15/2018	11/15/2018	11/14/2018
Comments						Field Duplicate	
Acetone	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)
Benzene	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
2-Butanone	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Chloroform	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
1,2-Dichloroethane	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	U (0.20)	U (0.20)	1.5 (0.20)	U (0.20)	0.36 J (0.20)	0.32 J (0.20)	1.7 (0.20)
cis-1,2-Dichloroethene	U (0.080)	U (0.080)	14.4 (0.080)	U (0.080)	0.91 J (0.080)	0.85 J (0.080)	21.1 (0.080)
trans-1,2-Dichloroethene	U (0.20)	U (0.20)	0.50 J (0.20)	U (0.20)	U (0.20)	U (0.20)	0.40 J (0.20)
4-Methyl-2-pentanone	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
Trichloroethene	U (0.17)	U (0.17)	603 (1.7)	0.73 J (0.17)	22.3 (0.17)	23.1 (0.17)	902 (1.7)
Vinyl Chloride	U (0.13)	U (0.13)	1.2 (0.13)	U (0.13)	U (0.13)	U (0.13)	0.38 J (0.13)

Notes:

1 All concentrations are presented in µg/L (ppb).

2 Only chemicals with at least one detection in any water or soil vapor sample are shown.

U = Not detected

J = Estimated concentration

( ) = Detection limit

µg/L = Micrograms per liter

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TABLE 2a
ANNUAL 2018 GROUNDWATER VOC DATA FOR MONITORING WELLS IN THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Location	MW-57R	MW-58R	MW-58R	MW-60R	MW-61R	MW-61R	MW-62R
Field Sample ID	MW-57R-201811	MW-58R-201811	DUP-05-201811	MW-60R-201811	MW-61R-201811	DUP-06-201811	MW-62R-201811
Lab Sample ID	60286849009	60287044035	60287044036	60286849011	60286720002	60286720006	60286849013
Sample Date	11/14/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018	11/13/2018	11/14/2018
Comments			Field Duplicate			Field Duplicate	
Acetone	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)
Benzene	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
2-Butanone	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Chloroform	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
1,2-Dichloroethane	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	0.76 J (0.20)	1.7 (0.20)	1.7 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	7.7 (0.080)	10.2 (0.080)	9.8 (0.080)	U (0.080)	1.9 (0.080)	1.8 (0.080)	U (0.080)
trans-1,2-Dichloroethene	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
4-Methyl-2-pentanone	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	U (0.10)	0.13 J (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
Trichloroethene	286 (1.7)	312 (0.85)	319 (1.7)	U (0.17)	7.7 (0.17)	7.7 (0.17)	U (0.17)
Vinyl Chloride	0.21 J (0.13)	0.43 J (0.13)	0.47 J (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)

Notes:

1 All concentrations are presented in µg/L (ppb).

2 Only chemicals with at least one detection in any water or soil vapor sample are shown.

U = Not detected

J = Estimated concentration

( ) = Detection limit

µg/L = Micrograms per liter

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TABLE 2a
ANNUAL 2018 GROUNDWATER VOC DATA FOR MONITORING WELLS IN THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Location	MW-63R	MW-68	MW-82	MW-96	MW-97	MW-98	MW-99
Field Sample ID	MW-63R-201811	MW-68-201811	MW-82-201811	MW-96-201811	MW-97-201811	MW-98-201811	MW-99-201811
Lab Sample ID	60286849014	60286720015	60287044014	60287044005	60287044006	60286849024	60286720014
Sample Date	11/14/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/14/2018	11/13/2018
Comments							
Acetone	U (1.9)	U (1.9)	28.8 (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)
Benzene	U (0.060)	U (0.060)	0.16 J (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
2-Butanone	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Chloroform	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	U (0.080)	U (0.080)	0.30 J (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
1,2-Dichloroethane	U (0.12)	U (0.12)	0.21 J (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	0.66 J (0.080)	U (0.080)	1.2 (0.080)	U (0.080)	U (0.080)	U (0.080)	0.64 J (0.080)
trans-1,2-Dichloroethene	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
4-Methyl-2-pentanone	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
Trichloroethene	4.5 (0.17)	U (0.17)	60.3 (0.17)	U (0.17)	U (0.17)	0.29 J (0.17)	8.1 (0.17)
Vinyl Chloride	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)

Notes:

1 All concentrations are presented in µg/L (ppb).

2 Only chemicals with at least one detection in any water or soil vapor sample are shown.

U = Not detected

J = Estimated concentration

( ) = Detection limit

µg/L = Micrograms per liter

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TABLE 2a
ANNUAL 2018 GROUNDWATER VOC DATA FOR MONITORING WELLS IN THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Location	MW-175	MW-176	MW-183	MW-184	MW-194	MW-195	MW-196
Field Sample ID	MW-175-201811	MW-176-201811	MW-183R-201811	MW-184-201811	MW-194-201811	MW-195-201811	MW-196-201811
Lab Sample ID	60286720001	60286720020	60286849023	60286849022	60286849029	60286720012	60286720013
Sample Date	11/13/2019	11/13/2020	11/13/2021	11/13/2022	11/14/2018	11/13/2018	11/13/2018
Comments							
Acetone	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)	U (1.9)
Benzene	U (0.060)	0.21 J (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)
2-Butanone	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)
Chloroform	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)
Chloromethane	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)
1,2-Dichloroethane	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	0.28 J (0.20)	3.0 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	1.5 (0.080)	127 (0.080)	U (0.080)	U (0.080)	0.87 J (0.080)	U (0.080)	U (0.080)
trans-1,2-Dichloroethene	U (0.20)	2.1 (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)
4-Methyl-2-pentanone	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)
Trichloroethene	70.7 (0.17)	397 (1.7)	1.1 (0.17)	U (0.17)	10.7 (0.17)	U (0.17)	U (0.17)
Vinyl Chloride	0.17 J (0.13)	2.1 (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)

Notes:

1 All concentrations are presented in µg/L (ppb).

2 Only chemicals with at least one detection in any water or soil vapor sample are shown.

U = Not detected

J = Estimated concentration

( ) = Detection limit

µg/L = Micrograms per liter

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TABLE 2b
ANNUAL 2018 GROUNDWATER VOC DATA FOR MONITORING WELLS SOUTH OF THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Location	MW-178	MW-179
Field Sample ID	MW-178-201811	MW-179-201811
Lab Sample ID	60286849004	60286720005
Sample Date	11/14/2018	11/13/2018
Comments		
Acetone	U (1.9)	U (1.9)
Benzene	0.22 J (0.060)	U (0.060)
2-Butanone	U (0.59)	U (0.59)
Chloroform	U (0.14)	U (0.14)
Chloromethane	U (0.080)	U (0.080)
1,2-Dichloroethane	U (0.12)	U (0.12)
1,1-Dichloroethene	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	1.4 (0.080)	U (0.080)
trans-1,2-Dichloroethene	U (0.20)	U (0.20)
4-Methyl-2-pentanone	U (0.42)	U (0.42)
Methylene Chloride	U (0.15)	U (0.15)
Tetrachloroethene	U (0.10)	U (0.10)
Toluene	U (0.17)	U (0.17)
Trichloroethene	4.5 (0.17)	1.4 (0.17)
Vinyl Chloride	U (0.13)	U (0.13)

Notes:

1 All concentrations are presented in µg/L (ppb).

2 Only chemicals with at least one detection in any water or soil vapor sample are shown.

U = Not detected

J = Estimated concentration

( ) = Detection limit

µg/L = Micrograms per liter

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TABLE 3a
ANNUAL 2018 WATER DATA FROM SOIL VAPOR MONITORING POINTS
Whirlpool Facility - Fort Smith, Arkansas

Parcel	Parcel 2	Parcel 2	Parcel 3	Parcel 4	Parcel 5
Location	VP-7	VP-8	VP-10	VP-12	VP-14
Field Sample ID	VP-7-201811	VP-8-201811	VP-10-201811	VP-12-201811	VP-14-201811
Lab Sample ID	60287058001	60287058002	60287058003	60287058004	60287058005
Collection Depth (feet bgs)	5.25-5.75	10.25-10.75	10.75-11.25	12.25-12.75	10.25-10.75
Sample Date	11/15/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Comments					
Acetone	23.3 (1.9)	69.1 (1.9)	3.1 J (1.9)	4.5 J (1.9)	U (1.9)
Benzene	0.97 J (0.060)	0.89 J (0.060)	0.26 J (0.060)	0.17 J (0.060)	0.18 J (0.060)
2-Butanone	U (0.59)	12.7 (0.59)	U (0.59)	U (0.59)	U (0.59)
Chloroform	U (0.14)	U (0.14)	0.83 J (0.14)	U (0.14)	0.32 J (0.14)
Chloromethane	0.12 J (0.080)	0.39 J (0.080)	U (0.080)	U (0.080)	U (0.080)
1,2-Dichloroethane	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)
1,1-Dichloroethene	U (0.20)	U (0.20)	1.6 (0.20)	U (0.20)	0.80 J (0.20)
cis-1,2-Dichloroethene	U (0.080)	U (0.080)	14.4 (0.080)	U (0.080)	2.6 (0.080)
trans-1,2-Dichloroethene	U (0.20)	U (0.20)	0.36 J (0.20)	U (0.20)	U (0.20)
4-Methyl-2-pentanone	0.66 J (0.42)	0.92 J (0.42)	U (0.42)	U (0.42)	U (0.42)
Methylene Chloride	U (0.15)	U (0.15)	0.35 J (0.15)	U (0.15)	U (0.15)
Tetrachloroethene	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)
Toluene	0.21 J (0.17)	0.33 J (0.17)	0.41 J (0.17)	U (0.17)	U (0.17)
Trichloroethene	U (0.17)	4.5 (0.17)	250 (0.85)	U (0.17)	64.1 (0.17)
Vinyl Chloride	U (0.13)	0.17 J (0.13)	0.55 J (0.13)	U (0.13)	U (0.13)

Notes:

1 All concentrations are presented in µg/L (ppb)

2 Only chemicals with at least one detection in any water or soil vapor sample are shown

U = Not detected

J = Estimated concentration

( ) = Method detection limit

µg/L = Micrograms per liter

bgs = Below ground surface

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TABLE 3b
ANNUAL 2018 SOIL VAPOR DATA
Whirlpool Facility - Fort Smith, Arkansas

Parcel	Parcel 3
Location	VP-9
Field Sample ID	VP-9-201811
Lab Sample ID	10456051001
Collection Depth (feet bgs)	5.25 - 5.75
Sample Date	11/15/2018
Comments	
Volatile Organic Compounds	
1,2-Dichloroethane	0.17 (0.049)
1,1-Dichloroethene	0.57 (0.033)
cis-1,2-Dichloroethene	0.46 (0.023)
trans-1,2-Dichloroethene	U (0.034)
Tetrachloroethene	0.31 (0.050)
Trichloroethene	230 (8.4)
Vinyl Chloride	U (0.042)

Notes:

1 All concentrations are presented in $\mu g/m^3$

2 Only analyzed chemicals with at least one detection in any water or soil vapor sample are shown.

( ) = Method detection limit

$\mu g/m^3$ = Micrograms per cubic meter

bgs = Below ground surface

TABLE 4
UPPER-BOUND VAPOR INTRUSION RISK ESTIMATES
BASED ON ANNUAL 2018 GROUNDWATER DATA IN THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Chemical	CASRN	Maximum Detected Concentration in Groundwater in Neighborhood (mg/L)	Location of Maximum Detected Concentration in Groundwater in Neighborhood	Residential Vapor Intrusion	
				Risk	Hazard Quotent
Volatile Organic Compounds					
Acetone	67-64-1	2.88E-02	MW-82		1.9E-07
Benzene	71-43-2	2.10E-04	MW-176	9.3E-10	9.2E-06
Chloromethane	74-87-3	3.00E-04	MW-82		5.2E-06
1,2-Dichloroethane	107-06-2	2.10E-04	MW-82	1.5E-09	2.0E-05
1,1-Dichloroethene	75-35-4	3.00E-03	MW-176		3.9E-05
cis-1,2-Dichloroethene	156-59-2	1.27E-01	MW-176		
trans-1,2-Dichloroethene	156-60-5	2.10E-03	MW-176		
Tetrachloroethene	127-18-4	1.30E-04	MW-58R, MW-46R	2.5E-11	5.5E-06
Trichloroethene	79-01-6	9.02E-01	MW-56R	3.3E-06	6.9E-01
Vinyl Chloride	75-01-4	2.10E-03	MW-176	4.3E-08	6.6E-05

Cumulative Risk and HI:	3E-06	7E-01

Notes:
Only constiuents of concern detected in monitoring wells in the neighborhood are shown
Detected concentrations are from samples collected from groundwater monitoring wells in the 2018 Annual Sampling Event
Risks were calculated using the model derived by Johnson & Ettinger (1991), as discussed in Section 3.3.1 of the April 2013 Revised Risk Management Plan
mg/L = Milligrams per liter

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TABLE 5
EVALUATION OF VOCS IN WATER AT PARCELS IN THE NEIGHBORHOOD
Whirlpool Facility - Fort Smith, Arkansas

Chemical	CASRN	Parcel 2									Parcel 3									Parcel 4		
		5.5 feet bgs			10.5 feet bgs			12 feet bgs			5.5 feet bgs			11 feet bgs			12 feet bgs			12.5 feet bgs		
		VP-7			VP-8			MW-175			VP-9			VP-10			MW-176			VP-12		
		Perched Water			Perched Water			Groundwater			Soil Vapor			Perched Water			Groundwater			Groundwater		
		Conc	Risk	HQ	Conc	Risk	HQ	Conc	Risk	HQ	Conc	Risk	HQ	Conc	Risk	HQ	Conc	Risk	HQ	Conc	Risk	HQ
Volatile Organic Compounds																						
Acetone	67-64-1	2.33E-02		3.5E-07	6.91E-02		5.2E-07							3.10E-03		2.2E-08				4.50E-03		2.9E-08
Benzene	71-43-2	9.70E-04	4.8E-09	4.7E-05	8.9E-04	4.0E-09	4.0E-05							2.60E-04	1.2E-09	1.2E-05	2.10E-04	9.3E-10	9.2E-06	1.70E-04	7.5E-10	7.4E-06
2-Butanone	78-93-3				1.3E-02		5.6E-07															
Chloroform	67-66-3													8.30E-04	1.0E-08	2.0E-05						
Chloromethane	74-87-3	1.20E-04		2.2E-06	3.9E-04		6.8E-06															
1,2-Dichloroethane	107-06-2										1.70E-04	5.4E-08	7.0E-04									
1,1-Dichloroethene	75-35-4							2.80E-04		3.6E-06	5.70E-04		8.2E-05	1.60E-03		2.1E-05	3.00E-03		3.9E-05			
cis-1,2-Dichloroethene	156-59-2							1.50E-03			4.60E-04			1.44E-02			1.27E-01					
trans-1,2-Dichloroethene	156-60-5													3.60E-04			2.10E-03					
4-Methyl-2-pentanone	108-10-1	6.60E-04		9.2E-08	9.2E-04		7.6E-08															
Methylene Chloride	75-09-2													3.50E-04	4.1E-12	6.3E-07						
Tetrachloroethene	127-18-4										3.10E-04	9.9E-10	2.2E-04									
Toluene	108-88-3	2.10E-04		5.9E-08	3.3E-04		8.5E-08							4.10E-04		1.1E-07						
Trichloroethene	79-01-6				4.5E-03	1.7E-08	3.5E-03	7.07E-02	2.6E-07	5.4E-02	2.30E-01	1.6E-05	3.3E+00	2.50E-01	9.4E-07	1.9E-01	3.97E-01	1.5E-06	3.1E-01			
Vinyl Chloride	75-01-4				1.7E-04	3.5E-09	5.4E-06	1.70E-04	3.5E-09	5.4E-06				5.50E-04	1.1E-08	1.7E-05	2.10E-03	4.3E-08	6.6E-05			
Cumulative Risk and HI:		--	5E-09	5E-05	--	2E-08	4E-03	--	3E-07	5E-02	--	2E-05	**3E+00**	--	1E-06	2E-01	--	2E-06	3E-01	--	7E-10	7E-06

Notes:
No soil vapor sample was collected at either VP-2S or VP-2D because both screens, 5 ft bgs and 10 ft bgs, respectively, were saturated.
Risks based on soil vapor data were calculated using USEPA's default attenuation factor for subslab gas to indoor air of 0.03, as discussed in Section 6.8.2 of the April 2013 Revised Risk Management Plan.
Risks based on concentrations measured in groundwater were calculated using the model derived by Johnson & Ettinger (1991), as discussed in Section 3.3.1 of the April 2013 Revised Risk Management Plan.
Risks based on concentrations measured in water from the soil vapor ports or shallow groundwater were calculated using the same approach used for groundwater, except the depth was assumed to be the depth of the port or the depth of the screen, respectively, as discussed in Section 3 of the Annual 2016 Vapor Intrusion Report.
Upper-bound cumulative cancer risk and HI estimates in excess of Arkansas Department of Environmental Quality (ADEQ)'s RME cumulative cancer and noncancer risk limits (1E-4 and 1, respectively) are shaded in bold.
bgs = Below ground surface

TABLE 6
EVALUATION OF VOCS IN WATER AT PARCEL 5 (SOUTH OF NEIGHBORHOOD)
Whirlpool Facility - Fort Smith, Arkansas

Chemical	CASRN	7.5 feet bgs			10.5 feet bgs			12 feet bgs		
		MW-178			VP-14			MW-179		
		Perched Water			Perched Water			Groundwater		
		Conc	Risk	HQ	Conc	Risk	HQ	Conc	Risk	HQ
Volatile Organic Compounds										
Benzene	71-43-2	2.2E-04	1.0E-09	1.0E-05	1.8E-04	8.0E-10	8.0E-06			
Chloroform	67-66-3				3.2E-04	3.9E-09	7.9E-06			
1,1-Dichloroethene	75-35-4				8.0E-04		1.0E-05			
cis-1,2-Dichloroethene	156-59-2	1.4E-03			2.6E-03					
Trichloroethene	79-01-6	4.5E-03	1.7E-08	3.6E-03	6.4E-02	2.4E-07	5.0E-02	1.4E-03	5.2E-09	1.1E-03
Cumulative Risk and HI:		--	2E-08	4E-03	--	2E-07	5E-02	--	5E-09	1E-03

Notes:

ND = Not detected

Only constituents of concern detected in the 2018 Annual Samping Event samples at locations listed on the table are shown.

Risk and HQ estimates were not calculated for detected chemicals with inadequate toxicity or physical/chemical parameters or where chemical concentrations were non-detect.

were calculated using USEPA's

Risks based on concentrations measured in shallow groundwater were calculated using the same approach used for groundwater, except the depth was assumed to be the depth of the screen, as discussed in Section 3 of the Annual 2017 Vapor Intrusion Report.

Cumulative cancer risk and HI estimates were below Arkansas Department of Environmental Quality (ADEQ)'s risk limits (1E-4 and 1, respectively).

bgs = Below ground surface

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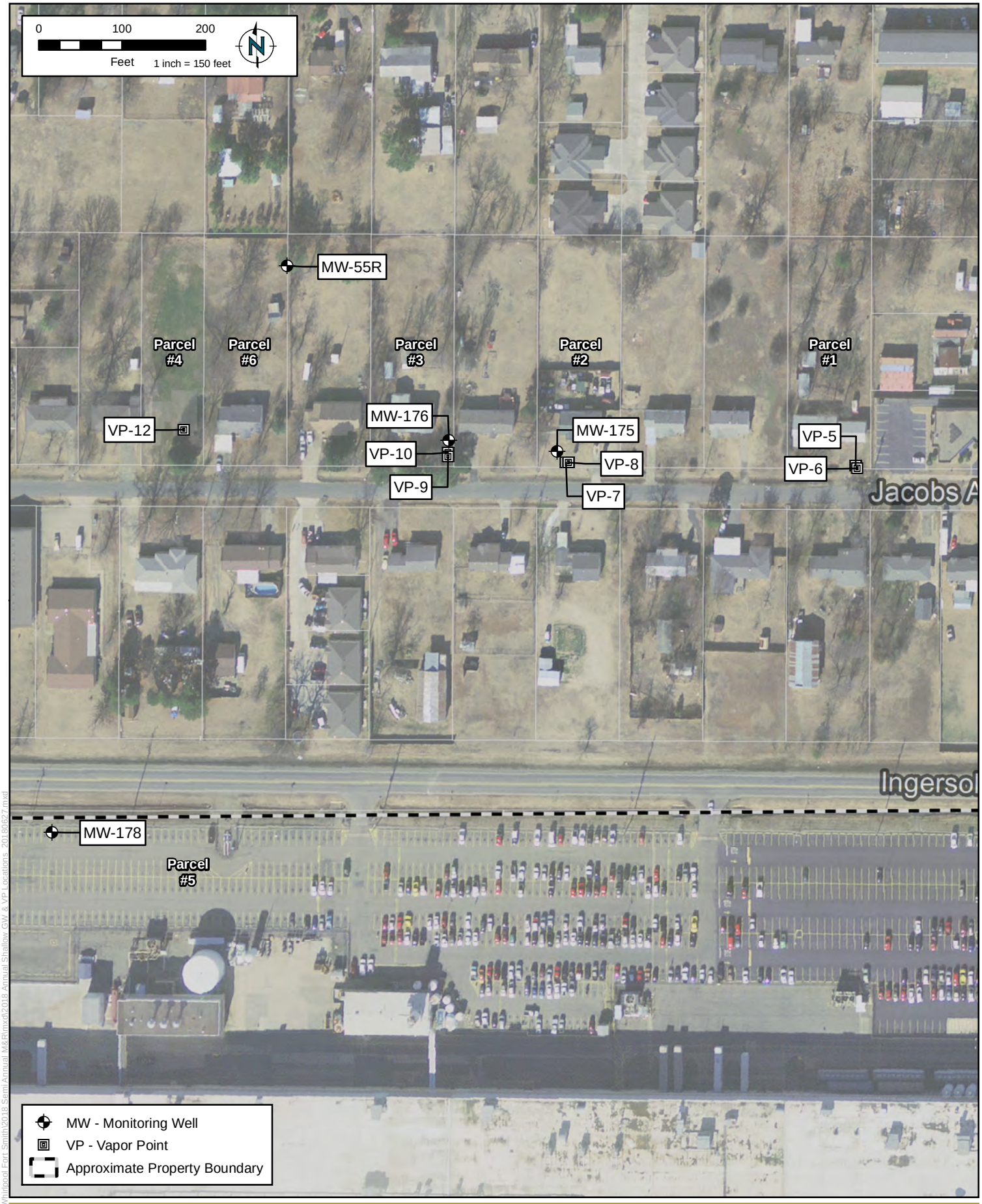
Figures



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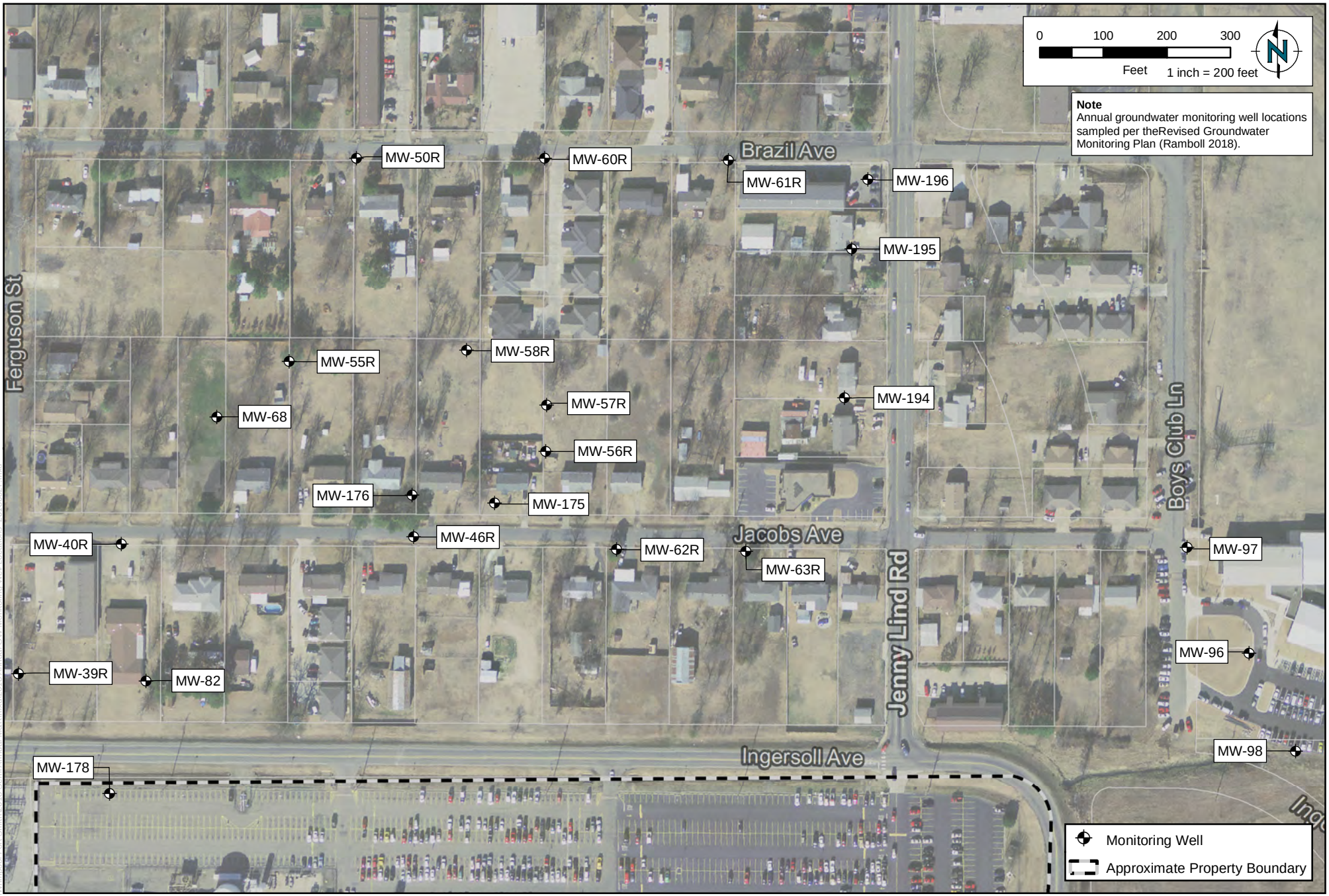
SHALLOW GROUNDWATER MONITORING WELLS AND VAPOR POINTS SAMPLED DURING 2018 ANNUAL SAMPLING

Whirlpool Facility - Fort Smith, Arkansas

Figure 1

DRAFTED BY: FK	DATE: 06/27/2018	PROJECT: 1690007739

FILE: L:\Loop Project Files\Whirlpool Fort Smith\2018 Semi-Annual M&R\mxd\2018 Annual Shallow GW & VP Locations_20180627.mxd



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DRAFTED BY: FK | DATE: 06/27/2018

GROUNDWATER MONITORING WELL LOCATIONS

Whirlpool Facility - Fort Smith, Arkansas

Figure 2

PROJECT: 1690007739

FILE: L:\Loop Project Files\Whirlpool Fort Smith\2018 Semi Annual M&R\mxd\2018 Annual GW Monitoring Well Locations_20180627.mxd

Appendix A
Laboratory Analytical Data

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 28, 2018

Haley Ahlers
Ramboll
1807 Park 270 Drive
Suite 320
Saint Louis, MO 63146

RE: Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Dear Haley Ahlers:
Enclosed are the analytical results for sample(s) received by the laboratory on November 19, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott Unze
scott.unze@pacelabs.com
1(612)607-6383
Project Manager

Enclosures

cc: Nick Zurweller, Ramboll

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CERTIFICATIONS

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10456051001	**VP-9-201811**	Air	11/15/18 17:45	11/19/18 09:05
10456051002	**VP-9-201811 cert 2132**	Air	11/15/18 17:45	11/19/18 09:05
10456051003	**Unused Can 3597**	Air		11/19/18 09:05
10456051004	**Unused Can 1686**	Air		11/19/18 09:05

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SAMPLE ANALYTE COUNT

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10456051001	**VP-9-201811**	TO-15	MJL, NCK	9
10456051002	**VP-9-201811 cert 2132**	TO-15	NCK	9

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Method: **TO-15**
Description: TO15 MSV AIR SIM SCAN
Client: Ramboll Environ
Date: November 28, 2018

General Information:
2 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Sample: VP-9-201811 **Lab ID: 10456051001** Collected: 11/15/18 17:45 Received: 11/19/18 09:05 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN	Analytical Method: TO-15							
1,1-Dichloroethane	ND	ug/m3	0.067	1.64		11/28/18 08:09	75-34-3	
1,2-Dichloroethane	**0.17**	ug/m3	0.067	1.64		11/28/18 08:09	107-06-2	
1,1-Dichloroethene	**0.57**	ug/m3	0.066	1.64		11/28/18 08:09	75-35-4	
cis-1,2-Dichloroethene	**0.46**	ug/m3	0.066	1.64		11/28/18 08:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	0.066	1.64		11/28/18 08:09	156-60-5	
Tetrachloroethene	**0.31**	ug/m3	0.11	1.64		11/28/18 08:09	127-18-4	
1,1,1-Trichloroethane	ND	ug/m3	0.091	1.64		11/28/18 08:09	71-55-6	
Trichloroethene	**230**	ug/m3	17.9	32.8		11/28/18 12:26	79-01-6	
Vinyl chloride	ND	ug/m3	0.043	1.64		11/28/18 08:09	75-01-4	

Sample: VP-9-201811 cert 2132 **Lab ID: 10456051002** Collected: 11/15/18 17:45 Received: 11/19/18 09:05 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR SIM SCAN	Analytical Method: TO-15							
1,1-Dichloroethane	ND	ug/m3	0.041	1		10/31/18 00:40	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.041	1		10/31/18 00:40	107-06-2	
1,1-Dichloroethene	ND	ug/m3	0.040	1		10/31/18 00:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	0.040	1		10/31/18 00:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	0.040	1		10/31/18 00:40	156-60-5	
Tetrachloroethene	ND	ug/m3	0.069	1		10/31/18 00:40	127-18-4	
1,1,1-Trichloroethane	ND	ug/m3	0.056	1		10/31/18 00:40	71-55-6	
Trichloroethene	ND	ug/m3	0.055	1		10/31/18 00:40	79-01-6	
Vinyl chloride	ND	ug/m3	0.026	1		10/31/18 00:40	75-01-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

QC Batch: 577500 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR SIM SCAN
Associated Lab Samples: 10456051001

METHOD BLANK: 3133073 Matrix: Air
Associated Lab Samples: 10456051001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	0.056	11/27/18 16:51	
1,1-Dichloroethane	ug/m3	ND	0.041	11/27/18 16:51	
1,1-Dichloroethene	ug/m3	ND	0.040	11/27/18 16:51	
1,2-Dichloroethane	ug/m3	ND	0.041	11/27/18 16:51	
cis-1,2-Dichloroethene	ug/m3	ND	0.040	11/27/18 16:51	
Tetrachloroethene	ug/m3	ND	0.069	11/27/18 16:51	
trans-1,2-Dichloroethene	ug/m3	ND	0.040	11/27/18 16:51	
Trichloroethene	ug/m3	ND	0.55	11/27/18 16:51	
Vinyl chloride	ug/m3	ND	0.026	11/27/18 16:51	

LABORATORY CONTROL SAMPLE: 3133074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	.57	0.52	93	56-133	
1,1-Dichloroethane	ug/m3	.42	0.40	94	63-130	
1,1-Dichloroethene	ug/m3	.44	0.39	91	59-138	
1,2-Dichloroethane	ug/m3	.43	0.40	93	61-130	
cis-1,2-Dichloroethene	ug/m3	.42	0.38	91	65-130	
Tetrachloroethene	ug/m3	.7	0.60	86	61-142	
trans-1,2-Dichloroethene	ug/m3	.42	0.43	103	67-131	
Trichloroethene	ug/m3	.56	.54J	96	58-141	
Vinyl chloride	ug/m3	.28	0.26	93	61-136	

SAMPLE DUPLICATE: 3133075

Parameter	Units	10456051001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	ND		25	
1,1-Dichloroethane	ug/m3	ND	ND		25	
1,1-Dichloroethene	ug/m3	0.57	0.69	18	25	
1,2-Dichloroethane	ug/m3	0.17	0.18	4	25	
cis-1,2-Dichloroethene	ug/m3	0.46	0.46	1	25	
Tetrachloroethene	ug/m3	0.31	0.32	3	25	
trans-1,2-Dichloroethene	ug/m3	ND	ND		25	
Trichloroethene	ug/m3	230	251	8	25	
Vinyl chloride	ug/m3	ND	ND		25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1690010633 Whirlpool Fort Smit
Pace Project No.: 10456051

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10456051001	**VP-9-201811**	TO-15	577500		
10456051002	**VP-9-201811 cert 2132**	TO-15	577734		

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AIR: CHAIN-OF-CUSTODY /

The Chain-of-Custody is a LEGAL DOCUMENT. All relevan

WO# : 10456051

10456051

34786 | Page: 1 of 1

Section A Required Client Information:

Company: Rambell
Address: 1807 Park 270 Dr. Suite 450 St. Louis, MO 63146
Email To: nzurweller@rambell.com
Phone: 636-579-6885 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: nzurweller@rambell.com
Copy To: thaselnight@rambell.com
Purchase Order No.:
Project Name: Whirlpool Fort Smith
Project Number: 169001063 3

Section C Invoice Information:

Attention: See Report To & Client Info
Company Name:
Address:
Pace Quote Reference: ~~Scott Unze~~ NM 1033958
Pace Project Manager/Sales Rep. Scott Unze
Pace Profile #: TBD

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other

Location of Sampling by State: Ar

Reporting Units: ug/m³ X mg/m³ PPBV PPMV Other

Report Level II. X III. IV. Other

Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - In Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other)	Pace Lab ID
1	VP-9-20181	6LC		11/15/18	0930	11/15/18	1745	-29.5	-6.5	2132	0138							X			061 002
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments: Modified list of analytes

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Rambell	11/16/18	1530	Pace	11/19/18	0905

SAMPLE CONDITIONS

–	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nick Zurweller

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 11/16/18

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 11Oct2018 Page 1 of 1
	Document No.: F-MN-A-106-rev.16	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Ramboll

Project #: **WO#: 10456051**

PM: SCU **Due Date: 11/28/18**

CLIENT: ENVIRON

Courier: ☑ Fed Ex ☐ UPS ☐ Speedee ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 4545 9907 3484

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Tin Can ☐ Other: **Temp Blank rec:** ☐ Yes ☑ No

Temp. (TO17 and TO13 samples only) (°C): — **Corrected Temp (°C):** — **Thermom. Used:** ☐ G87A9170600254 ☐ G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** **Date & Initials of Person Examining Contents:** 11/19/18 CL

Type of Ice Received ☐ Blue ☐ Wet ☑ None

			Comments:
Chain of Custody Present?	☑ Yes	☐ No	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No ☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	7.
Sufficient Volume?	☑ Yes	☐ No	8.
Correct Containers Used?	☑ Yes	☐ No	9.
-Pace Containers Used?	☑ Yes	☐ No	
Containers Intact?	☑ Yes	☐ No	10.
Media: (Air Can) Airbag Filter TDT Passive			11. Individually Certified Cans (Y) N (list which samples)
Is sufficient information available to reconcile samples to the COC?	☑ Yes	☐ No	12.

Samples Received: 5 IM cans — Pressure Gauge # 10AIR35

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
VP-9-20 1811			-5.5	+5.0					
unused 3597	3597	0023	-28.0	—					
" 1688	1688	1049	-29.0	—					

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Date: 11/19/18

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 30, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60286720001	**MW-175-201811**	Water	11/13/18 13:25	11/14/18 09:45
60286720002	**MW-61R-201811**	Water	11/13/18 14:20	11/14/18 09:45
60286720003	**TMW-29-201811**	Water	11/13/18 17:00	11/14/18 09:45
60286720004	**DUP-01-201811**	Water	11/13/18 17:00	11/14/18 09:45
60286720005	**MW-179-201811**	Water	11/13/18 16:45	11/14/18 09:45
60286720006	**DUP-06-201811**	Water	11/13/18 14:20	11/14/18 09:45
60286720007	**TMW-11-201811**	Water	11/13/18 16:45	11/14/18 09:45
60286720008	**TMW-10-201811**	Water	11/13/18 16:55	11/14/18 09:45
60286720009	**MW-50R-201811**	Water	11/13/18 14:10	11/14/18 09:45
60286720010	**TRIP BLANK**	Water	11/13/18 13:25	11/14/18 09:45
60286720011	**TMW-20-201811**	Water	11/13/18 17:00	11/14/18 09:45
60286720012	**MW-195-201811**	Water	11/13/18 14:30	11/14/18 09:45
60286720013	**MW-196-201811**	Water	11/13/18 15:55	11/14/18 09:45
60286720014	**MW-99-201811**	Water	11/13/18 13:57	11/14/18 09:45
60286720015	**MW-68-201811**	Water	11/13/18 15:11	11/14/18 09:45
60286720016	**ITMW-2-201811**	Water	11/13/18 17:03	11/14/18 09:45
60286720017	**MW-28-201811**	Water	11/13/18 13:10	11/14/18 09:45
60286720018	**MW-27-201811**	Water	11/13/18 14:45	11/14/18 09:45
60286720019	**ITMW-16-201811**	Water	11/13/18 15:40	11/14/18 09:45
60286720020	**MW-176-201811**	Water	11/13/18 15:00	11/14/18 09:45
60286720021	**TRIP BLANK**	Water	11/13/18 08:00	11/14/18 09:45

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286720001	**MW-175-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720002	**MW-61R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720003	**TMW-29-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720004	**DUP-01-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720005	**MW-179-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720006	**DUP-06-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720007	**TMW-11-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720008	**TMW-10-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720009	**MW-50R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720010	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60286720011	**TMW-20-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720012	**MW-195-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720013	**MW-196-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720014	**MW-99-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720015	**MW-68-201811**	EPA 5030B/8260	PGH	38	PASI-K

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286720016	**ITMW-2-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720017	**MW-28-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720018	**MW-27-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720019	**ITMW-16-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720020	**MW-176-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720021	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
21 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 555602

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555602 [MSV/9331 (Lab ID: 2279341)
  - 1,2-Dichloroethane

QC Batch: 556483

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556483 [MSV/9341 (Lab ID: 2283187)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555602

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 555908

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556483

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557066

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286720008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2285623)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555224

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286715001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2277762)
  - Nitrogen, NO2 plus NO3

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-175-201811 **Lab ID: 60286720001** Collected: 11/13/18 13:25 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**7.9J**	ug/L	10.0	1.9	1		11/19/18 06:49	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:49	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:49	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:49	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:49	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:49	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:49	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:49	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:49	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:49	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:49	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:49	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/19/18 06:49	107-06-2	B
1,1-Dichloroethene	**0.28J**	ug/L	1.0	0.20	1		11/19/18 06:49	75-35-4	
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0	0.080	1		11/19/18 06:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:49	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:49	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:49	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:49	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:49	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:49	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:49	79-00-5	
Trichloroethene	**70.7**	ug/L	1.0	0.17	1		11/19/18 06:49	79-01-6	
Vinyl chloride	**0.17J**	ug/L	1.0	0.13	1		11/19/18 06:49	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:49	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 06:49	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/19/18 06:49	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 06:49	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:49		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-61R-201811 **Lab ID: 60286720002** Collected: 11/13/18 14:20 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**10700**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.7J**	ug/L	10.0	1.9	1		11/19/18 03:18	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:18	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:18	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:18	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:18	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:18	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:18	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:18	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:18	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:18	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:18	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:18	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/19/18 03:18	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:18	75-35-4	
cis-1,2-Dichloroethene	**1.9**	ug/L	1.0	0.080	1		11/19/18 03:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:18	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:18	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:18	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 03:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:18	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:18	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:18	79-00-5	
Trichloroethene	**7.7**	ug/L	1.0	0.17	1		11/19/18 03:18	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:18	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:18	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 03:18	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 03:18	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 03:18	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**120**	mg/L	50.0	14.5	50		11/28/18 20:31	16887-00-6	
Sulfate	**8.0**	mg/L	1.0	0.24	1		11/28/18 20:15	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-61R-201811 **Lab ID: 60286720002** Collected: 11/13/18 14:20 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:10		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:10		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.71J**	mg/L	1.0	0.65	1		11/21/18 01:17	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.81J**	mg/L	1.0	0.65	1		11/27/18 11:11	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-29-201811 **Lab ID: 60286720003** Collected: 11/13/18 17:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 03:32	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:32	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:32	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:32	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:32	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:32	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:32	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:32	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:32	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:32	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:32	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:32	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 03:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 03:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:32	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:32	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:32	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 03:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:32	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:32	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:32	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 03:32	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:32	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:32	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/19/18 03:32	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 03:32	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/19/18 03:32	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:32		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: DUP-01-201811 **Lab ID: 60286720004** Collected: 11/13/18 17:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 06:21	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:21	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:21	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:21	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:21	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:21	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:21	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:21	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/19/18 06:21	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 06:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:21	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:21	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:21	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:21	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:21	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:21	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 06:21	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 06:21	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:21	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 06:21	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/19/18 06:21	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 06:21	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:21		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-179-201811 **Lab ID: 60286720005** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 03:46	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:46	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:46	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:46	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:46	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:46	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:46	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:46	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:46	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:46	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:46	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:46	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:46	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/19/18 03:46	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 03:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:46	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:46	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:46	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 03:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:46	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:46	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:46	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:46	79-00-5	
Trichloroethene	**1.4**	ug/L	1.0	0.17	1		11/19/18 03:46	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:46	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:46	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 03:46	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/19/18 03:46	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/19/18 03:46	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:46		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: DUP-06-201811 **Lab ID: 60286720006** Collected: 11/13/18 14:20 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.0J**	ug/L	10.0	1.9	1		11/19/18 06:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:35	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/19/18 06:35	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:35	75-35-4	
cis-1,2-Dichloroethene	**1.8**	ug/L	1.0	0.080	1		11/19/18 06:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:35	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:35	79-00-5	
Trichloroethene	**7.7**	ug/L	1.0	0.17	1		11/19/18 06:35	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 06:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 06:35	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 06:35	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 06:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:35		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-11-201811 **Lab ID: 60286720007** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**10800**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.9J**	ug/L	10.0	1.9	1		11/19/18 04:00	67-64-1	
Benzene	**0.11J**	ug/L	1.0	0.060	1		11/19/18 04:00	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:00	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:00	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:00	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:00	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:00	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:00	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:00	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:00	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/19/18 04:00	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:00	75-35-4	
cis-1,2-Dichloroethene	**0.73J**	ug/L	1.0	0.080	1		11/19/18 04:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:00	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:00	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:00	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:00	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:00	127-18-4	
Toluene	**1.1**	ug/L	1.0	0.17	1		11/19/18 04:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:00	79-00-5	
Trichloroethene	**0.40J**	ug/L	1.0	0.17	1		11/19/18 04:00	79-01-6	
Vinyl chloride	**0.46J**	ug/L	1.0	0.13	1		11/19/18 04:00	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 04:00	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 04:00	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/19/18 04:00	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:00		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	**0.096**	mg/L	0.050	0.023	1		11/17/18 14:15	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-11-201811 **Lab ID: 60286720007** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**161**	mg/L	50.0	14.5	50		11/28/18 21:04	16887-00-6	
Sulfate	ND	mg/L	1.0	0.24	1		11/28/18 20:48	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:11		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:11		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:11		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**13.2**	mg/L	2.0	1.3	2		11/21/18 12:12	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**9.2**	mg/L	1.0	0.65	1		11/27/18 11:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-10-201811 **Lab ID: 60286720008** Collected: 11/13/18 16:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**105000**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:40	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**128**	ug/L	10.0	1.9	1		11/19/18 07:03	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/19/18 07:03	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 07:03	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 07:03	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 07:03	74-83-9	
2-Butanone (MEK)	**307**	ug/L	10.0	0.59	1		11/19/18 07:03	78-93-3	
Carbon disulfide	**0.56J**	ug/L	5.0	0.12	1		11/19/18 07:03	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 07:03	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 07:03	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 07:03	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 07:03	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 07:03	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 07:03	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 07:03	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/19/18 07:03	107-06-2	B
1,1-Dichloroethene	**0.26J**	ug/L	1.0	0.20	1		11/19/18 07:03	75-35-4	
cis-1,2-Dichloroethene	**15.0**	ug/L	1.0	0.080	1		11/19/18 07:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 07:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 07:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 07:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 07:03	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 07:03	100-41-4	
2-Hexanone	**3.7J**	ug/L	10.0	1.2	1		11/19/18 07:03	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 07:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.1J**	ug/L	10.0	0.42	1		11/19/18 07:03	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 07:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 07:03	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 07:03	127-18-4	
Toluene	**0.25J**	ug/L	1.0	0.17	1		11/19/18 07:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 07:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 07:03	79-00-5	
Trichloroethene	**14.3**	ug/L	1.0	0.17	1		11/19/18 07:03	79-01-6	
Vinyl chloride	**6.2**	ug/L	1.0	0.13	1		11/19/18 07:03	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 07:03	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/19/18 07:03	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 07:03	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/19/18 07:03	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 07:03		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	**0.043J**	mg/L	0.050	0.023	1		11/17/18 14:15	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-10-201811 **Lab ID: 60286720008** Collected: 11/13/18 16:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**276**	mg/L	50.0	14.5	50		11/27/18 23:48	16887-00-6	M1
Sulfate	**10.4**	mg/L	10.0	2.4	10		11/27/18 23:19	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:12		
Nitrogen, Nitrite	**0.11**	mg/L	0.10	0.033	1		11/14/18 17:12		
Nitrogen, NO2 plus NO3	**0.12**	mg/L	0.10	0.060	1		11/14/18 17:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2240**	mg/L	300	196	300		11/21/18 12:38	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**2060**	mg/L	500	327	500		11/29/18 10:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-50R-201811 **Lab ID: 60286720009** Collected: 11/13/18 14:10 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**294**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:43	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.7J**	ug/L	10.0	1.9	1		11/19/18 04:14	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:14	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:14	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:14	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:14	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:14	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:14	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:14	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:14	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:14	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:14	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:14	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:14	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/19/18 04:14	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:14	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:14	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:14	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:14	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:14	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:14	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:14	79-00-5	
Trichloroethene	**0.73J**	ug/L	1.0	0.17	1		11/19/18 04:14	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:14	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:14	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		1		11/19/18 04:14	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 04:14	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 04:14	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:14		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:16	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-50R-201811 **Lab ID: 60286720009** Collected: 11/13/18 14:10 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**259**	mg/L	50.0	14.5	50		11/28/18 00:31	16887-00-6	
Sulfate	**14.0**	mg/L	10.0	2.4	10		11/28/18 00:16	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:08		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:08		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:08		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/21/18 01:56	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TRIP BLANK **Lab ID: 60286720010** Collected: 11/13/18 13:25 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.6J**	ug/L	10.0	1.9	1		11/19/18 03:04	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:04	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:04	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:04	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:04	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:04	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:04	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:04	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:04	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:04	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:04	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:04	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 03:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 03:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:04	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:04	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:04	591-78-6	
Methylene chloride	**0.45J**	ug/L	1.0	0.15	1		11/19/18 03:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:04	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:04	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:04	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 03:04	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:04	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 03:04	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/19/18 03:04	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 03:04	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:04		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-20-201811 **Lab ID: 60286720011** Collected: 11/13/18 17:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 04:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:28	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:28	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:28	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/19/18 04:28	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:28	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 04:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 04:28	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 04:28	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 04:28	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-195-201811 **Lab ID: 60286720012** Collected: 11/13/18 14:30 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		11/19/18 04:42	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 04:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 04:42	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/19/18 04:42	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 04:42	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 04:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:42		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-196-201811 **Lab ID: 60286720013** Collected: 11/13/18 15:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 04:56	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:56	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:56	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:56	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:56	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:56	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:56	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:56	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:56	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:56	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/19/18 04:56	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:56	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:56	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:56	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:56	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:56	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:56	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 04:56	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:56	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 04:56	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/19/18 04:56	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 04:56	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:56		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-99-201811 **Lab ID: 60286720014** Collected: 11/13/18 13:57 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/19/18 05:10	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:10	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:10	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:10	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:10	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:10	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:10	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:10	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:10	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:10	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:10	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:10	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/19/18 05:10	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:10	75-35-4	
cis-1,2-Dichloroethene	**0.64J**	ug/L	1.0	0.080	1		11/19/18 05:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:10	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:10	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:10	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 05:10	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:10	79-00-5	
Trichloroethene	**8.1**	ug/L	1.0	0.17	1		11/19/18 05:10	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:10	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/19/18 05:10	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 05:10	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 05:10	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:10		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-68-201811 **Lab ID: 60286720015** Collected: 11/13/18 15:11 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 05:25	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:25	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:25	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:25	75-34-3	
1,2-Dichloroethane	**0.19J**	ug/L	1.0	0.12	1		11/19/18 05:25	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 05:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:25	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:25	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:25	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 05:25	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 05:25	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:25	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 05:25	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 05:25	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 05:25	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:25		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: ITMW-2-201811 **Lab ID: 60286720016** Collected: 11/13/18 17:03 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.6J**	ug/L	10.0	1.9	1		11/19/18 05:39	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:39	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:39	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:39	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:39	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:39	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:39	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:39	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:39	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:39	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:39	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:39	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:39	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/19/18 05:39	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:39	75-35-4	
cis-1,2-Dichloroethene	**0.57J**	ug/L	1.0	0.080	1		11/19/18 05:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:39	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:39	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:39	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:39	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:39	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:39	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:39	79-34-5	
Tetrachloroethene	**0.37J**	ug/L	1.0	0.10	1		11/19/18 05:39	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:39	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:39	79-00-5	
Trichloroethene	**0.71J**	ug/L	1.0	0.17	1		11/19/18 05:39	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:39	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:39	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/19/18 05:39	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 05:39	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 05:39	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:39		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-28-201811 **Lab ID: 60286720017** Collected: 11/13/18 13:10 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.1J**	ug/L	10.0	1.9	1		11/19/18 05:53	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:53	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:53	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:53	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:53	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:53	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:53	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:53	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 05:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 05:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:53	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:53	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:53	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:53	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:53	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 05:53	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:53	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 05:53	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:53	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 05:53	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/19/18 05:53	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 05:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:53		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-27-201811 **Lab ID: 60286720018** Collected: 11/13/18 14:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.3J**	ug/L	10.0	1.9	1		11/19/18 06:07	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:07	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:07	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:07	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:07	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:07	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:07	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:07	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:07	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:07	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/19/18 06:07	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:07	75-35-4	
cis-1,2-Dichloroethene	**0.27J**	ug/L	1.0	0.080	1		11/19/18 06:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:07	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:07	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:07	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:07	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:07	79-00-5	
Trichloroethene	**0.92J**	ug/L	1.0	0.17	1		11/19/18 06:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 06:07	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:07	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 06:07	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 06:07	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 06:07	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:07		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: ITMW-16-201811 **Lab ID: 60286720019** Collected: 11/13/18 15:40 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/19/18 15:31	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 15:31	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 15:31	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 15:31	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 15:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 15:31	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 15:31	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 15:31	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 15:31	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 15:31	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 15:31	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 15:31	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 15:31	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 15:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 15:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 15:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 15:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 15:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 15:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 15:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 15:31	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 15:31	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 15:31	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 15:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 15:31	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 15:31	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 15:31	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 15:31	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 15:31	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 15:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 15:31	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 15:31	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 15:31	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 15:31	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 15:31	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 15:31	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 15:31	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 15:31		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-176-201811 **Lab ID: 60286720020** Collected: 11/13/18 15:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**7.6J**	ug/L	10.0	1.9	1		11/23/18 10:42	67-64-1	
Benzene	**0.21J**	ug/L	1.0	0.060	1		11/23/18 10:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/23/18 10:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/23/18 10:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/23/18 10:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/23/18 10:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/23/18 10:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/23/18 10:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/23/18 10:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/23/18 10:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/23/18 10:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/23/18 10:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/23/18 10:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/23/18 10:42	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/23/18 10:42	107-06-2	B
1,1-Dichloroethene	**3.0**	ug/L	1.0	0.20	1		11/23/18 10:42	75-35-4	
cis-1,2-Dichloroethene	**127**	ug/L	1.0	0.080	1		11/23/18 10:42	156-59-2	
trans-1,2-Dichloroethene	**2.1**	ug/L	1.0	0.20	1		11/23/18 10:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/23/18 10:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/23/18 10:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/23/18 10:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/23/18 10:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/23/18 10:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/23/18 10:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/23/18 10:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/23/18 10:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/23/18 10:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/23/18 10:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/23/18 10:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/23/18 10:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/23/18 10:42	79-00-5	
Trichloroethene	**397**	ug/L	10.0	1.7	10		11/19/18 15:45	79-01-6	
Vinyl chloride	**2.1**	ug/L	1.0	0.13	1		11/23/18 10:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/23/18 10:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		11/23/18 10:42	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/23/18 10:42	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/23/18 10:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	10		11/19/18 15:45		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TRIP BLANK **Lab ID: 60286720021** Collected: 11/13/18 08:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 13:55	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 13:55	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 13:55	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 13:55	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 13:55	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 13:55	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 13:55	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 13:55	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 13:55	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 13:55	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 13:55	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 13:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 13:55	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 13:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 13:55	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 13:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 13:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 13:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 13:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 13:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 13:55	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 13:55	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 13:55	591-78-6	
Methylene chloride	**0.46J**	ug/L	1.0	0.15	1		11/20/18 13:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 13:55	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 13:55	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 13:55	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 13:55	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 13:55	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 13:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 13:55	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 13:55	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 13:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 13:55	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 13:55	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/20/18 13:55	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 13:55	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 13:55		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557146 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

METHOD BLANK: 2285800 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	11/28/18 13:27	

LABORATORY CONTROL SAMPLE: 2285801

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10200	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2285802 2285803

Parameter	Units	60287185010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	2200	10000	10000	13900	13700	117	115	75-125	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555602 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720001, 60286720002, 60286720003, 60286720004, 60286720005, 60286720006, 60286720007, 60286720008, 60286720009, 60286720010, 60286720011, 60286720012, 60286720013, 60286720014, 60286720015, 60286720016, 60286720017, 60286720018

METHOD BLANK: 2279341 Matrix: Water
Associated Lab Samples: 60286720001, 60286720002, 60286720003, 60286720004, 60286720005, 60286720006, 60286720007, 60286720008, 60286720009, 60286720010, 60286720011, 60286720012, 60286720013, 60286720014, 60286720015, 60286720016, 60286720017, 60286720018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/19/18 02:50	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/19/18 02:50	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/19/18 02:50	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/19/18 02:50	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 02:50	
1,2-Dichloroethane	ug/L	0.15J	1.0	0.12	11/19/18 02:50	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/19/18 02:50	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/19/18 02:50	
2-Hexanone	ug/L	ND	10.0	1.2	11/19/18 02:50	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/19/18 02:50	
Acetone	ug/L	ND	10.0	1.9	11/19/18 02:50	
Benzene	ug/L	ND	1.0	0.060	11/19/18 02:50	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/19/18 02:50	
Bromoform	ug/L	ND	1.0	0.070	11/19/18 02:50	
Bromomethane	ug/L	ND	5.0	0.16	11/19/18 02:50	
Carbon disulfide	ug/L	ND	5.0	0.12	11/19/18 02:50	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/19/18 02:50	
Chlorobenzene	ug/L	ND	1.0	0.21	11/19/18 02:50	
Chloroethane	ug/L	ND	1.0	0.15	11/19/18 02:50	
Chloroform	ug/L	ND	1.0	0.14	11/19/18 02:50	
Chloromethane	ug/L	ND	1.0	0.080	11/19/18 02:50	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/19/18 02:50	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/19/18 02:50	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/19/18 02:50	
Ethylbenzene	ug/L	ND	1.0	0.18	11/19/18 02:50	
Methylene chloride	ug/L	ND	1.0	0.15	11/19/18 02:50	
Styrene	ug/L	ND	1.0	0.12	11/19/18 02:50	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/19/18 02:50	
Toluene	ug/L	ND	1.0	0.17	11/19/18 02:50	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 02:50	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/19/18 02:50	
Trichloroethene	ug/L	ND	1.0	0.17	11/19/18 02:50	
Vinyl chloride	ug/L	ND	1.0	0.13	11/19/18 02:50	
Xylene (Total)	ug/L	ND	3.0	0.42	11/19/18 02:50	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/19/18 02:50	
4-Bromofluorobenzene (S)	%	101	80-119		11/19/18 02:50	
Toluene-d8 (S)	%	98	80-115		11/19/18 02:50	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2279342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.1	105	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.4	97	74-121	
1,1,2-Trichloroethane	ug/L	20	21.3	106	83-119	
1,1-Dichloroethane	ug/L	20	20.9	104	85-128	
1,1-Dichloroethene	ug/L	20	20.5	103	85-123	
1,2-Dichloroethane	ug/L	20	19.7	98	77-120	
1,2-Dichloropropane	ug/L	20	20.9	104	81-126	
2-Butanone (MEK)	ug/L	100	103	103	65-134	
2-Hexanone	ug/L	100	101	101	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	66-139	
Acetone	ug/L	100	93.9	94	62-142	
Benzene	ug/L	20	20.1	101	81-118	
Bromodichloromethane	ug/L	20	21.5	107	85-123	
Bromoform	ug/L	20	19.2	96	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.7	98	85-124	
Carbon tetrachloride	ug/L	20	21.4	107	85-126	
Chlorobenzene	ug/L	20	20.2	101	87-118	
Chloroethane	ug/L	20	20.1	100	73-134	
Chloroform	ug/L	20	20.4	102	85-119	
Chloromethane	ug/L	20	18.9	94	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.3	97	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.4	102	80-124	
Dibromochloromethane	ug/L	20	20.7	103	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	21.0	105	81-126	
Styrene	ug/L	20	19.6	98	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	20.3	102	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.9	99	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.2	96	80-122	
Trichloroethene	ug/L	20	22.1	110	82-120	
Vinyl chloride	ug/L	20	23.0	115	74-147	
Xylene (Total)	ug/L	60	56.5	94	81-120	
1,2-Dichloroethane-d4 (S)	%			105	80-117	
4-Bromofluorobenzene (S)	%			105	80-119	
Toluene-d8 (S)	%			97	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555908 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720019, 60286720020

METHOD BLANK: 2281212 Matrix: Water
Associated Lab Samples: 60286720019, 60286720020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/19/18 14:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/19/18 14:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/19/18 14:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/19/18 14:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 14:06	
1,2-Dichloroethane	ug/L	0.17J	1.0	0.12	11/19/18 14:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/19/18 14:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/19/18 14:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/19/18 14:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/19/18 14:06	
Acetone	ug/L	ND	10.0	1.9	11/19/18 14:06	
Benzene	ug/L	ND	1.0	0.060	11/19/18 14:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/19/18 14:06	
Bromoform	ug/L	ND	1.0	0.070	11/19/18 14:06	
Bromomethane	ug/L	ND	5.0	0.16	11/19/18 14:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/19/18 14:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/19/18 14:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/19/18 14:06	
Chloroethane	ug/L	ND	1.0	0.15	11/19/18 14:06	
Chloroform	ug/L	ND	1.0	0.14	11/19/18 14:06	
Chloromethane	ug/L	ND	1.0	0.080	11/19/18 14:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/19/18 14:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/19/18 14:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/19/18 14:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/19/18 14:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/19/18 14:06	
Styrene	ug/L	ND	1.0	0.12	11/19/18 14:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/19/18 14:06	
Toluene	ug/L	ND	1.0	0.17	11/19/18 14:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 14:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/19/18 14:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/19/18 14:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/19/18 14:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/19/18 14:06	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/19/18 14:06	
4-Bromofluorobenzene (S)	%	99	80-119		11/19/18 14:06	
Toluene-d8 (S)	%	96	80-115		11/19/18 14:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2281213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.9	110	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	18.2	91	74-121	
1,1,2-Trichloroethane	ug/L	20	19.4	97	83-119	
1,1-Dichloroethane	ug/L	20	20.4	102	85-128	
1,1-Dichloroethene	ug/L	20	21.1	106	85-123	
1,2-Dichloroethane	ug/L	20	20.2	101	77-120	
1,2-Dichloropropane	ug/L	20	20.7	103	81-126	
2-Butanone (MEK)	ug/L	100	93.9	94	65-134	
2-Hexanone	ug/L	100	90.2	90	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	95.3	95	66-139	
Acetone	ug/L	100	91.7	92	62-142	
Benzene	ug/L	20	19.3	97	81-118	
Bromodichloromethane	ug/L	20	21.9	110	85-123	
Bromoform	ug/L	20	20.7	104	83-123	
Bromomethane	ug/L	20	21.0	105	39-149	
Carbon disulfide	ug/L	20	19.4	97	85-124	
Carbon tetrachloride	ug/L	20	22.3	111	85-126	
Chlorobenzene	ug/L	20	20.8	104	87-118	
Chloroethane	ug/L	20	20.6	103	73-134	
Chloroform	ug/L	20	20.9	104	85-119	
Chloromethane	ug/L	20	22.2	111	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	21.2	106	83-122	
Ethylbenzene	ug/L	20	20.4	102	80-118	
Methylene chloride	ug/L	20	20.4	102	81-126	
Styrene	ug/L	20	20.9	104	85-120	
Tetrachloroethene	ug/L	20	20.7	104	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.6	103	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.5	102	80-122	
Trichloroethene	ug/L	20	23.0	115	82-120	
Vinyl chloride	ug/L	20	22.6	113	74-147	
Xylene (Total)	ug/L	60	59.9	100	81-120	
1,2-Dichloroethane-d4 (S)	%			106	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555910
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720021

METHOD BLANK: 2281217
Matrix: Water
Associated Lab Samples: 60286720021

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/20/18 13:41	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/20/18 13:41	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/20/18 13:41	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/20/18 13:41	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 13:41	
1,2-Dichloroethane	ug/L	0.19J	1.0	0.12	11/20/18 13:41	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/20/18 13:41	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/20/18 13:41	
2-Hexanone	ug/L	ND	10.0	1.2	11/20/18 13:41	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/20/18 13:41	
Acetone	ug/L	ND	10.0	1.9	11/20/18 13:41	
Benzene	ug/L	ND	1.0	0.060	11/20/18 13:41	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/20/18 13:41	
Bromoform	ug/L	ND	1.0	0.070	11/20/18 13:41	
Bromomethane	ug/L	ND	5.0	0.16	11/20/18 13:41	
Carbon disulfide	ug/L	ND	5.0	0.12	11/20/18 13:41	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/20/18 13:41	
Chlorobenzene	ug/L	ND	1.0	0.21	11/20/18 13:41	
Chloroethane	ug/L	ND	1.0	0.15	11/20/18 13:41	
Chloroform	ug/L	ND	1.0	0.14	11/20/18 13:41	
Chloromethane	ug/L	ND	1.0	0.080	11/20/18 13:41	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/20/18 13:41	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/20/18 13:41	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/20/18 13:41	
Ethylbenzene	ug/L	ND	1.0	0.18	11/20/18 13:41	
Methylene chloride	ug/L	ND	1.0	0.15	11/20/18 13:41	
Styrene	ug/L	ND	1.0	0.12	11/20/18 13:41	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/20/18 13:41	
Toluene	ug/L	ND	1.0	0.17	11/20/18 13:41	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 13:41	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/20/18 13:41	
Trichloroethene	ug/L	ND	1.0	0.17	11/20/18 13:41	
Vinyl chloride	ug/L	ND	1.0	0.13	11/20/18 13:41	
Xylene (Total)	ug/L	ND	3.0	0.42	11/20/18 13:41	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/20/18 13:41	
4-Bromofluorobenzene (S)	%	103	80-119		11/20/18 13:41	
Toluene-d8 (S)	%	97	80-115		11/20/18 13:41	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2281218

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.9	105	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	17.5	87	74-121	
1,1,2-Trichloroethane	ug/L	20	18.9	94	83-119	
1,1-Dichloroethane	ug/L	20	20.5	103	85-128	
1,1-Dichloroethene	ug/L	20	20.6	103	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	20.4	102	81-126	
2-Butanone (MEK)	ug/L	100	93.8	94	65-134	
2-Hexanone	ug/L	100	91.0	91	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.5	97	66-139	
Acetone	ug/L	100	92.5	92	62-142	
Benzene	ug/L	20	19.7	98	81-118	
Bromodichloromethane	ug/L	20	20.9	105	85-123	
Bromoform	ug/L	20	18.3	91	83-123	
Bromomethane	ug/L	20	20.4	102	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.0	105	85-126	
Chlorobenzene	ug/L	20	20.0	100	87-118	
Chloroethane	ug/L	20	20.8	104	73-134	
Chloroform	ug/L	20	20.1	101	85-119	
Chloromethane	ug/L	20	26.6	133	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.5	103	80-124	
Dibromochloromethane	ug/L	20	18.7	94	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	21.4	107	81-126	
Styrene	ug/L	20	19.7	99	85-120	
Tetrachloroethene	ug/L	20	19.5	98	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.0	100	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.1	96	80-122	
Trichloroethene	ug/L	20	22.5	112	82-120	
Vinyl chloride	ug/L	20	24.6	123	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281219 2281220

Parameter	Units	60287184003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.9	21.1	109	106	79-135	3	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.8	18.2	89	91	49-144	2	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.7	19.7	94	99	71-124	5	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281219 2281220

Parameter	Units	60287184003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.8	19.9	104	100	77-135	4	12	
1,1-Dichloroethene	ug/L	ND	20	20	21.7	21.1	109	106	77-138	3	14	
1,2-Dichloroethane	ug/L	ND	20	20	17.7	18.3	89	92	47-152	3	27	
1,2-Dichloropropane	ug/L	ND	20	20	19.8	20.2	99	101	74-128	2	13	
2-Butanone (MEK)	ug/L	ND	100	100	83.5	85.1	83	85	60-125	2	17	
2-Hexanone	ug/L	ND	100	100	85.9	88.9	86	89	53-133	3	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	88.1	89.4	88	89	62-134	2	15	
Acetone	ug/L	ND	100	100	79.4	85.1	79	85	50-127	7	28	
Benzene	ug/L	ND	20	20	19.0	19.3	95	96	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	20.1	20.2	101	101	75-126	0	12	
Bromoform	ug/L	ND	20	20	17.2	17.5	86	87	70-122	2	14	
Bromomethane	ug/L	ND	20	20	17.5	20.8	87	104	41-155	17	42	
Carbon disulfide	ug/L	ND	20	20	20.4	20.4	102	102	70-148	0	14	
Carbon tetrachloride	ug/L	ND	20	20	22.2	22.4	111	112	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	19.6	19.5	98	98	74-130	0	10	
Chloroethane	ug/L	ND	20	20	21.7	21.3	109	106	67-153	2	27	
Chloroform	ug/L	ND	20	20	19.8	19.4	99	97	75-127	2	12	
Chloromethane	ug/L	ND	20	20	18.8	16.7	94	84	22-188	12	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.4	18.7	97	94	69-135	4	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	19.1	19.2	95	96	61-129	1	11	
Dibromochloromethane	ug/L	ND	20	20	19.4	19.0	97	95	60-133	2	14	
Ethylbenzene	ug/L	ND	20	20	19.1	19.5	96	97	60-140	2	32	
Methylene chloride	ug/L	ND	20	20	20.3	19.8	101	99	72-131	3	16	
Styrene	ug/L	ND	20	20	18.8	18.9	94	94	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	20.9	20.3	104	102	72-136	3	15	
Toluene	ug/L	ND	20	20	20.1	20.2	100	101	65-135	1	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.1	20.0	101	100	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.8	19.4	94	97	60-128	3	13	
Trichloroethene	ug/L	ND	20	20	22.1	22.8	111	114	66-136	3	15	
Vinyl chloride	ug/L	ND	20	20	24.5	23.9	123	120	65-164	2	16	
Xylene (Total)	ug/L	ND	60	60	55.8	56.6	93	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	103	80-117			
4-Bromofluorobenzene (S)	%						103	104	80-119			
Toluene-d8 (S)	%						97	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556483
QC Batch Method: EPA 5030B/8260
Associated Lab Samples: 60286720020

Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge

METHOD BLANK: 2283187
Matrix: Water
Associated Lab Samples: 60286720020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/23/18 09:17	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/23/18 09:17	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/23/18 09:17	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/23/18 09:17	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 09:17	
1,2-Dichloroethane	ug/L	0.14J	1.0	0.12	11/23/18 09:17	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/23/18 09:17	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/23/18 09:17	
2-Hexanone	ug/L	ND	10.0	1.2	11/23/18 09:17	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/23/18 09:17	
Acetone	ug/L	ND	10.0	1.9	11/23/18 09:17	
Benzene	ug/L	ND	1.0	0.060	11/23/18 09:17	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/23/18 09:17	
Bromoform	ug/L	ND	1.0	0.070	11/23/18 09:17	
Bromomethane	ug/L	ND	5.0	0.16	11/23/18 09:17	
Carbon disulfide	ug/L	ND	5.0	0.12	11/23/18 09:17	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/23/18 09:17	
Chlorobenzene	ug/L	ND	1.0	0.21	11/23/18 09:17	
Chloroethane	ug/L	ND	1.0	0.15	11/23/18 09:17	
Chloroform	ug/L	ND	1.0	0.14	11/23/18 09:17	
Chloromethane	ug/L	ND	1.0	0.080	11/23/18 09:17	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/23/18 09:17	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/23/18 09:17	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/23/18 09:17	
Ethylbenzene	ug/L	ND	1.0	0.18	11/23/18 09:17	
Methylene chloride	ug/L	ND	1.0	0.15	11/23/18 09:17	
Styrene	ug/L	ND	1.0	0.12	11/23/18 09:17	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/23/18 09:17	
Toluene	ug/L	ND	1.0	0.17	11/23/18 09:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 09:17	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/23/18 09:17	
Vinyl chloride	ug/L	ND	1.0	0.13	11/23/18 09:17	
Xylene (Total)	ug/L	ND	3.0	0.42	11/23/18 09:17	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/23/18 09:17	
4-Bromofluorobenzene (S)	%	102	80-119		11/23/18 09:17	
Toluene-d8 (S)	%	98	80-115		11/23/18 09:17	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2283188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	23.0	115	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	20.8	104	83-119	
1,1-Dichloroethane	ug/L	20	21.4	107	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.5	102	77-120	
1,2-Dichloropropane	ug/L	20	21.0	105	81-126	
2-Butanone (MEK)	ug/L	100	103	103	65-134	
2-Hexanone	ug/L	100	103	103	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	101	101	62-142	
Benzene	ug/L	20	20.2	101	81-118	
Bromodichloromethane	ug/L	20	23.2	116	85-123	
Bromoform	ug/L	20	23.2	116	83-123	
Bromomethane	ug/L	20	20.8	104	39-149	
Carbon disulfide	ug/L	20	20.2	101	85-124	
Carbon tetrachloride	ug/L	20	23.9	120	85-126	
Chlorobenzene	ug/L	20	21.8	109	87-118	
Chloroethane	ug/L	20	22.4	112	73-134	
Chloroform	ug/L	20	21.1	105	85-119	
Chloromethane	ug/L	20	16.2	81	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.4	112	80-124	
Dibromochloromethane	ug/L	20	23.1	116	83-122	
Ethylbenzene	ug/L	20	20.3	101	80-118	
Methylene chloride	ug/L	20	21.0	105	81-126	
Styrene	ug/L	20	21.1	106	85-120	
Tetrachloroethene	ug/L	20	22.4	112	87-120	
Toluene	ug/L	20	21.2	106	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.5	108	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.9	114	80-122	
Vinyl chloride	ug/L	20	23.6	118	74-147	
Xylene (Total)	ug/L	60	61.2	102	81-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555797 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60286720007, 60286720008, 60286720009

METHOD BLANK: 2280407 Matrix: Water
Associated Lab Samples: 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/17/18 14:09	

LABORATORY CONTROL SAMPLE: 2280408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.50	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280409 2280410

Parameter	Units	60286654001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.50	0.51	101	101	75-125	1	20	

SAMPLE DUPLICATE: 2280411

Parameter	Units	60286654001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2280412

Parameter	Units	60286654002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557066 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286720008, 60286720009

METHOD BLANK: 2285619 Matrix: Water
Associated Lab Samples: 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	11/27/18 18:49	
Sulfate	mg/L	ND	1.0	0.24	11/27/18 18:49	

LABORATORY CONTROL SAMPLE: 2285620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.8	108	90-110	
Sulfate	mg/L	10	10.7	107	90-110	

MATRIX SPIKE SAMPLE: 2285623

Parameter	Units	60286720008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	276	250	574	119	90-110	M1
Sulfate	mg/L	10.4	50	64.7	109	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557313 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286720002, 60286720007

METHOD BLANK: 2286381 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	11/28/18 11:45	
Sulfate	mg/L	ND	1.0	0.24	11/28/18 11:45	

LABORATORY CONTROL SAMPLE: 2286382

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555224 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

METHOD BLANK: 2277760 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/14/18 17:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/14/18 17:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/14/18 17:04	

LABORATORY CONTROL SAMPLE: 2277761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.93	93	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 2277762

Parameter	Units	60286715001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	28.6	10	36.0	73	70-130	
Nitrogen, Nitrite	mg/L	ND	10	10.1	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	28.7	20	46.0	86	90-110	M1

SAMPLE DUPLICATE: 2277763

Parameter	Units	60286720009 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556295 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286720002, 60286720009

METHOD BLANK: 2282498 Matrix: Water
Associated Lab Samples: 60286720002, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/20/18 21:26	

LABORATORY CONTROL SAMPLE: 2282499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	105	80-120	

MATRIX SPIKE SAMPLE: 2282500

Parameter	Units	60286400009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	8.9	5	13.4	90	80-120	

SAMPLE DUPLICATE: 2282501

Parameter	Units	60286699002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.6	3.5	4	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556502 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286720007, 60286720008

METHOD BLANK: 2283244 Matrix: Water
Associated Lab Samples: 60286720007, 60286720008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/21/18 11:47	

LABORATORY CONTROL SAMPLE: 2283245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.3	106	80-120	

MATRIX SPIKE SAMPLE: 2283246

Parameter	Units	60286720007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	13.2	10	22.3	92	80-120	

SAMPLE DUPLICATE: 2283247

Parameter	Units	60286720008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	2240	2220	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286720002, 60286720007

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557464 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286720008

METHOD BLANK: 2286984 Matrix: Water
Associated Lab Samples: 60286720008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 10:50	

LABORATORY CONTROL SAMPLE: 2286985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2286987

Parameter	Units	60286720008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	2060	2500	4510	98	80-120	

SAMPLE DUPLICATE: 2286986

Parameter	Units	60286720008 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	2060	2080	1	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 555602

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 555908

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 556483

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286720002	**MW-61R-201811**	EPA 3010	557146	EPA 6010	557218
60286720007	**TMW-11-201811**	EPA 3010	557146	EPA 6010	557218
60286720008	**TMW-10-201811**	EPA 3010	557146	EPA 6010	557218
60286720009	**MW-50R-201811**	EPA 3010	557146	EPA 6010	557218
60286720001	**MW-175-201811**	EPA 5030B/8260	555602		
60286720002	**MW-61R-201811**	EPA 5030B/8260	555602		
60286720003	**TMW-29-201811**	EPA 5030B/8260	555602		
60286720004	**DUP-01-201811**	EPA 5030B/8260	555602		
60286720005	**MW-179-201811**	EPA 5030B/8260	555602		
60286720006	**DUP-06-201811**	EPA 5030B/8260	555602		
60286720007	**TMW-11-201811**	EPA 5030B/8260	555602		
60286720008	**TMW-10-201811**	EPA 5030B/8260	555602		
60286720009	**MW-50R-201811**	EPA 5030B/8260	555602		
60286720010	**TRIP BLANK**	EPA 5030B/8260	555602		
60286720011	**TMW-20-201811**	EPA 5030B/8260	555602		
60286720012	**MW-195-201811**	EPA 5030B/8260	555602		
60286720013	**MW-196-201811**	EPA 5030B/8260	555602		
60286720014	**MW-99-201811**	EPA 5030B/8260	555602		
60286720015	**MW-68-201811**	EPA 5030B/8260	555602		
60286720016	**ITMW-2-201811**	EPA 5030B/8260	555602		
60286720017	**MW-28-201811**	EPA 5030B/8260	555602		
60286720018	**MW-27-201811**	EPA 5030B/8260	555602		
60286720019	**ITMW-16-201811**	EPA 5030B/8260	555908		
60286720020	**MW-176-201811**	EPA 5030B/8260	555908		
60286720020	**MW-176-201811**	EPA 5030B/8260	556483		
60286720021	**TRIP BLANK**	EPA 5030B/8260	555910		
60286720007	**TMW-11-201811**	SM 4500-S-2 D	555797		
60286720008	**TMW-10-201811**	SM 4500-S-2 D	555797		
60286720009	**MW-50R-201811**	SM 4500-S-2 D	555797		
60286720002	**MW-61R-201811**	EPA 300.0	557313		
60286720007	**TMW-11-201811**	EPA 300.0	557313		
60286720008	**TMW-10-201811**	EPA 300.0	557066		
60286720009	**MW-50R-201811**	EPA 300.0	557066		
60286720002	**MW-61R-201811**	EPA 353.2	555224		
60286720007	**TMW-11-201811**	EPA 353.2	555224		
60286720008	**TMW-10-201811**	EPA 353.2	555224		
60286720009	**MW-50R-201811**	EPA 353.2	555224		
60286720002	**MW-61R-201811**	SM 5310C	556295		
60286720007	**TMW-11-201811**	SM 5310C	556502		
60286720008	**TMW-10-201811**	SM 5310C	556502		
60286720009	**MW-50R-201811**	SM 5310C	556295		
60286720002	**MW-61R-201811**	SM 5310C	556798		
60286720007	**TMW-11-201811**	SM 5310C	556798		

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286720008	**TMW-10-201811**	SM 5310C	557464		

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CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix W

WO# : 60286720

60286720

ALL SH

JL Log

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com jpavlowsky@ramboll.com

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690001033

State: AR County/City: Fort Smith Time Zone Collected: PT MT CT ET

Phone: Email:

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print): Johanna Pavlowsky

Purchase Order #:

DW PWS ID #:

Collected by (signature):

Quote #:

DW Location Code #:

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

Turnaround Date Required: Standard

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Immediately Packed on Ice? [X] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (1) U U (5)(4) (2) U (D) U U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Total Metals - Ferrous Iron	Dissolved metals (same bottle as sulfide) or none	Sulfate/Nitrate/Chloride	Sulfide	Total organic Carbon	Dissolved organic carbon - lab filtered	Volatile Fatty Acids	Methane, E, EA	Methane, EE
MW-175-201811	GW	G	11-13-18	1325				3	X									3DG9H
MW-61R-201811	GW	G		1420				3		X		X		X	X	X	X	3DG9Q, APIN, 2DG9U
TMW-29-201811	GW	G		1700				3										
DUP-01-201811	GW	G		1700				3										
MW-179-201811	GW	G		1645				3										
DUP-06-201811	GW	G		1420				3										
TMW-11-201811	GW	G		1645						X		X	X	X	X	X	X	BP3Z
TMW-10-201811	GW	G		1655						X		X	X	X	X	X	X	3DG9Q, BP3N, 2DG9U
MW-50R-201811	GW	G		1410								X*	X	X			X	
Trip Blank	-	-		-				2										2DG9H

ACJU ACJS, BP3U

Customer Remarks/ Special Conditions/ Possible Hazards:

* NO Chloride for MW-50R-201811

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

Packing Material Used: Bubble bags, 2pk

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

LAB Tracking #: 783762715060, 5071

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

SHORT HOLDS PRESENT (< 72 hours): Y (N) N/A

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: 8881-1			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 2.8 °C 0.9

Cooler Therm Corr. Factor: +0.2 °C

Cooler Temp Corrected: 3.0 °C 1.1

Comments: _____

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky / REM	11/13/18 1830	NZ for PGS	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Page 60 of 76

F-ALL-C-010-rev 00, 05Jul2018

CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **: (3)

Lab Project Manager:

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com; jpavlowsky@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller

Site Collection Info/Address: Whirlpool Annual

Analyses

LAB Profile/Line: 7444 Line 1

Customer Project Name/Number: 1690010033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

Phone: Email: nzurweller@ramboll.com

Site/Facility ID #

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): Johanna Pavlowsky

Purchase Order #

DW PWS ID #:

Collected by (signature):

Quote #

DW Location Code #:

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
TMW-20-201811	GW	G	11-13-18	1700				3	X	30694
MW-195-201811	GW	G		1430				3		
MW-196-201811	GW	G		1555				3		
MW-99-201811	GW	G		1357				3		
MW-68-201811	GW	G		1511				3		
ITMW-2-201811	GW	G		1703				3		
MW-28-201811	GW	G		1310				3		
MW-27-201811	GW	G		1445				3		
ITMW-16-201811	GW	G		1540				3		
MW-176-201811	GW	G		1500				3		

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): Y N N/A

Packing Material Used: Bubble bags

LAB Tracking #: 1837,6271,5060, 5071

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky/REM	11/13/18 1830	UPS Fed Ex	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 2.8 oC 0.9

Cooler Therm Corr. Factor: +0.2 oC

Cooler Temp Corrected: 3.0 oC 1.1

Comments:

Trip Blank Received: Y (N) N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight — see other pages

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected: PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive
[ ] Hold

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
Trip Blank	-	-	11/13/18	-				

Container Preservative Type **: (3)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses: Full List VOC 8260

Lab Project Manager:

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

X 20694

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): Y N N/A

Packing Material Used: Bubble Bags

LAB Tracking #: 783762715060, 5071

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:
ACCT #:
Template:
Prelogin:
PM:
PB:

LAB Sample Temperature Info:
Temp Blank received: Y N NA
Therm ID #: T100
Cooler Temp Upon Receipt: 2.8 oC 6.9
Cooler Therm Corr. Factor: +0.2 oC +0.2
Cooler Temp Corrected: 3.0 oC 7.1
Comments:

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page ____ of ____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[illegible] /RSH	11/13/18 1830	KZ : AS / Pace	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 28, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **FORT SMITH AR / 60286720**

Pace Workorder: 28734

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, November 16, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/28/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 14

CERTIFICATE OF ANALYSIS

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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287340001	MW-61R-201811	Water	11/13/2018 14:20	11/16/2018 11:15
287340002	TMW-11-201811	Water	11/13/2018 16:45	11/16/2018 11:15
287340003	TMW-10-201811	Water	11/13/2018 16:55	11/16/2018 11:15

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PROJECT SUMMARY

Workorder: 28734 FORT SMITH AR / 60286720

Workorder Comments

The container pH for samples 28734 (0002-0003) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Batch Comments

Batch: EDON/3941 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340001** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **MW-61R-201811** Date Collected: 11/13/2018 14:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/20/2018 23:02	KB	d
Acetic Acid	**1.9**	mg/l	1.0	0.24	10	11/20/2018 23:02	KB	d,B
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/20/2018 23:02	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/20/2018 23:02	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/20/2018 23:02	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**6600**	ug/l	0.50	0.014	1	11/27/2018 11:35	BW	n
Ethane	**0.70**	ug/l	0.10	0.0070	1	11/27/2018 11:35	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/27/2018 11:35	BW	n

nelac

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ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340002** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **TMW-11-201811** Date Collected: 11/13/2018 16:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/20/2018 23:58	KB	d
Acetic Acid	**2.5**	mg/l	1.0	0.24	10	11/20/2018 23:58	KB	d,B
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/20/2018 23:58	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/20/2018 23:58	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/20/2018 23:58	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**16000**	ug/l	0.50	0.014	1	11/27/2018 11:47	BW	n
Ethane	**0.58**	ug/l	0.10	0.0070	1	11/27/2018 11:47	BW	n
Ethene	**0.90**	ug/l	0.10	0.0050	1	11/27/2018 11:47	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/27/2018 11:47	BW	n

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ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340003** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **TMW-10-201811** Date Collected: 11/13/2018 16:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**6.8**	mg/l	2.0	0.14	10	11/21/2018 00:54	KB	d
Acetic Acid	**130**	mg/l	10	2.4	100	11/21/2018 01:51	KB	d,B
Propionic Acid	**4100**	mg/l	100	4.4	1000	11/21/2018 02:47	KB	d,B
Butyric Acid	**54**	mg/l	10	0.47	100	11/21/2018 01:51	KB	d,B
Pyruvic Acid	**43**	mg/l	10	0.57	100	11/21/2018 01:51	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**11000**	ug/l	0.50	0.014	1	11/27/2018 12:00	BW	n
Ethane	**0.28**	ug/l	0.10	0.0070	1	11/27/2018 12:00	BW	n
Ethene	**1.8**	ug/l	0.10	0.0050	1	11/27/2018 12:00	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/27/2018 12:00	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28734 FORT SMITH AR / 60286720

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.

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QUALITY CONTROL DATA

Workorder: 28734 FORT SMITH AR / 60286720

QC Batch: EDON/3941 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287340001, 287340002, 287340003

METHOD BLANK: 58569

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.24	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.3	113	70-130	
Acetic Acid	mg/l	2	2.3	115	70-130	B
Propionic Acid	mg/l	2	2.2	108	70-130	B
Butyric Acid	mg/l	2	2.2	108	70-130	B
Pyruvic Acid	mg/l	2	2.1	103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58571 58572 Original: 287160001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.047	20	21	22	107	107	70-130	0.6	30	d
Acetic Acid	mg/l	2	20	22	22	100	102	70-130	1.7	30	d,B
Propionic Acid	mg/l	0.37	20	21	21	105	104	70-130	1.4	30	d,B
Butyric Acid	mg/l	0.18	20	21	21	106	105	70-130	1.1	30	d,B
Pyruvic Acid	mg/l	0	20	20	20	100	100	70-130	0.17	30	d

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QUALITY CONTROL DATA

Workorder: 28734 FORT SMITH AR / 60286720

QC Batch: DISG/7229 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287340001, 287340002, 287340003

METHOD BLANK: 58643

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58645 58647

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	96	96	80-120	0.058	20	n
Ethane	ug/l	38	40	41	107	108	80-120	0.85	20	n
Ethene	ug/l	35	38	38	108	108	80-120	0.13	20	n
Acetylene	ug/l	33	36	35	109	107	80-120	1.2	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28734 FORT SMITH AR / 60286720

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287340001	MW-61R-201811			AM23G	EDON/3941
287340002	TMW-11-201811			AM23G	EDON/3941
287340003	TMW-10-201811			AM23G	EDON/3941
287340001	MW-61R-201811			AM20GAX	DISG/7229
287340002	TMW-11-201811			AM20GAX	DISG/7229
287340003	TMW-10-201811			AM20GAX	DISG/7229

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Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 60286720 **Workorder Name:** FORT SMITH AR **Results Requested By:** 11/28/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9561

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: TSP	Preserved Containers: Unpres	Requested Analysis: M,E,E,A and VFA	Requested Analysis: M,E,E and VFA	LAB USE ONLY
1	MW-61R-201811	11/13/2018 14:20	60286720002	Water	3	2		X	
2	TMW-11-201811	11/13/2018 16:45	60286720007	Water	3	2	X		
3	TMW-10-201811	11/13/2018 16:55	60286720008	Water	3	2	X		
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Receipt Req.	11.15.18 1000	[illegible] PACE	11.16.18 1115
2				
3				

Comments

Methane, Ethane, Ethene, Acetylene
Volatile Fatty Acids

Cooler Temperature on Receipt 2 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: PAE **Project:** Fort Smith **Lab Work Order:** _____

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227861794

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : LG **Date:** 11.16.18

Project Manager Review : SW **Date:** 11.16.18

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 13, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 15, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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Lenexa, KS 66219
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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60286849001	MW-188-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849002	TMW-19-201811	Water	11/14/18 10:20	11/15/18 06:50
60286849003	TMW-27-201811	Water	11/14/18 11:30	11/15/18 06:50
60286849004	MW-178-201811	Water	11/14/18 11:20	11/15/18 06:50
60286849005	MW-84-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849006	MW-83-201811	Water	11/14/18 10:50	11/15/18 06:50
60286849007	MW-22-201811	Water	11/14/18 12:45	11/15/18 06:50
60286849008	MW-56R-201811	Water	11/14/18 14:25	11/15/18 06:50
60286849009	MW-57R-201811	Water	11/14/18 15:40	11/15/18 06:50
60286849010	MW-46R-201811	Water	11/14/18 17:10	11/15/18 06:50
60286849011	MW-60R-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849012	MW-40R-201811	Water	11/14/18 10:50	11/15/18 06:50
60286849013	MW-62R-201811	Water	11/14/18 12:10	11/15/18 06:50
60286849014	MW-63R-201811	Water	11/14/18 13:40	11/15/18 06:50
60286849015	MW-26-201811	Water	11/14/18 15:25	11/15/18 06:50
60286849016	DUP-09-201811	Water	11/14/18 15:25	11/15/18 06:50
60286849017	ITMW-20-201811	Water	11/14/18 16:25	11/15/18 06:50
60286849018	EB-03-201811	Water	11/14/18 17:00	11/15/18 06:50
60286849019	MW-191-201811	Water	11/14/18 14:55	11/15/18 06:50
60286849020	TMW-14-201811	Water	11/14/18 15:51	11/15/18 06:50
60286849021	ITMW-10-201811	Water	11/14/18 17:37	11/15/18 06:50
60286849022	MW-184-201811	Water	11/14/18 09:47	11/15/18 06:50
60286849023	MW-183R-201811	Water	11/14/18 11:23	11/15/18 06:50
60286849024	MW-98-201811	Water	11/14/18 13:51	11/15/18 06:50
60286849025	EB-04-201811	Water	11/14/18 17:40	11/15/18 06:50
60286849026	MW-186-201811	Water	11/14/18 10:05	11/15/18 06:50
60286849027	MW-185-201811	Water	11/14/18 11:40	11/15/18 06:50
60286849028	TMW-34-201811	Water	11/14/18 15:00	11/15/18 06:50
60286849029	MW-194-201811	Water	11/14/18 17:20	11/15/18 06:50
60286849030	MW-89-201811	Water	11/14/18 10:10	11/15/18 06:50
60286849031	IW-73-201811	Water	11/14/18 15:10	11/15/18 06:50
60286849032	RW-69-201811	Water	11/14/18 12:30	11/15/18 06:50
60286849033	TMW-30-201811	Water	11/14/18 12:30	11/15/18 06:50
60286849034	TRIP BLANK	Water	11/14/18 12:30	11/15/18 06:50
60286849035	TRIP BLANK 2	Water	11/14/18 12:30	11/15/18 06:50
60286849036	EB-05-201811	Water	11/14/18 17:10	11/15/18 06:50

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286849001	MW-188-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849002	TMW-19-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849003	TMW-27-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849004	MW-178-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849005	MW-84-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849006	MW-83-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849007	MW-22-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849008	MW-56R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849009	MW-57R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849010	MW-46R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849011	MW-60R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849012	MW-40R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849013	MW-62R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849014	MW-63R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849015	MW-26-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849016	DUP-09-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849017	ITMW-20-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849018	EB-03-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849019	MW-191-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849020	TMW-14-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849021	ITMW-10-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849022	MW-184-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849023	MW-183R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849024	MW-98-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849025	EB-04-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849026	MW-186-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849027	MW-185-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286849028	**TMW-34-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849029	**MW-194-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849030	**MW-89-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849031	**IW-73-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849032	**RW-69-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849033	**TMW-30-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849034	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60286849035	**TRIP BLANK 2**	EPA 5030B/8260	PGH	38	PASI-K
60286849036	**EB-05-201811**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
8 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
36 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- MW-186-201811 (Lab ID: 60286849026)
- TMW-30-201811 (Lab ID: 60286849033)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 555989

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555989 [MSV/9337 (Lab ID: 2281609)
  - 1,2-Dichloroethane

QC Batch: 555990

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555990 [MSV/9337 (Lab ID: 2281617)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 555990

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
- LCS (Lab ID: 2281618)
  - Trichloroethene

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 13, 2018

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556253

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286849032

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2282309)
  - Trichloroethene

QC Batch: 556701

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556702

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
6 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557820

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287003004,60287011001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2288556)
  - Chloride

QC Batch: 559544

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287946003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2296211)
  - Chloride

Additional Comments:

Analyte Comments:

QC Batch: 559544

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 2296211)
  - Chloride

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
6 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- MW-186-201811 (Lab ID: 60286849026)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555770

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2280238)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrate

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 555770

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.
- DUP (Lab ID: 2280239)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
8 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 13, 2018

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-188-201811 **Lab ID: 60286849001** Collected: 11/14/18 09:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 20:01	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:01	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:01	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:01	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:01	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:01	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:01	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:01	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:01	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:01	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:01	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 20:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 20:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:01	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:01	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:01	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:01	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:01	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:01	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:01	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:01	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 20:01	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:01	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:01	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 20:01	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/20/18 20:01	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/20/18 20:01	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:01		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-19-201811 **Lab ID: 60286849002** Collected: 11/14/18 10:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**1.9J**	ug/L	10.0	1.9	1		11/20/18 20:15	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:15	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:15	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:15	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:15	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:15	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:15	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:15	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:15	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:15	75-00-3	
Chloroform	**0.19J**	ug/L	1.0	0.14	1		11/20/18 20:15	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:15	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:15	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 20:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:15	75-35-4	
cis-1,2-Dichloroethene	**0.69J**	ug/L	1.0	0.080	1		11/20/18 20:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:15	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:15	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:15	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:15	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:15	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:15	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:15	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:15	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:15	79-00-5	
Trichloroethene	**0.97J**	ug/L	1.0	0.17	1		11/20/18 20:15	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:15	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:15	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 20:15	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 20:15	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/20/18 20:15	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:15		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-27-201811 **Lab ID: 60286849003** Collected: 11/14/18 11:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.5J**	ug/L	10.0	1.9	1		11/20/18 20:29	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:29	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:29	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:29	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:29	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:29	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:29	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:29	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:29	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:29	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:29	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:29	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:29	75-34-3	
1,2-Dichloroethane	**0.13J**	ug/L	1.0	0.12	1		11/20/18 20:29	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 20:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:29	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:29	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:29	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:29	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:29	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:29	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:29	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 20:29	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:29	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:29	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/20/18 20:29	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/20/18 20:29	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 20:29	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:29		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-178-201811 **Lab ID: 60286849004** Collected: 11/14/18 11:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 20:43	67-64-1	
Benzene	**0.22J**	ug/L	1.0	0.060	1		11/20/18 20:43	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:43	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:43	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:43	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:43	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:43	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:43	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:43	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:43	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:43	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:43	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:43	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:43	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		11/20/18 20:43	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:43	75-35-4	
cis-1,2-Dichloroethene	**1.4**	ug/L	1.0	0.080	1		11/20/18 20:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:43	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:43	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:43	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:43	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:43	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:43	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:43	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:43	79-00-5	
Trichloroethene	**4.5**	ug/L	1.0	0.17	1		11/20/18 20:43	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:43	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:43	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 20:43	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/20/18 20:43	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 20:43	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:43		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-84-201811 **Lab ID: 60286849005** Collected: 11/14/18 09:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**15.4**	ug/L	10.0	1.9	1		11/20/18 20:57	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:57	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:57	75-27-4	
Bromoform	**5.4**	ug/L	1.0	0.070	1		11/20/18 20:57	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:57	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:57	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:57	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:57	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:57	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:57	74-87-3	
Dibromochloromethane	**0.27J**	ug/L	1.0	0.21	1		11/20/18 20:57	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 20:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 20:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:57	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:57	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:57	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:57	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:57	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:57	79-00-5	
Trichloroethene	**1.5**	ug/L	1.0	0.17	1		11/20/18 20:57	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:57	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:57	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/20/18 20:57	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/20/18 20:57	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 20:57	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	1		11/20/18 20:57		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-83-201811 **Lab ID: 60286849006** Collected: 11/14/18 10:50 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.4J**	ug/L	10.0	1.9	1		11/20/18 21:11	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:11	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:11	75-27-4	
Bromoform	**1.8**	ug/L	1.0	0.070	1		11/20/18 21:11	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:11	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:11	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:11	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:11	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:11	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:11	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:11	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:11	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:11	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:11	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/20/18 21:11	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:11	75-35-4	
cis-1,2-Dichloroethene	**0.63J**	ug/L	1.0	0.080	1		11/20/18 21:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:11	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:11	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:11	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:11	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:11	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:11	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:11	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:11	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:11	79-00-5	
Trichloroethene	**34.2**	ug/L	1.0	0.17	1		11/20/18 21:11	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:11	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:11	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 21:11	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/20/18 21:11	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 21:11	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	1		11/20/18 21:11		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-22-201811 **Lab ID: 60286849007** Collected: 11/14/18 12:45 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/20/18 21:25	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 21:25	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:25	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 21:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 21:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:25	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:25	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:25	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:25	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 21:25	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:25	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 21:25	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/20/18 21:25	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 21:25	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 21:25		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-56R-201811 **Lab ID: 60286849008** Collected: 11/14/18 14:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.8J**	ug/L	10.0	1.9	1		11/20/18 22:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 22:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 22:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 22:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 22:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 22:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 22:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 22:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 22:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 22:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 22:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 22:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 22:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 22:35	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/20/18 22:35	75-35-4	
cis-1,2-Dichloroethene	**21.1**	ug/L	1.0	0.080	1		11/20/18 22:35	156-59-2	
trans-1,2-Dichloroethene	**0.40J**	ug/L	1.0	0.20	1		11/20/18 22:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 22:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 22:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 22:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 22:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 22:35	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 22:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 22:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 22:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 22:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 22:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 22:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 22:35	79-00-5	
Trichloroethene	**902**	ug/L	10.0	1.7	10		11/20/18 22:50	79-01-6	
Vinyl chloride	**0.38J**	ug/L	1.0	0.13	1		11/20/18 22:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 22:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 22:35	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/20/18 22:35	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 22:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 22:35		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-57R-201811 **Lab ID: 60286849009** Collected: 11/14/18 15:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**8.2J**	ug/L	10.0	1.9	1		11/20/18 23:04	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 23:04	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 23:04	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 23:04	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 23:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 23:04	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 23:04	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 23:04	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 23:04	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:04	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 23:04	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 23:04	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 23:04	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 23:04	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/20/18 23:04	107-06-2	B
1,1-Dichloroethene	**0.76J**	ug/L	1.0	0.20	1		11/20/18 23:04	75-35-4	
cis-1,2-Dichloroethene	**7.7**	ug/L	1.0	0.080	1		11/20/18 23:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 23:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 23:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 23:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 23:04	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 23:04	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 23:04	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 23:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 23:04	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 23:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 23:04	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 23:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 23:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 23:04	79-00-5	
Trichloroethene	**286**	ug/L	10.0	1.7	10		11/20/18 23:18	79-01-6	
Vinyl chloride	**0.21J**	ug/L	1.0	0.13	1		11/20/18 23:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 23:04	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 23:04	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/20/18 23:04	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 23:04	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 23:04		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-46R-201811 **Lab ID: 60286849010** Collected: 11/14/18 17:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.6J**	ug/L	10.0	1.9	1		11/20/18 23:32	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 23:32	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 23:32	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 23:32	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 23:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 23:32	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 23:32	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 23:32	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 23:32	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:32	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 23:32	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 23:32	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 23:32	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 23:32	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		11/20/18 23:32	107-06-2	B
1,1-Dichloroethene	**1.5**	ug/L	1.0	0.20	1		11/20/18 23:32	75-35-4	
cis-1,2-Dichloroethene	**14.4**	ug/L	1.0	0.080	1		11/20/18 23:32	156-59-2	
trans-1,2-Dichloroethene	**0.50J**	ug/L	1.0	0.20	1		11/20/18 23:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 23:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 23:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 23:32	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 23:32	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 23:32	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 23:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 23:32	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 23:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 23:32	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 23:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 23:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 23:32	79-00-5	
Trichloroethene	**603**	ug/L	10.0	1.7	10		11/20/18 23:46	79-01-6	
Vinyl chloride	**1.2**	ug/L	1.0	0.13	1		11/20/18 23:32	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 23:32	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 23:32	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 23:32	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 23:32	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 23:32		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-60R-201811 **Lab ID: 60286849011** Collected: 11/14/18 09:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 21:39	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:39	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:39	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 21:39	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:39	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:39	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:39	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:39	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:39	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:39	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:39	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:39	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 21:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 21:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:39	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:39	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:39	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:39	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:39	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:39	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:39	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:39	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:39	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:39	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 21:39	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:39	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:39	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/20/18 21:39	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 21:39	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 21:39	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 21:39		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-40R-201811 **Lab ID: 60286849012** Collected: 11/14/18 10:50 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/20/18 21:53	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:53	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 21:53	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:53	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:53	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:53	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:53	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:53	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 21:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 21:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:53	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:53	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:53	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:53	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:53	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:53	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:53	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 21:53	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:53	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		1		11/20/18 21:53	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/20/18 21:53	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 21:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 21:53		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-62R-201811 **Lab ID: 60286849013** Collected: 11/14/18 12:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.7J**	ug/L	10.0	1.9	1		11/20/18 22:07	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 22:07	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 22:07	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 22:07	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 22:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 22:07	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 22:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 22:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 22:07	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:07	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 22:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 22:07	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 22:07	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 22:07	75-34-3	
1,2-Dichloroethane	**0.22J**	ug/L	1.0	0.12	1		11/20/18 22:07	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 22:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 22:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 22:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 22:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 22:07	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 22:07	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 22:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 22:07	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 22:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 22:07	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 22:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 22:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 22:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 22:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 22:07	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 22:07	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 22:07	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 22:07	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 22:07	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 22:07		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-63R-201811 **Lab ID: 60286849014** Collected: 11/14/18 13:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 22:21	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 22:21	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 22:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 22:21	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 22:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 22:21	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 22:21	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 22:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 22:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:21	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 22:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 22:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 22:21	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 22:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 22:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:21	75-35-4	
cis-1,2-Dichloroethene	**0.66J**	ug/L	1.0	0.080	1		11/20/18 22:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 22:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 22:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 22:21	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 22:21	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 22:21	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 22:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 22:21	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 22:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 22:21	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 22:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 22:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 22:21	79-00-5	
Trichloroethene	**4.5**	ug/L	1.0	0.17	1		11/20/18 22:21	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 22:21	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 22:21	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 22:21	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/20/18 22:21	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 22:21	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 22:21		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-26-201811 **Lab ID: 60286849015** Collected: 11/14/18 15:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.5J**	ug/L	10.0	1.9	1		11/21/18 20:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:28	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:28	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:28	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 20:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:28	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 20:28	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 20:28	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 20:28	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: DUP-09-201811 **Lab ID: 60286849016** Collected: 11/14/18 15:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.1J**	ug/L	10.0	1.9	1		11/21/18 23:02	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 23:02	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 23:02	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 23:02	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 23:02	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 23:02	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 23:02	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 23:02	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 23:02	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:02	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 23:02	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 23:02	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 23:02	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 23:02	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/21/18 23:02	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 23:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 23:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 23:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 23:02	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 23:02	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 23:02	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 23:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 23:02	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 23:02	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:02	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 23:02	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 23:02	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 23:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 23:02	79-00-5	
Trichloroethene	**0.46J**	ug/L	1.0	0.17	1		11/21/18 23:02	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 23:02	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 23:02	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 23:02	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/21/18 23:02	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 23:02	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 23:02		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: ITMW-20-201811 **Lab ID: 60286849017** Collected: 11/14/18 16:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 20:42	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 20:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:42	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 20:42	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/21/18 20:42	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 20:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:42		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: EB-03-201811 **Lab ID: 60286849018** Collected: 11/14/18 17:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/21/18 20:00	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:00	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:00	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:00	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:00	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:00	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:00	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:00	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:00	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:00	75-34-3	
1,2-Dichloroethane	**0.12J**	ug/L	1.0	0.12	1		11/21/18 20:00	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:00	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:00	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:00	591-78-6	
Methylene chloride	**0.55J**	ug/L	1.0	0.15	1		11/21/18 20:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:00	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:00	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:00	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:00	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:00	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 20:00	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 20:00	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 20:00	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:00		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-191-201811 **Lab ID: 60286849019** Collected: 11/14/18 14:55 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.2J**	ug/L	10.0	1.9	1		11/21/18 20:56	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:56	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:56	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:56	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:56	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:56	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:56	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:56	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:56	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:56	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:56	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 20:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:56	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:56	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:56	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:56	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:56	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:56	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/21/18 20:56	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/21/18 20:56	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 20:56	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:56		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-14-201811 **Lab ID: 60286849020** Collected: 11/14/18 15:51 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.5J**	ug/L	10.0	1.9	1		11/21/18 23:58	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 23:58	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 23:58	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 23:58	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 23:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 23:58	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 23:58	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 23:58	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 23:58	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:58	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 23:58	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 23:58	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 23:58	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 23:58	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/21/18 23:58	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 23:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 23:58	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 23:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 23:58	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 23:58	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 23:58	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 23:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 23:58	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 23:58	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:58	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 23:58	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 23:58	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 23:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 23:58	79-00-5	
Trichloroethene	**0.24J**	ug/L	1.0	0.17	1		11/21/18 23:58	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 23:58	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 23:58	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/21/18 23:58	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 23:58	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/21/18 23:58	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 23:58		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: ITMW-10-201811 **Lab ID: 60286849021** Collected: 11/14/18 17:37 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 23:44	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 23:44	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 23:44	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 23:44	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 23:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 23:44	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 23:44	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 23:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 23:44	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:44	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 23:44	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 23:44	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 23:44	124-48-1	
1,1-Dichloroethane	**0.81J**	ug/L	1.0	0.050	1		11/21/18 23:44	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/21/18 23:44	107-06-2	B
1,1-Dichloroethene	**1.1**	ug/L	1.0	0.20	1		11/21/18 23:44	75-35-4	
cis-1,2-Dichloroethene	**10.9**	ug/L	1.0	0.080	1		11/21/18 23:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 23:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 23:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 23:44	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 23:44	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 23:44	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 23:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 23:44	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 23:44	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:44	79-34-5	
Tetrachloroethene	**0.26J**	ug/L	1.0	0.10	1		11/21/18 23:44	127-18-4	
Toluene	**0.22J**	ug/L	1.0	0.17	1		11/21/18 23:44	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 23:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 23:44	79-00-5	
Trichloroethene	**45.0**	ug/L	1.0	0.17	1		11/25/18 13:44	79-01-6	
Vinyl chloride	**0.77J**	ug/L	1.0	0.13	1		11/21/18 23:44	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 23:44	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 23:44	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/21/18 23:44	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 23:44	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 23:44		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-184-201811 **Lab ID: 60286849022** Collected: 11/14/18 09:47 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/21/18 21:09	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:09	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:09	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:09	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:09	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:09	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:09	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:09	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:09	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:09	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 21:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:09	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 21:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:09	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:09	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:09	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:09	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:09	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:09	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:09	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:09	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:09	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:09	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 21:09	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:09	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:09	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		11/21/18 21:09	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 21:09	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 21:09	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:09		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-183R-201811 **Lab ID: 60286849023** Collected: 11/14/18 11:23 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.6J**	ug/L	10.0	1.9	1		11/21/18 22:20	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:20	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:20	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/21/18 22:20	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 22:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:20	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:20	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:20	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:20	79-00-5	
Trichloroethene	**1.1**	ug/L	1.0	0.17	1		11/25/18 13:58	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/25/18 13:58	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 22:20	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 22:20	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 22:20	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:20		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-98-201811 **Lab ID: 60286849024** Collected: 11/14/18 13:51 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.8J**	ug/L	10.0	1.9	1		11/21/18 21:23	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:23	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:23	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:23	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:23	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:23	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:23	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:23	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:23	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:23	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:23	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/21/18 21:23	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 21:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:23	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:23	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:23	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:23	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:23	79-00-5	
Trichloroethene	**0.29J**	ug/L	1.0	0.17	1		11/21/18 21:23	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 21:23	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/21/18 21:23	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 21:23	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:23		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: EB-04-201811 **Lab ID: 60286849025** Collected: 11/14/18 17:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 20:14	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:14	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:14	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:14	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:14	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:14	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:14	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:14	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:14	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:14	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:14	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:14	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:14	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:14	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:14	591-78-6	
Methylene chloride	**0.35J**	ug/L	1.0	0.15	1		11/21/18 20:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:14	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:14	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:14	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:14	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:14	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:14	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:14	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/21/18 20:14	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/21/18 20:14	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 20:14	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:14		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-186-201811 **Lab ID: 60286849026** Collected: 11/14/18 10:05 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**588000**	ug/L	250	30.7	5	11/28/18 10:35	11/30/18 13:35	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**276**	ug/L	50.0	9.4	5		11/21/18 23:16	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/21/18 23:16	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/21/18 23:16	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/21/18 23:16	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/21/18 23:16	74-83-9	
2-Butanone (MEK)	**1250**	ug/L	50.0	3.0	5		11/21/18 23:16	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/21/18 23:16	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/21/18 23:16	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/21/18 23:16	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/21/18 23:16	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/21/18 23:16	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/21/18 23:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/21/18 23:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/21/18 23:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	75-35-4	
cis-1,2-Dichloroethene	**6.5**	ug/L	5.0	0.40	5		11/21/18 23:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/21/18 23:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/21/18 23:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/21/18 23:16	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/21/18 23:16	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/21/18 23:16	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/21/18 23:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/21/18 23:16	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/21/18 23:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/21/18 23:16	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/21/18 23:16	127-18-4	
Toluene	ND	ug/L	5.0	0.85	5		11/21/18 23:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/21/18 23:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/21/18 23:16	79-00-5	
Trichloroethene	**10.2**	ug/L	5.0	0.85	5		11/26/18 03:49	79-01-6	F1
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/21/18 23:16	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/21/18 23:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		5		11/21/18 23:16	460-00-4	F1
1,2-Dichloroethane-d4 (S)	107	%	80-117		5		11/21/18 23:16	17060-07-0	
Toluene-d8 (S)	98	%	80-115		5		11/21/18 23:16	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	5		11/21/18 23:16		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**260**	mg/L	20.0	5.8	20		12/01/18 03:29	16887-00-6	
Sulfate	**1.4**	mg/L	1.0	0.24	1		12/12/18 05:13	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-186-201811 **Lab ID: 60286849026** Collected: 11/14/18 10:05 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 10:12		H1
Nitrogen, Nitrite	**0.14**	mg/L	0.10	0.033	1		11/17/18 10:12		D6,H1
Nitrogen, NO2 plus NO3	**0.13**	mg/L	0.10	0.060	1		11/17/18 10:12		D6,H1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**9150**	mg/L	1000	654	1000		11/29/18 17:05	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**8980**	mg/L	1000	654	1000		11/27/18 13:20	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-185-201811 **Lab ID: 60286849027** Collected: 11/14/18 11:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**46.0J**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.3J**	ug/L	10.0	1.9	1		11/21/18 21:38	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:38	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:38	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:38	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:38	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:38	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:38	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:38	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:38	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:38	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:38	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:38	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:38	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 21:38	107-06-2	B
1,1-Dichloroethene	**0.25J**	ug/L	1.0	0.20	1		11/21/18 21:38	75-35-4	
cis-1,2-Dichloroethene	**2.6**	ug/L	1.0	0.080	1		11/21/18 21:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:38	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:38	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:38	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:38	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:38	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:38	79-00-5	
Trichloroethene	**11.7**	ug/L	1.0	0.17	1		11/26/18 04:03	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:38	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:38	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 21:38	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 21:38	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 21:38	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.8**	mg/L	1.0	0.29	1		12/12/18 05:31	16887-00-6	
Sulfate	**7.7**	mg/L	1.0	0.24	1		12/12/18 05:31	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-185-201811 **Lab ID: 60286849027** Collected: 11/14/18 11:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**5.0**	mg/L	0.50	0.30	5		11/15/18 18:37		
Nitrogen, Nitrite	ND	mg/L	0.50	0.16	5		11/15/18 18:37		
Nitrogen, NO2 plus NO3	**5.1**	mg/L	0.50	0.30	5		11/15/18 18:37		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/26/18 17:46	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 13:33	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-34-201811 **Lab ID: 60286849028** Collected: 11/14/18 15:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**109**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:43	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.4J**	ug/L	10.0	1.9	1		11/21/18 22:34	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:34	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:34	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:34	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:34	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:34	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:34	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:34	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:34	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:34	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:34	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:34	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:34	75-34-3	
1,2-Dichloroethane	**0.19J**	ug/L	1.0	0.12	1		11/21/18 22:34	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:34	75-35-4	
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0	0.080	1		11/21/18 22:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:34	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:34	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:34	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:34	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:34	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:34	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:34	79-00-5	
Trichloroethene	**7.4**	ug/L	1.0	0.17	1		11/26/18 04:17	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:34	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:34	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/21/18 22:34	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/21/18 22:34	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/21/18 22:34	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**22.4**	mg/L	5.0	1.4	5		12/12/18 06:25	16887-00-6	
Sulfate	**9.2**	mg/L	1.0	0.24	1		12/12/18 06:07	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-34-201811 **Lab ID: 60286849028** Collected: 11/14/18 15:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/15/18 18:33		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:33		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/15/18 18:33		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.72J**	mg/L	1.0	0.65	1		11/27/18 17:11	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.84J**	mg/L	1.0	0.65	1		11/27/18 13:46	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-194-201811 **Lab ID: 60286849029** Collected: 11/14/18 17:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**8260**	ug/L	50.0	6.1	1	11/28/18 10:35	11/28/18 22:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 21:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 21:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:51	75-35-4	
cis-1,2-Dichloroethene	**0.87J**	ug/L	1.0	0.080	1		11/21/18 21:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:51	79-00-5	
Trichloroethene	**10.7**	ug/L	1.0	0.17	1		11/26/18 04:31	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 21:51	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 21:51	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/21/18 21:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:51		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 17:24	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-194-201811 **Lab ID: 60286849029** Collected: 11/14/18 17:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 13:59	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-89-201811 **Lab ID: 60286849030** Collected: 11/14/18 10:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**11.0J**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:46	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/21/18 22:06	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:06	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:06	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:06	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:06	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:06	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:06	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:06	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:06	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:06	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:06	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 22:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:06	75-35-4	
cis-1,2-Dichloroethene	**0.53J**	ug/L	1.0	0.080	1		11/21/18 22:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:06	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:06	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:06	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:06	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:06	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:06	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:06	79-00-5	
Trichloroethene	**9.7**	ug/L	1.0	0.17	1		11/26/18 04:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:06	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:06	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/21/18 22:06	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/21/18 22:06	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/21/18 22:06	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:06		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:33	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-89-201811 **Lab ID: 60286849030** Collected: 11/14/18 10:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**4.3**	mg/L	1.0	0.24	1		12/12/18 07:54	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**91.4**	mg/L	5.0	3.0	50		11/15/18 18:35		
Nitrogen, Nitrite	ND	mg/L	5.0	1.6	50		11/15/18 18:35		
Nitrogen, NO2 plus NO3	**92.0**	mg/L	5.0	3.0	50		11/15/18 18:35		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.2**	mg/L	1.0	0.65	1		11/27/18 17:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: IW-73-201811 **Lab ID: 60286849031** Collected: 11/14/18 15:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**941**	ug/L	50.0	6.1	1	11/28/18 10:35	11/28/18 22:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 22:48	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:48	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:48	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:48	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:48	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:48	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:48	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:48	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:48	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:48	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:48	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:48	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/21/18 22:48	107-06-2	B
1,1-Dichloroethene	**0.63J**	ug/L	1.0	0.20	1		11/21/18 22:48	75-35-4	
cis-1,2-Dichloroethene	**7.3**	ug/L	1.0	0.080	1		11/21/18 22:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:48	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:48	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:48	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:48	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:48	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:48	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:48	79-00-5	
Trichloroethene	**208**	ug/L	5.0	0.85	5		11/26/18 04:59	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:48	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:48	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/21/18 22:48	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/21/18 22:48	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 22:48	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:48		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:33	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: IW-73-201811 **Lab ID: 60286849031** Collected: 11/14/18 15:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**3.9**	mg/L	1.0	0.24	1		12/12/18 08:47	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.070J**	mg/L	0.10	0.060	1		11/15/18 18:34		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:34		
Nitrogen, NO2 plus NO3	**0.083J**	mg/L	0.10	0.060	1		11/15/18 18:34		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 17:51	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: RW-69-201811 **Lab ID: 60286849032** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**505**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 17:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.0J**	ug/L	10.0	1.9	1		11/21/18 05:24	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 05:24	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 05:24	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 05:24	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 05:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 05:24	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 05:24	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 05:24	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 05:24	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:24	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 05:24	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 05:24	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 05:24	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 05:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 05:24	107-06-2	
1,1-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/21/18 05:24	75-35-4	
cis-1,2-Dichloroethene	**5.4**	ug/L	1.0	0.080	1		11/21/18 05:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 05:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 05:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 05:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 05:24	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 05:24	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 05:24	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 05:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 05:24	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 05:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 05:24	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 05:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 05:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 05:24	79-00-5	
Trichloroethene	**141**	ug/L	1.0	0.17	1		11/21/18 05:24	79-01-6	M1
Vinyl chloride	**0.53J**	ug/L	1.0	0.13	1		11/21/18 05:24	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 05:24	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/21/18 05:24	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 05:24	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/21/18 05:24	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 05:24		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:35	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: RW-69-201811 **Lab ID: 60286849032** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**1.3**	mg/L	1.0	0.24	1		12/12/18 09:05	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/15/18 18:31		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:31		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/15/18 18:31		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 18:04	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-30-201811 **Lab ID: 60286849033** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1560000**	ug/L	500	61.5	10	11/28/18 10:35	11/28/18 22:49	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**299**	ug/L	250	47.0	25		11/21/18 23:30	67-64-1	
Benzene	ND	ug/L	25.0	1.5	25		11/21/18 23:30	71-43-2	
Bromodichloromethane	ND	ug/L	25.0	4.8	25		11/21/18 23:30	75-27-4	
Bromoform	ND	ug/L	25.0	1.8	25		11/21/18 23:30	75-25-2	
Bromomethane	ND	ug/L	125	4.0	25		11/21/18 23:30	74-83-9	
2-Butanone (MEK)	**875**	ug/L	250	14.8	25		11/21/18 23:30	78-93-3	
Carbon disulfide	ND	ug/L	125	3.0	25		11/21/18 23:30	75-15-0	
Carbon tetrachloride	ND	ug/L	25.0	4.5	25		11/21/18 23:30	56-23-5	
Chlorobenzene	ND	ug/L	25.0	5.2	25		11/21/18 23:30	108-90-7	
Chloroethane	ND	ug/L	25.0	3.8	25		11/21/18 23:30	75-00-3	
Chloroform	ND	ug/L	25.0	3.5	25		11/21/18 23:30	67-66-3	
Chloromethane	ND	ug/L	25.0	2.0	25		11/21/18 23:30	74-87-3	
Dibromochloromethane	ND	ug/L	25.0	5.2	25		11/21/18 23:30	124-48-1	
1,1-Dichloroethane	ND	ug/L	25.0	1.2	25		11/21/18 23:30	75-34-3	
1,2-Dichloroethane	**4.7J**	ug/L	25.0	3.0	25		11/21/18 23:30	107-06-2	B
1,1-Dichloroethene	ND	ug/L	25.0	5.0	25		11/21/18 23:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	25.0	2.0	25		11/21/18 23:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	25.0	5.0	25		11/21/18 23:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	25.0	4.0	25		11/21/18 23:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	25.0	3.5	25		11/21/18 23:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	25.0	3.0	25		11/21/18 23:30	10061-02-6	
Ethylbenzene	ND	ug/L	25.0	4.5	25		11/21/18 23:30	100-41-4	
2-Hexanone	ND	ug/L	250	29.8	25		11/21/18 23:30	591-78-6	
Methylene chloride	ND	ug/L	25.0	3.8	25		11/21/18 23:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	250	10.5	25		11/21/18 23:30	108-10-1	
Styrene	ND	ug/L	25.0	3.0	25		11/21/18 23:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	25.0	3.8	25		11/21/18 23:30	79-34-5	
Tetrachloroethene	ND	ug/L	25.0	2.5	25		11/21/18 23:30	127-18-4	
Toluene	ND	ug/L	25.0	4.2	25		11/21/18 23:30	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	25.0	2.8	25		11/21/18 23:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	25.0	5.0	25		11/21/18 23:30	79-00-5	
Trichloroethene	ND	ug/L	25.0	4.2	25		11/21/18 23:30	79-01-6	L1
Vinyl chloride	ND	ug/L	25.0	3.2	25		11/21/18 23:30	75-01-4	
Xylene (Total)	ND	ug/L	75.0	10.5	25		11/21/18 23:30	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		25		11/21/18 23:30	460-00-4	F1
1,2-Dichloroethane-d4 (S)	107	%	80-117		25		11/21/18 23:30	17060-07-0	
Toluene-d8 (S)	100	%	80-115		25		11/21/18 23:30	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	25		11/21/18 23:30		pH
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**23900**	mg/L	2000	1310	2000		11/29/18 17:17	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-30-201811 **Lab ID: 60286849033** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**21700**	mg/L	2000	1310	2000		11/27/18 23:39	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TRIP BLANK **Lab ID: 60286849034** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 02:21	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 02:21	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 02:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 02:21	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 02:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 02:21	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 02:21	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 02:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 02:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:21	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 02:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 02:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 02:21	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 02:21	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 02:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 02:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 02:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 02:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 02:21	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 02:21	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 02:21	591-78-6	
Methylene chloride	**0.47J**	ug/L	1.0	0.15	1		11/21/18 02:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 02:21	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 02:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 02:21	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 02:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 02:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 02:21	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 02:21	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 02:21	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 02:21	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 02:21	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/21/18 02:21	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 02:21	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 02:21		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TRIP BLANK 2 **Lab ID: 60286849035** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		11/21/18 02:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 02:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 02:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 02:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 02:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 02:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 02:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 02:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 02:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 02:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 02:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 02:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 02:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 02:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 02:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 02:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 02:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 02:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 02:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 02:35	591-78-6	
Methylene chloride	**0.42J**	ug/L	1.0	0.15	1		11/21/18 02:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 02:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 02:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 02:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 02:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 02:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 02:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 02:35	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 02:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 02:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/21/18 02:35	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 02:35	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/21/18 02:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 02:35		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: EB-05-201811 **Lab ID: 60286849036** Collected: 11/14/18 17:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.1J**	ug/L	10.0	1.9	1		11/21/18 02:49	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 02:49	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 02:49	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 02:49	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 02:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 02:49	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 02:49	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 02:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 02:49	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:49	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 02:49	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 02:49	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 02:49	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 02:49	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/21/18 02:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 02:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 02:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 02:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 02:49	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 02:49	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 02:49	591-78-6	
Methylene chloride	**0.29J**	ug/L	1.0	0.15	1		11/21/18 02:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 02:49	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 02:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:49	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 02:49	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 02:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 02:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 02:49	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 02:49	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 02:49	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 02:49	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 02:49	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/21/18 02:49	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 02:49	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 02:49		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557239 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849032, 60286849033

METHOD BLANK: 2286099 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849032, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	11/28/18 21:45	

LABORATORY CONTROL SAMPLE: 2286100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9960	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2286101 2286102

Parameter	Units	60286654010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	13400	10000	10000	22800	23400	94	100	75-125	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2286103 2286104

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	505	10000	10000	10300	10400	98	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555989 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849001, 60286849002, 60286849003, 60286849004, 60286849005, 60286849006, 60286849007, 60286849008, 60286849009, 60286849010, 60286849011, 60286849012, 60286849013, 60286849014

METHOD BLANK: 2281609 Matrix: Water
Associated Lab Samples: 60286849001, 60286849002, 60286849003, 60286849004, 60286849005, 60286849006, 60286849007, 60286849008, 60286849009, 60286849010, 60286849011, 60286849012, 60286849013, 60286849014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/20/18 19:47	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/20/18 19:47	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/20/18 19:47	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/20/18 19:47	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 19:47	
1,2-Dichloroethane	ug/L	0.16J	1.0	0.12	11/20/18 19:47	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/20/18 19:47	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/20/18 19:47	
2-Hexanone	ug/L	ND	10.0	1.2	11/20/18 19:47	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/20/18 19:47	
Acetone	ug/L	ND	10.0	1.9	11/20/18 19:47	
Benzene	ug/L	ND	1.0	0.060	11/20/18 19:47	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/20/18 19:47	
Bromoform	ug/L	ND	1.0	0.070	11/20/18 19:47	
Bromomethane	ug/L	ND	5.0	0.16	11/20/18 19:47	
Carbon disulfide	ug/L	ND	5.0	0.12	11/20/18 19:47	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/20/18 19:47	
Chlorobenzene	ug/L	ND	1.0	0.21	11/20/18 19:47	
Chloroethane	ug/L	ND	1.0	0.15	11/20/18 19:47	
Chloroform	ug/L	ND	1.0	0.14	11/20/18 19:47	
Chloromethane	ug/L	ND	1.0	0.080	11/20/18 19:47	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/20/18 19:47	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/20/18 19:47	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/20/18 19:47	
Ethylbenzene	ug/L	ND	1.0	0.18	11/20/18 19:47	
Methylene chloride	ug/L	ND	1.0	0.15	11/20/18 19:47	
Styrene	ug/L	ND	1.0	0.12	11/20/18 19:47	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/20/18 19:47	
Toluene	ug/L	ND	1.0	0.17	11/20/18 19:47	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 19:47	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/20/18 19:47	
Trichloroethene	ug/L	ND	1.0	0.17	11/20/18 19:47	
Vinyl chloride	ug/L	ND	1.0	0.13	11/20/18 19:47	
Xylene (Total)	ug/L	ND	3.0	0.42	11/20/18 19:47	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/20/18 19:47	
4-Bromofluorobenzene (S)	%	99	80-119		11/20/18 19:47	
Toluene-d8 (S)	%	97	80-115		11/20/18 19:47	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2281610

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.5	107	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.9	99	74-121	
1,1,2-Trichloroethane	ug/L	20	20.7	103	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.2	101	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	21.5	107	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	105	105	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	66-139	
Acetone	ug/L	100	105	105	62-142	
Benzene	ug/L	20	19.8	99	81-118	
Bromodichloromethane	ug/L	20	22.0	110	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	20.8	104	39-149	
Carbon disulfide	ug/L	20	19.5	98	85-124	
Carbon tetrachloride	ug/L	20	21.5	108	85-126	
Chlorobenzene	ug/L	20	20.2	101	87-118	
Chloroethane	ug/L	20	21.9	110	73-134	
Chloroform	ug/L	20	20.6	103	85-119	
Chloromethane	ug/L	20	15.6	78	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	84-121	
cis-1,3-Dichloropropene	ug/L	20	21.2	106	80-124	
Dibromochloromethane	ug/L	20	21.6	108	83-122	
Ethylbenzene	ug/L	20	19.1	95	80-118	
Methylene chloride	ug/L	20	21.4	107	81-126	
Styrene	ug/L	20	20.2	101	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	20.5	102	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.0	100	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.9	104	80-122	
Trichloroethene	ug/L	20	22.5	113	82-120	
Vinyl chloride	ug/L	20	23.2	116	74-147	
Xylene (Total)	ug/L	60	57.9	96	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281611 2281612

Parameter	Units	60286849002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.0	21.9	110	110	79-135	0	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.8	17.1	89	86	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.1	20.0	95	100	71-124	5	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281611			2281612							
Parameter	Units	60286849002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.2	20.7	106	104	77-135	2	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.1	21.8	110	109	77-138	1	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.0	18.2	95	91	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.5	19.7	102	99	74-128	4	13	
2-Butanone (MEK)	ug/L	ND	100	100	86.8	83.3	87	83	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	83.3	86.2	83	86	53-133	3	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	90.0	86.9	90	87	62-134	3	15	
Acetone	ug/L	1.9J	100	100	84.9	86.0	83	84	50-127	1	28	
Benzene	ug/L	ND	20	20	20.1	19.6	101	98	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.7	20.8	108	104	75-126	4	12	
Bromoform	ug/L	ND	20	20	17.6	18.7	88	93	70-122	6	14	
Bromomethane	ug/L	ND	20	20	18.2	20.6	91	103	41-155	12	42	
Carbon disulfide	ug/L	ND	20	20	21.0	20.3	105	102	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.0	22.3	115	112	78-139	3	23	
Chlorobenzene	ug/L	ND	20	20	19.9	19.7	100	99	74-130	1	10	
Chloroethane	ug/L	ND	20	20	22.7	21.4	114	107	67-153	6	27	
Chloroform	ug/L	0.19J	20	20	20.5	20.1	102	99	75-127	2	12	
Chloromethane	ug/L	ND	20	20	19.9	18.2	100	91	22-188	9	68	
cis-1,2-Dichloroethene	ug/L	0.69J	20	20	20.1	19.5	97	94	69-135	3	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.7	18.2	93	91	61-129	3	11	
Dibromochloromethane	ug/L	ND	20	20	19.3	19.8	97	99	60-133	3	14	
Ethylbenzene	ug/L	ND	20	20	19.2	19.5	96	98	60-140	1	32	
Methylene chloride	ug/L	ND	20	20	20.5	20.6	102	103	72-131	1	16	
Styrene	ug/L	ND	20	20	19.5	19.3	97	97	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	20.1	20.1	100	100	72-136	0	15	
Toluene	ug/L	ND	20	20	20.3	20.3	101	102	65-135	0	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.3	20.5	106	102	75-137	4	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.1	18.1	91	90	60-128	0	13	
Trichloroethene	ug/L	0.97J	20	20	24.5	23.8	117	114	66-136	3	15	
Vinyl chloride	ug/L	ND	20	20	24.6	24.5	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	55.8	56.6	93	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	102	80-117			
4-Bromofluorobenzene (S)	%						104	103	80-119			
Toluene-d8 (S)	%						95	99	80-115			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281613			2281614							
Parameter	Units	60286849004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.9	21.7	109	109	79-135	1	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.6	17.9	88	90	49-144	2	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.2	18.8	91	94	71-124	3	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281613			2281614							
Parameter	Units	60286849004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.6	20.6	103	103	77-135	0	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.2	20.9	111	104	77-138	6	14	
1,2-Dichloroethane	ug/L	0.14J	20	20	19.0	18.7	94	93	47-152	2	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.3	20.1	102	100	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	87.7	91.7	88	92	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	86.5	91.9	87	92	53-133	6	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	91.4	96.4	91	96	62-134	5	15	
Acetone	ug/L	ND	100	100	91.9	94.3	92	94	50-127	3	28	
Benzene	ug/L	0.22J	20	20	19.4	19.5	96	96	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	20.4	20.7	102	103	75-126	1	12	
Bromoform	ug/L	ND	20	20	18.4	19.1	92	96	70-122	4	14	
Bromomethane	ug/L	ND	20	20	20.8	21.8	104	109	41-155	5	42	
Carbon disulfide	ug/L	ND	20	20	20.3	20.7	102	103	70-148	2	14	
Carbon tetrachloride	ug/L	ND	20	20	21.9	22.6	109	113	78-139	3	23	
Chlorobenzene	ug/L	ND	20	20	19.9	19.4	100	97	74-130	3	10	
Chloroethane	ug/L	ND	20	20	22.0	22.4	110	112	67-153	2	27	
Chloroform	ug/L	ND	20	20	19.9	20.3	100	101	75-127	2	12	
Chloromethane	ug/L	ND	20	20	25.8	23.0	129	115	22-188	11	68	
cis-1,2-Dichloroethene	ug/L	1.4	20	20	20.3	20.9	94	98	69-135	3	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.5	18.6	93	93	61-129	0	11	
Dibromochloromethane	ug/L	ND	20	20	18.7	18.9	94	95	60-133	1	14	
Ethylbenzene	ug/L	ND	20	20	19.1	19.1	96	96	60-140	0	32	
Methylene chloride	ug/L	ND	20	20	20.7	21.3	104	107	72-131	3	16	
Styrene	ug/L	ND	20	20	19.1	19.0	95	95	59-142	0	12	
Tetrachloroethene	ug/L	ND	20	20	19.1	18.9	95	95	72-136	1	15	
Toluene	ug/L	ND	20	20	19.8	19.6	99	98	65-135	1	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.0	20.9	100	105	75-137	5	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.6	17.8	88	89	60-128	1	13	
Trichloroethene	ug/L	4.5	20	20	26.5	26.6	110	111	66-136	0	15	
Vinyl chloride	ug/L	ND	20	20	25.2	25.1	126	126	65-164	0	16	
Xylene (Total)	ug/L	ND	60	60	57.5	56.4	96	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	107	80-117			
4-Bromofluorobenzene (S)	%						102	101	80-119			
Toluene-d8 (S)	%						94	94	80-115			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281615			2281616							
Parameter	Units	60286849012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.2	22.2	106	111	79-135	5	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	18.1	87	91	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.5	20.0	93	100	71-124	8	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281615 2281616

Parameter	Units	60286849012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.7	21.5	103	107	77-135	4	12	
1,1-Dichloroethene	ug/L	ND	20	20	19.4	18.7	97	93	77-138	4	14	
1,2-Dichloroethane	ug/L	ND	20	20	18.5	19.5	92	97	47-152	5	27	
1,2-Dichloropropane	ug/L	ND	20	20	19.7	21.4	99	107	74-128	8	13	
2-Butanone (MEK)	ug/L	ND	100	100	88.9	93.1	89	93	60-125	5	17	
2-Hexanone	ug/L	ND	100	100	91.0	96.0	91	96	53-133	5	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	94.8	98.1	95	98	62-134	3	15	
Acetone	ug/L	2.0J	100	100	91.1	86.2	89	84	50-127	5	28	
Benzene	ug/L	ND	20	20	19.1	20.0	96	100	62-138	5	34	
Bromodichloromethane	ug/L	ND	20	20	20.6	21.7	103	108	75-126	5	12	
Bromoform	ug/L	ND	20	20	18.2	18.8	91	94	70-122	3	14	
Bromomethane	ug/L	ND	20	20	22.0	22.2	110	111	41-155	1	42	
Carbon disulfide	ug/L	ND	20	20	20.0	20.9	100	105	70-148	5	14	
Carbon tetrachloride	ug/L	ND	20	20	21.5	23.1	108	116	78-139	7	23	
Chlorobenzene	ug/L	ND	20	20	19.3	19.7	97	98	74-130	2	10	
Chloroethane	ug/L	ND	20	20	22.3	22.2	112	111	67-153	1	27	
Chloroform	ug/L	ND	20	20	19.7	20.6	99	103	75-127	4	12	
Chloromethane	ug/L	ND	20	20	25.5	18.8	128	94	22-188	31	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.2	19.3	96	96	69-135	0	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.3	19.4	92	97	61-129	6	11	
Dibromochloromethane	ug/L	ND	20	20	18.7	20.1	93	101	60-133	8	14	
Ethylbenzene	ug/L	ND	20	20	18.9	19.5	94	97	60-140	3	32	
Methylene chloride	ug/L	ND	20	20	21.3	21.5	106	108	72-131	1	16	
Styrene	ug/L	ND	20	20	19.2	19.4	96	97	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	18.9	19.7	95	99	72-136	4	15	
Toluene	ug/L	ND	20	20	19.4	19.9	97	99	65-135	3	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.5	20.8	103	104	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.2	18.6	86	93	60-128	8	13	
Trichloroethene	ug/L	ND	20	20	22.0	22.9	110	114	66-136	4	15	
Vinyl chloride	ug/L	ND	20	20	24.9	24.8	125	124	65-164	0	16	
Xylene (Total)	ug/L	ND	60	60	55.9	55.7	93	93	69-133	0	31	
1,2-Dichloroethane-d4 (S)	%						103	108	80-117			
4-Bromofluorobenzene (S)	%						101	104	80-119			
Toluene-d8 (S)	%						93	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555990 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849015, 60286849016, 60286849017, 60286849018, 60286849019, 60286849020, 60286849021, 60286849022, 60286849023, 60286849024, 60286849025, 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849033

METHOD BLANK: 2281617 Matrix: Water
Associated Lab Samples: 60286849015, 60286849016, 60286849017, 60286849018, 60286849019, 60286849020, 60286849021, 60286849022, 60286849023, 60286849024, 60286849025, 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 19:46	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 19:46	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 19:46	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 19:46	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 19:46	
1,2-Dichloroethane	ug/L	0.18J	1.0	0.12	11/21/18 19:46	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 19:46	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 19:46	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 19:46	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 19:46	
Acetone	ug/L	ND	10.0	1.9	11/21/18 19:46	
Benzene	ug/L	ND	1.0	0.060	11/21/18 19:46	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 19:46	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 19:46	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 19:46	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 19:46	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 19:46	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 19:46	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 19:46	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 19:46	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 19:46	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 19:46	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 19:46	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 19:46	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 19:46	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 19:46	
Styrene	ug/L	ND	1.0	0.12	11/21/18 19:46	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 19:46	
Toluene	ug/L	ND	1.0	0.17	11/21/18 19:46	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 19:46	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 19:46	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 19:46	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 19:46	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 19:46	
1,2-Dichloroethane-d4 (S)	%	103	80-117		11/21/18 19:46	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 19:46	
Toluene-d8 (S)	%	98	80-115		11/21/18 19:46	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2281618

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.8	114	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	21.1	106	74-121	
1,1,2-Trichloroethane	ug/L	20	22.0	110	83-119	
1,1-Dichloroethane	ug/L	20	21.5	108	85-128	
1,1-Dichloroethene	ug/L	20	21.8	109	85-123	
1,2-Dichloroethane	ug/L	20	20.6	103	77-120	
1,2-Dichloropropane	ug/L	20	21.2	106	81-126	
2-Butanone (MEK)	ug/L	100	99.4	99	65-134	
2-Hexanone	ug/L	100	99.3	99	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	98.6	99	62-142	
Benzene	ug/L	20	20.7	103	81-118	
Bromodichloromethane	ug/L	20	22.9	114	85-123	
Bromoform	ug/L	20	21.5	108	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.9	104	85-124	
Carbon tetrachloride	ug/L	20	23.3	117	85-126	
Chlorobenzene	ug/L	20	21.9	109	87-118	
Chloroethane	ug/L	20	21.7	108	73-134	
Chloroform	ug/L	20	21.7	108	85-119	
Chloromethane	ug/L	20	18.3	91	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.1	106	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.2	111	80-124	
Dibromochloromethane	ug/L	20	22.0	110	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	21.9	109	81-126	
Styrene	ug/L	20	21.4	107	85-120	
Tetrachloroethene	ug/L	20	22.7	114	87-120	
Toluene	ug/L	20	22.0	110	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.9	104	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.3	111	80-122	
Trichloroethene	ug/L	20	24.2	121	82-120	L1
Vinyl chloride	ug/L	20	24.3	122	74-147	
Xylene (Total)	ug/L	60	62.0	103	81-120	
1,2-Dichloroethane-d4 (S)	%			103	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			97	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281619 2281620

Parameter	Units	60286849023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.6	23.7	113	119	79-135	5	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.0	18.9	85	94	49-144	11	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.8	20.6	99	103	71-124	4	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281619 2281620

Parameter	Units	60286849023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.7	22.2	108	111	77-135	2	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.3	23.6	112	118	77-138	6	14	
1,2-Dichloroethane	ug/L	0.18J	20	20	19.2	19.6	95	97	47-152	2	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.8	20.7	104	103	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	88.5	91.5	89	92	60-125	3	17	
2-Hexanone	ug/L	ND	100	100	91.5	96.6	91	97	53-133	5	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	92.8	96.0	93	96	62-134	3	15	
Acetone	ug/L	6.6J	100	100	88.8	92.5	82	86	50-127	4	28	
Benzene	ug/L	ND	20	20	20.2	20.3	101	101	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	22.0	22.3	110	111	75-126	1	12	
Bromoform	ug/L	ND	20	20	20.6	21.8	103	109	70-122	6	14	
Bromomethane	ug/L	ND	20	20	19.4	22.9	97	114	41-155	16	42	
Carbon disulfide	ug/L	ND	20	20	21.8	22.1	109	110	70-148	1	14	
Carbon tetrachloride	ug/L	ND	20	20	24.4	24.0	122	120	78-139	2	23	
Chlorobenzene	ug/L	ND	20	20	20.9	22.2	104	111	74-130	6	10	
Chloroethane	ug/L	ND	20	20	23.6	22.8	118	114	67-153	4	27	
Chloroform	ug/L	ND	20	20	21.3	21.3	106	107	75-127	0	12	
Chloromethane	ug/L	ND	20	20	26.9	21.5	134	108	22-188	22	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	20.5	20.6	103	103	69-135	0	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.1	94	95	61-129	1	11	
Dibromochloromethane	ug/L	ND	20	20	20.6	22.8	103	114	60-133	10	14	
Ethylbenzene	ug/L	ND	20	20	21.3	21.5	106	107	60-140	1	32	
Methylene chloride	ug/L	ND	20	20	22.4	21.6	112	108	72-131	4	16	
Styrene	ug/L	ND	20	20	20.7	20.9	104	105	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	22.4	23.5	112	118	72-136	5	15	
Toluene	ug/L	ND	20	20	21.8	22.6	109	113	65-135	4	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.9	107	109	75-137	2	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.9	94	100	60-128	5	13	
Trichloroethene	ug/L	1.1	20	20	24.5	25.0	117	120	66-136	2	15	
Vinyl chloride	ug/L	ND	20	20	26.4	26.3	132	132	65-164	0	16	
Xylene (Total)	ug/L	ND			62.5	63.6				2	31	
1,2-Dichloroethane-d4 (S)	%						105	104	80-117			
4-Bromofluorobenzene (S)	%						97	101	80-119			
Toluene-d8 (S)	%						100	103	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556253 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849032, 60286849034, 60286849035, 60286849036

METHOD BLANK: 2282307 Matrix: Water
Associated Lab Samples: 60286849032, 60286849034, 60286849035, 60286849036

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 02:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 02:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/21/18 02:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 02:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 02:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 02:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 02:06	
Acetone	ug/L	ND	10.0	1.9	11/21/18 02:06	
Benzene	ug/L	ND	1.0	0.060	11/21/18 02:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 02:06	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 02:06	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 02:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 02:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 02:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 02:06	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 02:06	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 02:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 02:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 02:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 02:06	
Styrene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 02:06	
Toluene	ug/L	ND	1.0	0.17	11/21/18 02:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 02:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 02:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 02:06	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/21/18 02:06	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 02:06	
Toluene-d8 (S)	%	98	80-115		11/21/18 02:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2282308

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.7	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.3	102	77-120	
1,2-Dichloropropane	ug/L	20	20.6	103	81-126	
2-Butanone (MEK)	ug/L	100	102	102	65-134	
2-Hexanone	ug/L	100	97.8	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	66-139	
Acetone	ug/L	100	99.0	99	62-142	
Benzene	ug/L	20	19.5	97	81-118	
Bromodichloromethane	ug/L	20	22.2	111	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.7	108	85-126	
Chlorobenzene	ug/L	20	20.3	101	87-118	
Chloroethane	ug/L	20	22.1	110	73-134	
Chloroform	ug/L	20	21.0	105	85-119	
Chloromethane	ug/L	20	22.7	114	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	20.6	103	83-122	
Ethylbenzene	ug/L	20	19.4	97	80-118	
Methylene chloride	ug/L	20	22.2	111	81-126	
Styrene	ug/L	20	20.5	103	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	19.9	100	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	101	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.1	100	80-122	
Trichloroethene	ug/L	20	22.7	113	82-120	
Vinyl chloride	ug/L	20	24.5	122	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	23.2	112	116	79-135	4	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	71-124	1	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.3	21.4	107	107	77-135	0	12	
1,1-Dichloroethene	ug/L	1.3	20	20	20.6	23.8	96	112	77-138	14	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.6	20.3	98	102	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	21.5	106	107	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	95.2	98.9	95	99	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	97.3	98.8	97	99	53-133	2	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	99.2	101	99	101	62-134	2	15	
Acetone	ug/L	3.0J	100	100	90.1	93.1	87	90	50-127	3	28	
Benzene	ug/L	ND	20	20	20.1	20.8	100	104	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.5	22.5	108	112	75-126	4	12	
Bromoform	ug/L	ND	20	20	19.2	20.8	96	104	70-122	8	14	
Bromomethane	ug/L	ND	20	20	19.5	20.9	98	104	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	20.7	21.4	103	107	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.4	116	117	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	20.4	21.5	102	107	74-130	5	10	
Chloroethane	ug/L	ND	20	20	23.0	23.4	115	117	67-153	2	27	
Chloroform	ug/L	ND	20	20	21.1	20.9	106	105	75-127	1	12	
Chloromethane	ug/L	ND	20	20	16.1	16.5	80	83	22-188	3	68	
cis-1,2-Dichloroethene	ug/L	5.4	20	20	25.4	25.7	100	101	69-135	1	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.9	100	105	61-129	4	11	
Dibromochloromethane	ug/L	ND	20	20	20.3	21.7	102	108	60-133	6	14	
Ethylbenzene	ug/L	ND	20	20	19.7	20.5	98	103	60-140	4	32	
Methylene chloride	ug/L	ND	20	20	21.4	21.5	107	107	72-131	0	16	
Styrene	ug/L	ND	20	20	19.4	20.3	97	101	59-142	5	12	
Tetrachloroethene	ug/L	ND	20	20	20.5	21.6	102	108	72-136	5	15	
Toluene	ug/L	ND	20	20	20.6	20.9	103	104	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.0	108	105	75-137	3	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.2	100	101	60-128	1	13	
Trichloroethene	ug/L	141	20	20	169	167	138	130	66-136	1	15	M1
Vinyl chloride	ug/L	0.53J	20	20	25.2	25.0	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	57.2	59.3	95	99	69-133	4	31	
1,2-Dichloroethane-d4 (S)	%						105	105	80-117			
4-Bromofluorobenzene (S)	%						103	101	80-119			
Toluene-d8 (S)	%						95	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556701 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849021, 60286849023

METHOD BLANK: 2284124 Matrix: Water
Associated Lab Samples: 60286849021, 60286849023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/25/18 13:16	
Xylene (Total)	ug/L	ND	3.0	0.42	11/25/18 13:16	
1,2-Dichloroethane-d4 (S)	%	96	80-117		11/25/18 13:16	
4-Bromofluorobenzene (S)	%	101	80-119		11/25/18 13:16	
Toluene-d8 (S)	%	100	80-115		11/25/18 13:16	

LABORATORY CONTROL SAMPLE: 2284125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.0	100	82-120	
Xylene (Total)	ug/L	60	55.5	92	81-120	
1,2-Dichloroethane-d4 (S)	%			99	80-117	
4-Bromofluorobenzene (S)	%			99	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556702 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031

METHOD BLANK: 2284126 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 01:00	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 01:00	
4-Bromofluorobenzene (S)	%	97	80-119		11/26/18 01:00	
Toluene-d8 (S)	%	97	80-115		11/26/18 01:00	

LABORATORY CONTROL SAMPLE: 2284127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.2	101	82-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555798 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60286849030, 60286849031, 60286849032

METHOD BLANK: 2280423 Matrix: Water
Associated Lab Samples: 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/17/18 14:22	

LABORATORY CONTROL SAMPLE: 2280424

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.50	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280425 2280426

Parameter	Units	60286839002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	0.97	0.5	0.5	1.6	1.6	124	123	75-125	0	20	

SAMPLE DUPLICATE: 2280427

Parameter	Units	60286839002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.97	1.1	10	20	

SAMPLE DUPLICATE: 2280428

Parameter	Units	60286849032 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2280429

Parameter	Units	60286839003 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.98	ND		20	

SAMPLE DUPLICATE: 2280430

Parameter	Units	60286878004 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

SAMPLE DUPLICATE: 2280431

Parameter	Units	60286878005 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557820 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849026

METHOD BLANK: 2288554 Matrix: Water
Associated Lab Samples: 60286849026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/01/18 02:25	

LABORATORY CONTROL SAMPLE: 2288555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288556 2288557

Parameter	Units	60287003004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	67.0	25	25	96.8	92.4	119	102	90-110	5	15	M1

MATRIX SPIKE SAMPLE: 2288558

Parameter	Units	60287011001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	21.8	25	46.4	98	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 559544 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849026, 60286849027, 60286849028

METHOD BLANK: 2296207 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.48J	1.0	0.29	12/11/18 22:06	
Sulfate	mg/L	ND	1.0	0.24	12/11/18 22:06	

LABORATORY CONTROL SAMPLE: 2296208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	
Sulfate	mg/L	10	9.6	96	90-110	

MATRIX SPIKE SAMPLE: 2296211

Parameter	Units	60287946003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	169	50	226	114	90-110	E,M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 559548 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849030, 60286849031, 60286849032

METHOD BLANK: 2296223 Matrix: Water
Associated Lab Samples: 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/12/18 07:18	

LABORATORY CONTROL SAMPLE: 2296224

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	10	9.1	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2296225 2296226

Parameter	Units	60286849030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	4.3	5	5	8.9	9.1	93	96	90-110	2	15	

MATRIX SPIKE SAMPLE: 2296227

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1.3	5	5.9	93	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555437 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849027, 60286849028, 60286849030, 60286849031, 60286849032

METHOD BLANK: 2278591 Matrix: Water
Associated Lab Samples: 60286849027, 60286849028, 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/15/18 18:18	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/15/18 18:18	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/15/18 18:18	

LABORATORY CONTROL SAMPLE: 2278592

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.95	95	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE SAMPLE: 2278594

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.99	95	70-130	
Nitrogen, Nitrite	mg/L	ND	1	0.99	98	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.0	96	90-110	

SAMPLE DUPLICATE: 2278593

Parameter	Units	60286849030 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	91.4	92.7	1	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	92.0	93.3	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555770
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849026

METHOD BLANK: 2280236 Matrix: Water
Associated Lab Samples: 60286849026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 10:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 10:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 10:04	

LABORATORY CONTROL SAMPLE: 2280237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.91	91	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	103	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280238

Parameter	Units	60287044031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.16	1	0.55	39	70-130	M1
Nitrogen, Nitrite	mg/L	0.25	1	1.3	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.41	2	1.8	71	90-110	M1

SAMPLE DUPLICATE: 2280239

Parameter	Units	60286849026 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10J		20	H1
Nitrogen, Nitrite	mg/L	0.14	0.22	43	20	D6,H1
Nitrogen, NO2 plus NO3	mg/L	0.13	0.31	85	20	D6,H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556506 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849028, 60286849029, 60286849030, 60286849031, 60286849032

METHOD BLANK: 2283260 Matrix: Water
Associated Lab Samples: 60286849028, 60286849029, 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 16:46	

LABORATORY CONTROL SAMPLE: 2283261

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2283262

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	4.3	85	80-120	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556799 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849027

METHOD BLANK: 2284767 Matrix: Water
Associated Lab Samples: 60286849027

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/26/18 13:14	

LABORATORY CONTROL SAMPLE: 2284768

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	107	80-120	

MATRIX SPIKE SAMPLE: 2284769

Parameter	Units	60286668006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	5.6	100	80-120	

SAMPLE DUPLICATE: 2284770

Parameter	Units	60286668007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	ND	0.88J		25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557381 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849026, 60286849033

METHOD BLANK: 2286692 Matrix: Water
Associated Lab Samples: 60286849026, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 16:39	

LABORATORY CONTROL SAMPLE: 2286693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.8	115	80-120	

MATRIX SPIKE SAMPLE: 2286694

Parameter	Units	60287017004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	9.8	5	14.0	84	80-120	

SAMPLE DUPLICATE: 2286695

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13000	13000	1	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849033

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556701

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 556702

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
H1	Analysis conducted outside the EPA method holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849026	**MW-186-201811**	EPA 3010	557239	EPA 6010	557370
60286849027	**MW-185-201811**	EPA 3010	557239	EPA 6010	557370
60286849028	**TMW-34-201811**	EPA 3010	557239	EPA 6010	557370
60286849029	**MW-194-201811**	EPA 3010	557239	EPA 6010	557370
60286849030	**MW-89-201811**	EPA 3010	557239	EPA 6010	557370
60286849031	**IW-73-201811**	EPA 3010	557239	EPA 6010	557370
60286849032	**RW-69-201811**	EPA 3010	557239	EPA 6010	557370
60286849033	**TMW-30-201811**	EPA 3010	557239	EPA 6010	557370
60286849001	**MW-188-201811**	EPA 5030B/8260	555989		
60286849002	**TMW-19-201811**	EPA 5030B/8260	555989		
60286849003	**TMW-27-201811**	EPA 5030B/8260	555989		
60286849004	**MW-178-201811**	EPA 5030B/8260	555989		
60286849005	**MW-84-201811**	EPA 5030B/8260	555989		
60286849006	**MW-83-201811**	EPA 5030B/8260	555989		
60286849007	**MW-22-201811**	EPA 5030B/8260	555989		
60286849008	**MW-56R-201811**	EPA 5030B/8260	555989		
60286849009	**MW-57R-201811**	EPA 5030B/8260	555989		
60286849010	**MW-46R-201811**	EPA 5030B/8260	555989		
60286849011	**MW-60R-201811**	EPA 5030B/8260	555989		
60286849012	**MW-40R-201811**	EPA 5030B/8260	555989		
60286849013	**MW-62R-201811**	EPA 5030B/8260	555989		
60286849014	**MW-63R-201811**	EPA 5030B/8260	555989		
60286849015	**MW-26-201811**	EPA 5030B/8260	555990		
60286849016	**DUP-09-201811**	EPA 5030B/8260	555990		
60286849017	**ITMW-20-201811**	EPA 5030B/8260	555990		
60286849018	**EB-03-201811**	EPA 5030B/8260	555990		
60286849019	**MW-191-201811**	EPA 5030B/8260	555990		
60286849020	**TMW-14-201811**	EPA 5030B/8260	555990		
60286849021	**ITMW-10-201811**	EPA 5030B/8260	555990		
60286849021	**ITMW-10-201811**	EPA 5030B/8260	556701		
60286849022	**MW-184-201811**	EPA 5030B/8260	555990		
60286849023	**MW-183R-201811**	EPA 5030B/8260	555990		
60286849023	**MW-183R-201811**	EPA 5030B/8260	556701		
60286849024	**MW-98-201811**	EPA 5030B/8260	555990		
60286849025	**EB-04-201811**	EPA 5030B/8260	555990		
60286849026	**MW-186-201811**	EPA 5030B/8260	555990		
60286849026	**MW-186-201811**	EPA 5030B/8260	556702		
60286849027	**MW-185-201811**	EPA 5030B/8260	555990		
60286849027	**MW-185-201811**	EPA 5030B/8260	556702		
60286849028	**TMW-34-201811**	EPA 5030B/8260	555990		
60286849028	**TMW-34-201811**	EPA 5030B/8260	556702		
60286849029	**MW-194-201811**	EPA 5030B/8260	555990		

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849029	**MW-194-201811**	EPA 5030B/8260	556702		
60286849030	**MW-89-201811**	EPA 5030B/8260	555990		
60286849030	**MW-89-201811**	EPA 5030B/8260	556702		
60286849031	**IW-73-201811**	EPA 5030B/8260	555990		
60286849031	**IW-73-201811**	EPA 5030B/8260	556702		
60286849032	**RW-69-201811**	EPA 5030B/8260	556253		
60286849033	**TMW-30-201811**	EPA 5030B/8260	555990		
60286849034	**TRIP BLANK**	EPA 5030B/8260	556253		
60286849035	**TRIP BLANK 2**	EPA 5030B/8260	556253		
60286849036	**EB-05-201811**	EPA 5030B/8260	556253		
60286849030	**MW-89-201811**	SM 4500-S-2 D	555798		
60286849031	**IW-73-201811**	SM 4500-S-2 D	555798		
60286849032	**RW-69-201811**	SM 4500-S-2 D	555798		
60286849026	**MW-186-201811**	EPA 300.0	557820		
60286849026	**MW-186-201811**	EPA 300.0	559544		
60286849027	**MW-185-201811**	EPA 300.0	559544		
60286849028	**TMW-34-201811**	EPA 300.0	559544		
60286849030	**MW-89-201811**	EPA 300.0	559548		
60286849031	**IW-73-201811**	EPA 300.0	559548		
60286849032	**RW-69-201811**	EPA 300.0	559548		
60286849026	**MW-186-201811**	EPA 353.2	555770		
60286849027	**MW-185-201811**	EPA 353.2	555437		
60286849028	**TMW-34-201811**	EPA 353.2	555437		
60286849030	**MW-89-201811**	EPA 353.2	555437		
60286849031	**IW-73-201811**	EPA 353.2	555437		
60286849032	**RW-69-201811**	EPA 353.2	555437		
60286849026	**MW-186-201811**	SM 5310C	557381		
60286849027	**MW-185-201811**	SM 5310C	556799		
60286849028	**TMW-34-201811**	SM 5310C	556506		
60286849029	**MW-194-201811**	SM 5310C	556506		
60286849030	**MW-89-201811**	SM 5310C	556506		
60286849031	**IW-73-201811**	SM 5310C	556506		
60286849032	**RW-69-201811**	SM 5310C	556506		
60286849033	**TMW-30-201811**	SM 5310C	557381		
60286849026	**MW-186-201811**	SM 5310C	556798		
60286849027	**MW-185-201811**	SM 5310C	556798		
60286849028	**TMW-34-201811**	SM 5310C	556798		
60286849029	**MW-194-201811**	SM 5310C	556798		
60286849033	**TMW-30-201811**	SM 5310C	556798		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affi ALL S

WO# : 60286849

60286849

MTJL Log-in

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **

(3)

Lab Project Manager:

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com jpavlowsky@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690001033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

Analyses

LAB Profile/Line: 7444 Line 1

Phone: Email: 314-833-7325

Site/Facility ID #: Whirlpool

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): JoPavlowsky

Purchase Order#

DW PWS ID #:

Collected by (signature):

Quote #

DW Location Code #:

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: dissolved organic carbon

8260 Full List VOCs

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	Y	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	(Y)	N	NA
pH Strips: 9881-1			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-188-201811	GW	G	11-14-18	0920				3	X	3DC917
TMW-19-201811				1020				3		
TMW-19-201811-MS				1020				3		
TMW-19-201811-MSD				1020				3		
TMW-27-201811				1130				3		
MW-187-201811				1345				3		
MW-192-201811				1505				3		
DUP-07-201811				1500				3		
ITMW-18-201811				1700				3		
MW-178-201811	GW	G		1120				3		3DC917

Customer Remarks/ Special Conditions/ Possible Hazards:

page 1 of 5

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc, Bubble Bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JoPavlowsky IREM	11/14/18 1800	UPS	11-15-18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.4 oC 1.2

Cooler Therm Corr. Factor +0.2 oC 0.2

Cooler Temp Corrected 0.6 oC 1.4

Comments:

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

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F-ALL-C-010-rev.00, 05Jul2018

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller [see 1st page]

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns			↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-178-201811-MS	GW	G	11-14-18	1120				3	X		→ D6DH
MW-178-201811-MSD				1120				3	X		↓
MW-84-201811				0920				3		X	3 O+HR
MW-83-201811				1050				3		X	↓
MW-22-201811				1245				3	X		3 D69H
MW-56R-201811				1425				3	X		
MW-57R-201811				1540				3	X		
MW-46R-201811				1710				3	X		
MW-60R-201811				0920				3	X		
MW-40R-201811				1050				3	X		→ (9) DLH

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc Bubblebag

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS (Client) (Courier) [ ] Pace Courier [ ]

cc 11-15-18

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[signature] /REH	11/14/18	[signature]	11-15-18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 oC 1.2
Cooler Therm Corr. Factor +0.2 oC +0.2
Cooler Temp Corrected 0.6 oC 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight [See page 1]

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Container Preservative Type **: (3)

Lab Project Manager:

**Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 VOCs Full List

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	Y	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-40R-20181l-MS	GW	G	11-14-18	1050				3	X 30C 9H bottles
MW-40R-20181l-MSD				1052				3	
MW-62R-20181l				1210				3	
MW-63R-20181l				1340				3	
MW-26-20181l				1525				3	
DUP-09-20181l				1525				3	
TMW-20-20181l				1625				3	
EB-03-20181l				1700				3	
MW-191-20181l				1455				3	
TMW-14-20181l				1551				3	

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet (1) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc, Bubblebags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client (Courier) [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		W.C.pt 1 Pass.	11.15.18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:
Temp Blank received: (Y) N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor +0.2 °C +0.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

(see page #1)

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

(3)	D	U	U	45	1	2	U	U	U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Volatile Fatty Acid	Dissolved Org. Carbon	Sulfate/Nitrate/Chloride	Sulfide	metals (total iron)	total organic carbon	MEG	MEEA	sulfate/nitrate
ITMW-10-201811	GW	G	11-14-18	1737				3	X									
MW-184-201811				0947				3										
MW-183R-201811				1123				3										
MW-183R-201811-MS				1123				3										
MW-183R-201811-MSD				1123				3										
MW-98-201811				1351				3										
EB-09-201811	OT			1740				3										
MW-186-201811	BPJU			1005		BPJN		12	X	X	X	X		X	X	X		
MW-185-201811				1140				12	X	X	X	X		X	X	X		
TMW-3A-201811				1500				12	X	X	X	X		X	X	X		

3D69H

A63S, A63U, 3D69Q, 2D69U

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓
Lab Sample # / Comments

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc Bubble Bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor +0.2 °C +0.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		M Ziot / Pace	11.15.18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page #1)

State / County/City / Time Zone Collected PT MT CT ET

Phone: Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (D) (U) (U) (4) (5) (7) (2) (U) (U) (U)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: 8260 full list VOCs; Volatile Fatty Acids; Dissolved Organic Carbon; Sulfate/Nitrate/Chloride; Sulfide; Metals (total iron); total organic carbon; MEE; MEE; Sulfate/nitrate

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	Lab Sample # / Comments
MW-194-201811	GW	G	11-14-18	1720				12	3D69H, BP3U, 2DG8U
MW-89-201811	GW	G		1010				9	
IW-73-201811	GW	G		1510				9	
RW-69-201811	GW	G		1230				9	
RW-69-201811-MS	GW	G		1230				3	
RW-69-201811-MSD	GW	G		1230				3	
TMW-30-201811	GW	G						12	
Trip Blank	OT	-		-				2	
Trip Blank	OT	-		-				2	
EB-05-201811	OT	G		1710				3	

Customer Remarks/ Special Conditions/ Possible Hazards: Last page

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zip, Bubble bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.4 oC 1.2

Cooler Therm Corr. Factor +0.2 oC +0.2

Cooler Temp Corrected 0.6 oC

Comments: 1,4

Trip Blank Received: Y N N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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F-ALL-C-010-rev.00, 05Jul2018

030

5

60286849

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

Date: 11.15.18	Evaluated by: MZ, pf, RGS
Client: Kimball	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

	Collection date/time missing or incorrect		Analyses or analytes: missing or clarification needed		Samples listed on COC do not match samples received (missing, additional, etc.)
	Sample IDs on COC do not match sample labels		Required trip blanks were not received		Required signatures are missing

Comments/Details/Other Issues not listed above: I am missing Samples, 3069H for MW-187-201811 MW-192-201811, Dup-07-201811, ITMW-18-201811

Did not have volume for BP3Z for MW-194-201811, TMW-30-201811

3. Sample integrity issues: check applicable issues below and add details where appropriate:

	Samples: Past holding time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samples: Not field filtered		Containers: Broken or compromised		Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temperature: Samples arrived frozen
	Samples: Cooler damaged or compromised		Custody Seals: Missing or compromised on samples, trip blanks or coolers		Vials received with improper headspace
	Samples: contain chlorine or sulfides		Packing Material: Insufficient/Improper		Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:	
PM Initials:	Date/Time:	

Client Comments/Instructions:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 30, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **FORT SMITH, AR / 60286849**

Pace Workorder: 28752

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, November 19, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/30/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 16

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Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287520001	MW-186-201811	Water	11/14/2018 10:05	11/19/2018 08:00
287520002	MW-185-201811	Water	11/14/2018 11:40	11/19/2018 08:00
287520003	TMW-34-201811	Water	11/14/2018 15:00	11/19/2018 08:00
287520004	MW-194-201811	Water	11/14/2018 17:20	11/19/2018 08:00

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PROJECT SUMMARY

Workorder: 28752 FORT SMITH, AR / 60286849

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520001** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-186-201811** Date Collected: 11/14/2018 10:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**3500**	mg/l	100	24	1000	11/26/2018 16:38	KB	d,B
Propionic Acid	**14000**	mg/l	1000	44	10000	11/26/2018 17:35	KB	d,B
Butyric Acid	**1000**	mg/l	100	4.7	1000	11/26/2018 16:38	KB	d,B
i-Pentanoic Acid	**22**	mg/l	10	0.75	100	11/26/2018 15:42	KB	d
Pentanoic Acid	**580**	mg/l	100	12	1000	11/26/2018 16:38	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**14000**	ug/l	0.50	0.014	1	11/21/2018 20:41	BW	n
Ethane	**0.50**	ug/l	0.10	0.0070	1	11/21/2018 20:41	BW	n
Ethene	**6.6**	ug/l	0.10	0.0050	1	11/21/2018 20:41	BW	n

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Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520002** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-185-201811** Date Collected: 11/14/2018 11:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**2.8**	mg/l	1.0	0.24	10	11/21/2018 18:02	KB	d,M3,B,M5
Propionic Acid	**2.5**	mg/l	1.0	0.044	10	11/21/2018 18:02	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 18:02	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 18:02	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 18:02	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.014	1	11/21/2018 20:51	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/21/2018 20:51	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/21/2018 20:51	BW	n

nelac

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Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520003** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **TMW-34-201811** Date Collected: 11/14/2018 15:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**1.8**	mg/l	1.0	0.24	10	11/21/2018 18:58	KB	d,M3,B,M5
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/21/2018 18:58	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 18:58	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 18:58	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 18:58	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**4700**	ug/l	0.50	0.014	1	11/21/2018 21:00	BW	n
Ethane	**1.1**	ug/l	0.10	0.0070	1	11/21/2018 21:00	BW	n
Ethene	**0.73**	ug/l	0.10	0.0050	1	11/21/2018 21:00	BW	n

nelac

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520004** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-194-201811** Date Collected: 11/14/2018 17:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**2.5**	mg/l	1.0	0.24	10	11/21/2018 19:55	KB	d,M3,B,M5
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/21/2018 19:55	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 19:55	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 19:55	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 19:55	KB	d

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS QUALIFIERS

Workorder: 28752 FORT SMITH, AR / 60286849

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
M3	The matrix spike sample recovery was outside laboratory control limits.

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Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287520002, 287520003, 287520004

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.25	0.10	M3,B,M5
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
i-Pentanoic Acid	mg/l	<0.10	0.10	
Pentanoic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	2.3	114	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.1	105	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
i-Pentanoic Acid	mg/l	2	2.0	100	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	120	20	150	150	145	150	70-130	0.67	30	d,M3,B,M5
Propionic Acid	mg/l	73	20	87	88	70	73	70-130	0.5	30	d,B
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
i-Pentanoic Acid	mg/l	1.6	20	23	23	107	108	70-130	0.99	30	d
Pentanoic Acid	mg/l	1.9	20	24	24	111	112	70-130	0.61	30	d

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Pittsburgh, PA 15238
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Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: DISG/7224 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287520001, 287520002, 287520003

METHOD BLANK: 58622

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 58624 58626

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	740	97	99	80-120	2.1	20	n
Ethane	ug/l	38	40	40	105	106	80-120	1.3	20	n
Ethene	ug/l	35	38	38	107	108	80-120	1.1	20	n

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287520001

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
i-Pentanoic Acid	mg/l	<0.10	0.10	
Pentanoic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
i-Pentanoic Acid	mg/l	2	2.0	100	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28752 FORT SMITH, AR / 60286849

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
M3	The matrix spike sample recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287520002	MW-185-201811			AM23G	EDON/3943
287520003	TMW-34-201811			AM23G	EDON/3943
287520004	MW-194-201811			AM23G	EDON/3943
287520001	MW-186-201811			AM20GAX	DISG/7224
287520002	MW-185-201811			AM20GAX	DISG/7224
287520003	TMW-34-201811			AM20GAX	DISG/7224
287520001	MW-186-201811			AM23G	EDON/3944

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Chain of Custody

28752

Pace Analytical®
www.pacelabs.com

Workorder: 60286849 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 11/29/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9565	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: TSP	Preserved Containers: Unpres	VFA	VFA & MEE	LAB USE ONLY
1	MW-186-201811	11/14/2018 10:05	60286849026	Water	3	2		X	
2	MW-185-201811	11/14/2018 11:40	60286849027	Water	3	2		X	
3	TMW-34-201811	11/14/2018 15:00	60286849028	Water	3	2		X	
4	MW-194-201811	11/14/2018 17:20	60286849029	Water		2	X		
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler/PASI	11/16/18 1800	Lora PAS	11.19.18
2				0800
3				

Comments

Cooler Temperature on Receipt 3.0 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

Cooler Receipt Form

Client Name: Pace **Project:** Forth Smith **Lab Work Order:** 28752

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 459227863250

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 3°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : LY **Date:** 11.19.18

Project Manager Review : ERJ **Date:** 11-19-18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 10, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church for
Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287044001	DUP-07-201811	Water	11/14/18 15:00	11/16/18 05:50
60287044002	MW-192-201811	Water	11/14/18 15:05	11/16/18 05:50
60287044003	MW-187-201811	Water	11/14/18 13:45	11/16/18 05:50
60287044004	ITMW-18-201811	Water	11/14/18 17:00	11/16/18 05:50
60287044005	MW-96-201811	Water	11/15/18 09:45	11/16/18 05:50
60287044006	MW-97-201811	Water	11/15/18 11:42	11/16/18 05:50
60287044007	MW-24-201811	Water	11/15/18 13:35	11/16/18 05:50
60287044008	DUP-02-201811	Water	11/15/18 13:25	11/16/18 05:50
60287044009	MW-55R-201811	Water	11/15/18 15:56	11/16/18 05:50
60287044010	DUP-08-201811	Water	11/15/18 15:56	11/16/18 05:50
60287044011	IW-77-201811	Water	11/15/18 17:10	11/16/18 05:50
60287044012	TMW-12-201811	Water	11/15/18 09:30	11/16/18 05:50
60287044013	DUP-04-201811	Water	11/15/18 09:30	11/16/18 05:50
60287044014	MW-82-201811	Water	11/15/18 11:15	11/16/18 05:50
60287044015	ITMW-7-201811	Water	11/15/18 13:30	11/16/18 05:50
60287044016	ITMW-19-201811	Water	11/15/18 14:30	11/16/18 05:50
60287044017	MW-93-201811	Water	11/15/18 15:45	11/16/18 05:50
60287044018	MW-189-201811	Water	11/15/18 16:55	11/16/18 05:50
60287044019	TRIP BLANK	Water	11/15/18 08:00	11/16/18 05:50
60287044020	EB-01-201811	Water	11/15/18 08:00	11/16/18 05:50
60287044021	MW-190-201811	Water	11/15/18 09:25	11/16/18 05:50
60287044022	ITMW-21-201811	Water	11/15/18 11:01	11/16/18 05:50
60287044023	ITMW-1-201811	Water	11/15/18 12:25	11/16/18 05:50
60287044024	ITMW-5-201811	Water	11/15/18 14:25	11/16/18 05:50
60287044025	MW-91-201811	Water	11/15/18 15:45	11/16/18 05:50
60287044026	MW-29-201811	Water	11/15/18 09:10	11/16/18 05:50
60287044027	MW-39R-201811	Water	11/15/18 10:30	11/16/18 05:50
60287044028	MW-182-201811	Water	11/15/18 14:30	11/16/18 05:50
60287044029	IW-78-201811	Water	11/15/18 15:25	11/16/18 05:50
60287044030	TMW-24-201811	Water	11/15/18 17:00	11/16/18 05:50
60287044031	TMW-26-201811	Water	11/15/18 11:15	11/16/18 05:50
60287044032	TMW-25-201811	Water	11/15/18 13:30	11/16/18 05:50
60287044033	TMW-21-201811	Water	11/15/18 15:15	11/16/18 05:50
60287044034	TMW-22R-201811	Water	11/15/18 16:50	11/16/18 05:50
60287044035	MW-58R-201811	Water	11/15/18 14:00	11/16/18 05:50
60287044036	DUP-05-201811	Water	11/15/18 14:00	11/16/18 05:50
60287044037	MW-95-201811	Water	11/15/18 15:55	11/16/18 05:50

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287044038	**ITMW-9-201811**	Water	11/15/18 15:20	11/16/18 05:50
60287044039	**MW-87-201811**	Water	11/15/18 13:30	11/16/18 05:50
60287044040	**MW-38-201811**	Water	11/15/18 09:55	11/16/18 05:50
60287044041	**TRIP BLANK**	Water	11/15/18 08:00	11/16/18 05:50
60287044042	**TRIP BLANK**	Water	11/15/18 08:00	11/16/18 05:50

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287044001	DUP-07-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044002	MW-192-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044003	MW-187-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044004	ITMW-18-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044005	MW-96-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044006	MW-97-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044007	MW-24-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044008	DUP-02-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044009	MW-55R-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044010	DUP-08-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044011	IW-77-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044012	TMW-12-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044013	DUP-04-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044014	MW-82-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044015	ITMW-7-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044016	ITMW-19-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044017	MW-93-201811	EPA 5030B/8260	EAG, PGH	38	PASI-K
60287044018	MW-189-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044019	TRIP BLANK	EPA 5030B/8260	PGH	38	PASI-K
60287044020	EB-01-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044021	MW-190-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044022	ITMW-21-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044023	ITMW-1-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044024	ITMW-5-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044025	MW-91-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044026	MW-29-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044027	MW-39R-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044028	MW-182-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044029	IW-78-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044030	TMW-24-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044031	TMW-26-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044032	TMW-25-201811	EPA 6010	EMR	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044033	**TMW-21-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044034	**TMW-22R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044035	**MW-58R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044036	**DUP-05-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287044037	**MW-95-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG, PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044038	**ITMW-9-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044039	**MW-87-201811**	EPA 6010	EMR	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044040	**MW-38-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044041	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60287044042	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K

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(913)599-5665

PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 557483

B: Analyte was detected in the associated method blank.
- BLANK for HBN 557483 [MPRP/482 (Lab ID: 2287058)
  - Iron

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
42 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- TMW-21-201811 (Lab ID: 60287044033)
- TMW-25-201811 (Lab ID: 60287044032)
- TMW-26-201811 (Lab ID: 60287044031)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: 556704

S0: Surrogate recovery outside laboratory control limits.
- TRIP BLANK (Lab ID: 60287044041)
  - 1,2-Dichloroethane-d4 (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 556488

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556488 [MSV/9341 (Lab ID: 2283209)
  - 1,2-Dichloroethane

QC Batch: 556704

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556704 [MSV/9344 (Lab ID: 2284130)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

QC Batch: 556489

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 2283212)
  - Trichloroethene

QC Batch: 557295

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 2286313)
  - Carbon disulfide

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556253

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286849032

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2282309)
  - Trichloroethene

QC Batch: 556483

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556488

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556489

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556702

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556704

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556810

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556812

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557295

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
5 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 558789

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031,60287132005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2292728)
  - Sulfate
- MS (Lab ID: 2292730)
  - Sulfate
- MSD (Lab ID: 2292729)
  - Sulfate

QC Batch: 559201

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044033,60287044038

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2295157)
  - Sulfate
- MS (Lab ID: 2295159)
  - Sulfate
- MSD (Lab ID: 2295158)
  - Sulfate

Additional Comments:

Analyte Comments:

QC Batch: 558789

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MSD (Lab ID: 2292729)
  - Sulfate

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555770

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2280238)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrate

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 555770

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 2280239)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-07-201811 **Lab ID: 60287044001** Collected: 11/14/18 15:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 05:10	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 05:10	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 05:10	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 05:10	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 05:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 05:10	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 05:10	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 05:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 05:10	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:10	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 05:10	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 05:10	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 05:10	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 05:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 05:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 05:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 05:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 05:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 05:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 05:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 05:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 05:10	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 05:10	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 05:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 05:10	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 05:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 05:10	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 05:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 05:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 05:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/23/18 10:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 05:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 05:10	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/21/18 05:10	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/21/18 05:10	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 05:10	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 05:10		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-192-201811 **Lab ID: 60287044002** Collected: 11/14/18 15:05 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/21/18 04:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 04:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 04:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 04:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 04:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 04:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 04:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 04:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 04:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:28	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 04:28	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 04:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 04:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 04:28	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/21/18 04:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 04:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 04:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 04:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 04:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 04:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 04:28	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 04:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 04:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 04:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 04:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 04:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 04:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 04:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 04:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 04:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 04:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 04:28	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/21/18 04:28	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 04:28	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 04:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-187-201811 **Lab ID: 60287044003** Collected: 11/14/18 13:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/21/18 04:42	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 04:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 04:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 04:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 04:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 04:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 04:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 04:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 04:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 04:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 04:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 04:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 04:42	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 04:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:42	75-35-4	
cis-1,2-Dichloroethene	**0.81J**	ug/L	1.0	0.080	1		11/21/18 04:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 04:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 04:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 04:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 04:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 04:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 04:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 04:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 04:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 04:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 04:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 04:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 04:42	79-00-5	
Trichloroethene	**0.86J**	ug/L	1.0	0.17	1		11/21/18 04:42	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 04:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 04:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 04:42	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/21/18 04:42	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/21/18 04:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 04:42		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-18-201811 **Lab ID: 60287044004** Collected: 11/14/18 17:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		11/21/18 04:56	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 04:56	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 04:56	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 04:56	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 04:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 04:56	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 04:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 04:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 04:56	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:56	75-00-3	
Chloroform	**0.52J**	ug/L	1.0	0.14	1		11/21/18 04:56	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 04:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 04:56	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 04:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 04:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:56	75-35-4	
cis-1,2-Dichloroethene	**55.3**	ug/L	1.0	0.080	1		11/21/18 04:56	156-59-2	
trans-1,2-Dichloroethene	**10.3**	ug/L	1.0	0.20	1		11/21/18 04:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 04:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 04:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 04:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 04:56	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 04:56	591-78-6	
Methylene chloride	**0.62J**	ug/L	1.0	0.15	1		11/21/18 04:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 04:56	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 04:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:56	79-34-5	
Tetrachloroethene	**0.26J**	ug/L	1.0	0.10	1		11/21/18 04:56	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 04:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 04:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 04:56	79-00-5	
Trichloroethene	**641**	ug/L	10.0	1.7	10		11/23/18 10:56	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 04:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 04:56	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 04:56	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/21/18 04:56	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 04:56	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 04:56		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-96-201811 **Lab ID: 60287044005** Collected: 11/15/18 09:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.0J**	ug/L	10.0	1.9	1		11/23/18 23:37	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/23/18 23:37	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/23/18 23:37	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/23/18 23:37	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/23/18 23:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/23/18 23:37	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/23/18 23:37	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/23/18 23:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/23/18 23:37	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:37	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/23/18 23:37	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/23/18 23:37	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/23/18 23:37	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/23/18 23:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/23/18 23:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/23/18 23:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/23/18 23:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/23/18 23:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/23/18 23:37	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/23/18 23:37	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/23/18 23:37	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/23/18 23:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/23/18 23:37	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/23/18 23:37	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/23/18 23:37	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/23/18 23:37	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/23/18 23:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/23/18 23:37	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/23/18 23:37	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/23/18 23:37	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/23/18 23:37	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/23/18 23:37	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/23/18 23:37	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/23/18 23:37	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/23/18 23:37		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-97-201811 **Lab ID: 60287044006** Collected: 11/15/18 11:42 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/23/18 23:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/23/18 23:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/23/18 23:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/23/18 23:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/23/18 23:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/23/18 23:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/23/18 23:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/23/18 23:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/23/18 23:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/23/18 23:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/23/18 23:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/23/18 23:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/23/18 23:51	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/23/18 23:51	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/23/18 23:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/23/18 23:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/23/18 23:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/23/18 23:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/23/18 23:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/23/18 23:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/23/18 23:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/23/18 23:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/23/18 23:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/23/18 23:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/23/18 23:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/23/18 23:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/23/18 23:51	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/23/18 23:51	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/23/18 23:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/23/18 23:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/23/18 23:51	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/23/18 23:51	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/23/18 23:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/23/18 23:51		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-24-201811 **Lab ID: 60287044007** Collected: 11/15/18 13:35 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**23.4**	ug/L	10.0	1.9	1		11/24/18 00:19	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 00:19	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:19	75-27-4	
Bromoform	**27.6**	ug/L	1.0	0.070	1		11/24/18 00:19	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:19	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:19	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:19	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:19	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:19	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:19	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 00:19	67-66-3	
Chloromethane	**1.8**	ug/L	1.0	0.080	1		11/24/18 00:19	74-87-3	
Dibromochloromethane	**1.0**	ug/L	1.0	0.21	1		11/24/18 00:19	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:19	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:19	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 00:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:19	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:19	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:19	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:19	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:19	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:19	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:19	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:19	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:19	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:19	79-00-5	
Trichloroethene	**12.6**	ug/L	1.0	0.17	1		11/24/18 00:19	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:19	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:19	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 00:19	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 00:19	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 00:19	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:19		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-02-201811 **Lab ID: 60287044008** Collected: 11/15/18 13:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**19.5**	ug/L	10.0	1.9	1		11/24/18 00:47	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 00:47	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:47	75-27-4	
Bromoform	**27.1**	ug/L	1.0	0.070	1		11/24/18 00:47	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:47	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:47	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:47	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:47	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:47	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 00:47	67-66-3	
Chloromethane	**1.9**	ug/L	1.0	0.080	1		11/24/18 00:47	74-87-3	
Dibromochloromethane	**1.0**	ug/L	1.0	0.21	1		11/24/18 00:47	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 00:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:47	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:47	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:47	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:47	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:47	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:47	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:47	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:47	79-00-5	
Trichloroethene	**12.5**	ug/L	1.0	0.17	1		11/24/18 00:47	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:47	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:47	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 00:47	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/24/18 00:47	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/24/18 00:47	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:47		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-55R-201811 **Lab ID: 60287044009** Collected: 11/15/18 15:56 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.6J**	ug/L	10.0	1.9	1		11/24/18 00:05	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 00:05	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:05	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 00:05	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:05	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:05	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:05	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:05	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:05	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 00:05	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 00:05	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 00:05	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:05	107-06-2	
1,1-Dichloroethene	**0.36J**	ug/L	1.0	0.20	1		11/24/18 00:05	75-35-4	
cis-1,2-Dichloroethene	**0.91J**	ug/L	1.0	0.080	1		11/24/18 00:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:05	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:05	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:05	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:05	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:05	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:05	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:05	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:05	79-00-5	
Trichloroethene	**22.3**	ug/L	1.0	0.17	1		11/24/18 00:05	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:05	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:05	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 00:05	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/24/18 00:05	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/24/18 00:05	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:05		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-08-201811 **Lab ID: 60287044010** Collected: 11/15/18 15:56 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		11/24/18 01:01	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 01:01	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 01:01	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 01:01	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 01:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 01:01	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 01:01	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 01:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 01:01	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 01:01	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 01:01	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 01:01	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 01:01	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 01:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 01:01	107-06-2	
1,1-Dichloroethene	**0.32J**	ug/L	1.0	0.20	1		11/24/18 01:01	75-35-4	
cis-1,2-Dichloroethene	**0.85J**	ug/L	1.0	0.080	1		11/24/18 01:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 01:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 01:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 01:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 01:01	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 01:01	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 01:01	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 01:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 01:01	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 01:01	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 01:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 01:01	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 01:01	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 01:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 01:01	79-00-5	
Trichloroethene	**23.1**	ug/L	1.0	0.17	1		11/24/18 01:01	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 01:01	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 01:01	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/24/18 01:01	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/24/18 01:01	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 01:01	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 01:01		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: IW-77-201811 **Lab ID: 60287044011** Collected: 11/15/18 17:10 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.8J**	ug/L	10.0	1.9	1		11/24/18 00:33	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/24/18 00:33	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:33	75-27-4	
Bromoform	**1.5**	ug/L	1.0	0.070	1		11/24/18 00:33	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:33	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:33	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:33	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:33	75-00-3	
Chloroform	**0.19J**	ug/L	1.0	0.14	1		11/24/18 00:33	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 00:33	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 00:33	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:33	107-06-2	
1,1-Dichloroethene	**0.41J**	ug/L	1.0	0.20	1		11/24/18 00:33	75-35-4	
cis-1,2-Dichloroethene	**5.1**	ug/L	1.0	0.080	1		11/24/18 00:33	156-59-2	
trans-1,2-Dichloroethene	**0.59J**	ug/L	1.0	0.20	1		11/24/18 00:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:33	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:33	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:33	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:33	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:33	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:33	79-00-5	
Trichloroethene	**218**	ug/L	5.0	0.85	5		11/26/18 05:13	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:33	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:33	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 00:33	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/24/18 00:33	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 00:33	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:33		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-12-201811 **Lab ID: 60287044012** Collected: 11/15/18 09:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 06:25	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 06:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 06:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 06:25	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 06:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 06:25	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 06:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 06:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 06:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 06:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 06:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 06:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 06:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 06:25	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/24/18 06:25	75-35-4	
cis-1,2-Dichloroethene	**13.7**	ug/L	1.0	0.080	1		11/24/18 06:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 06:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 06:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 06:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 06:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 06:25	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 06:25	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 06:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 06:25	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 06:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 06:25	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 06:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 06:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 06:25	79-00-5	
Trichloroethene	**429**	ug/L	10.0	1.7	10		11/26/18 05:27	79-01-6	
Vinyl chloride	**0.41J**	ug/L	1.0	0.13	1		11/24/18 06:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 06:25	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/24/18 06:25	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 06:25	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/24/18 06:25	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 06:25		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-04-201811 **Lab ID: 60287044013** Collected: 11/15/18 09:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.1J**	ug/L	10.0	1.9	1		11/24/18 05:15	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 05:15	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 05:15	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 05:15	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 05:15	74-83-9	
2-Butanone (MEK)	**3.7J**	ug/L	10.0	0.59	1		11/24/18 05:15	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 05:15	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 05:15	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 05:15	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:15	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 05:15	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 05:15	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 05:15	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 05:15	75-34-3	
1,2-Dichloroethane	**0.26J**	ug/L	1.0	0.12	1		11/24/18 05:15	107-06-2	
1,1-Dichloroethene	**1.8**	ug/L	1.0	0.20	1		11/24/18 05:15	75-35-4	
cis-1,2-Dichloroethene	**12.8**	ug/L	1.0	0.080	1		11/24/18 05:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 05:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 05:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 05:15	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 05:15	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 05:15	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 05:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 05:15	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 05:15	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:15	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 05:15	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 05:15	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 05:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 05:15	79-00-5	
Trichloroethene	**470**	ug/L	10.0	1.7	10		11/26/18 05:41	79-01-6	
Vinyl chloride	**0.37J**	ug/L	1.0	0.13	1		11/24/18 05:15	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 05:15	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 05:15	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	80-117		1		11/24/18 05:15	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/24/18 05:15	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 05:15		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-82-201811 **Lab ID: 60287044014** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**28.8**	ug/L	10.0	1.9	1		11/24/18 02:54	67-64-1	
Benzene	**0.16J**	ug/L	1.0	0.060	1		11/24/18 02:54	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 02:54	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 02:54	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 02:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 02:54	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 02:54	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 02:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 02:54	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:54	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 02:54	67-66-3	
Chloromethane	**0.30J**	ug/L	1.0	0.080	1		11/24/18 02:54	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 02:54	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 02:54	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/24/18 02:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:54	75-35-4	
cis-1,2-Dichloroethene	**1.2**	ug/L	1.0	0.080	1		11/24/18 02:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 02:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 02:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 02:54	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 02:54	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 02:54	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 02:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 02:54	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 02:54	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 02:54	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 02:54	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 02:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 02:54	79-00-5	
Trichloroethene	**60.3**	ug/L	1.0	0.17	1		11/27/18 00:22	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 02:54	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 02:54	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 02:54	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/24/18 02:54	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 02:54	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 02:54		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-7-201811 **Lab ID: 60287044015** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		11/24/18 03:08	67-64-1	
Benzene	**0.14J**	ug/L	1.0	0.060	1		11/24/18 03:08	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:08	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:08	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:08	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:08	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:08	56-23-5	
Chlorobenzene	**3.1**	ug/L	1.0	0.21	1		11/24/18 03:08	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:08	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:08	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:08	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:08	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 03:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:08	75-35-4	
cis-1,2-Dichloroethene	**7.3**	ug/L	1.0	0.080	1		11/24/18 03:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:08	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:08	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:08	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:08	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:08	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:08	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:08	79-00-5	
Trichloroethene	**22.8**	ug/L	1.0	0.17	1		11/27/18 00:36	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:08	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:08	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		11/24/18 03:08	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/24/18 03:08	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 03:08	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:08		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-19-201811 **Lab ID: 60287044016** Collected: 11/15/18 14:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**16.4**	ug/L	10.0	1.9	1		11/24/18 05:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 05:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 05:28	75-27-4	
Bromoform	**5.3**	ug/L	1.0	0.070	1		11/24/18 05:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 05:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 05:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 05:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 05:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 05:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:28	75-00-3	
Chloroform	**1.2**	ug/L	1.0	0.14	1		11/24/18 05:28	67-66-3	
Chloromethane	**0.63J**	ug/L	1.0	0.080	1		11/24/18 05:28	74-87-3	
Dibromochloromethane	**0.55J**	ug/L	1.0	0.21	1		11/24/18 05:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 05:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 05:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:28	75-35-4	
cis-1,2-Dichloroethene	**1.3**	ug/L	1.0	0.080	1		11/24/18 05:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 05:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 05:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 05:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 05:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 05:28	591-78-6	
Methylene chloride	**0.31J**	ug/L	1.0	0.15	1		11/24/18 05:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 05:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 05:28	100-42-5	
1,1,2,2-Tetrachloroethane	**0.55J**	ug/L	1.0	0.15	1		11/24/18 05:28	79-34-5	
Tetrachloroethene	**0.32J**	ug/L	1.0	0.10	1		11/24/18 05:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 05:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 05:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 05:28	79-00-5	
Trichloroethene	**204**	ug/L	5.0	0.85	5		11/27/18 00:50	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 05:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 05:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/24/18 05:28	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/24/18 05:28	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/24/18 05:28	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	1		11/24/18 05:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-93-201811 **Lab ID: 60287044017** Collected: 11/15/18 15:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.5J**	ug/L	10.0	1.9	1		11/28/18 12:52	67-64-1	
Benzene	**0.12J**	ug/L	1.0	0.060	1		11/28/18 12:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 12:52	75-27-4	
Bromoform	**0.34J**	ug/L	1.0	0.070	1		11/28/18 12:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 12:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 12:52	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 12:52	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 12:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 12:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 12:52	75-00-3	
Chloroform	**3.6**	ug/L	1.0	0.14	1		11/28/18 12:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 12:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 12:52	124-48-1	
1,1-Dichloroethane	**0.31J**	ug/L	1.0	0.050	1		11/28/18 12:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 12:52	107-06-2	
1,1-Dichloroethene	**15.0**	ug/L	1.0	0.20	1		11/28/18 12:52	75-35-4	
cis-1,2-Dichloroethene	**106**	ug/L	1.0	0.080	1		11/28/18 12:52	156-59-2	
trans-1,2-Dichloroethene	**10.6**	ug/L	1.0	0.20	1		11/28/18 12:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 12:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 12:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 12:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 12:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 12:52	591-78-6	
Methylene chloride	**1.6**	ug/L	1.0	0.15	1		11/28/18 12:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 12:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 12:52	100-42-5	
1,1,2,2-Tetrachloroethane	**0.40J**	ug/L	1.0	0.15	1		11/28/18 12:52	79-34-5	
Tetrachloroethene	**4.3**	ug/L	1.0	0.10	1		11/28/18 12:52	127-18-4	
Toluene	**0.30J**	ug/L	1.0	0.17	1		11/28/18 12:52	108-88-3	
1,1,1-Trichloroethane	**0.51J**	ug/L	1.0	0.11	1		11/28/18 12:52	71-55-6	
1,1,2-Trichloroethane	**0.99J**	ug/L	1.0	0.20	1		11/28/18 12:52	79-00-5	
Trichloroethene	**16300**	ug/L	200	34.0	200		11/27/18 01:18	79-01-6	
Vinyl chloride	**3.6**	ug/L	1.0	0.13	1		11/28/18 12:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 12:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/28/18 12:52	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/28/18 12:52	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 12:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 12:52		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-189-201811 **Lab ID: 60287044018** Collected: 11/15/18 16:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 05:57	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 05:57	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 05:57	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 05:57	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 05:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 05:57	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 05:57	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 05:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 05:57	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:57	75-00-3	
Chloroform	**0.26J**	ug/L	1.0	0.14	1		11/24/18 05:57	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 05:57	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 05:57	124-48-1	
1,1-Dichloroethane	**1.4**	ug/L	1.0	0.050	1		11/24/18 05:57	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/24/18 05:57	107-06-2	
1,1-Dichloroethene	**1.8**	ug/L	1.0	0.20	1		11/24/18 05:57	75-35-4	
cis-1,2-Dichloroethene	**11.3**	ug/L	1.0	0.080	1		11/24/18 05:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 05:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 05:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 05:57	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 05:57	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 05:57	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 05:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 05:57	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 05:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:57	79-34-5	
Tetrachloroethene	**0.39J**	ug/L	1.0	0.10	1		11/24/18 05:57	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 05:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 05:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 05:57	79-00-5	
Trichloroethene	**670**	ug/L	10.0	1.7	10		11/27/18 01:04	79-01-6	
Vinyl chloride	**0.64J**	ug/L	1.0	0.13	1		11/24/18 05:57	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 05:57	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 05:57	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	80-117		1		11/24/18 05:57	17060-07-0	
Toluene-d8 (S)	93	%	80-115		1		11/24/18 05:57	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 05:57		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TRIP BLANK **Lab ID: 60287044019** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 02:26	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 02:26	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 02:26	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 02:26	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 02:26	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 02:26	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 02:26	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 02:26	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 02:26	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:26	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 02:26	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 02:26	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 02:26	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 02:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 02:26	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 02:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 02:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 02:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 02:26	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 02:26	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 02:26	591-78-6	
Methylene chloride	**0.42J**	ug/L	1.0	0.15	1		11/24/18 02:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 02:26	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 02:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:26	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 02:26	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 02:26	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 02:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 02:26	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 02:26	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 02:26	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 02:26	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/24/18 02:26	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 02:26	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 02:26	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 02:26		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: EB-01-201811 **Lab ID: 60287044020** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 02:40	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 02:40	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 02:40	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 02:40	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 02:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 02:40	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 02:40	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 02:40	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 02:40	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:40	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 02:40	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 02:40	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 02:40	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 02:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 02:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 02:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 02:40	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 02:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 02:40	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 02:40	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 02:40	591-78-6	
Methylene chloride	**0.56J**	ug/L	1.0	0.15	1		11/24/18 02:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 02:40	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 02:40	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 02:40	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 02:40	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 02:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 02:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 02:40	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 02:40	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 02:40	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	94	%	80-119		1		11/24/18 02:40	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/24/18 02:40	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 02:40	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 02:40		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-190-201811 **Lab ID: 60287044021** Collected: 11/15/18 09:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.2J**	ug/L	10.0	1.9	1		11/24/18 03:22	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 03:22	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:22	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:22	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:22	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:22	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 03:22	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:22	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:22	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:22	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:22	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:22	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/24/18 03:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 03:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:22	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:22	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:22	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:22	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:22	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:22	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:22	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:22	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:22	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 03:22	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:22	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:22	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		11/24/18 03:22	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 03:22	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/24/18 03:22	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:22		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-21-201811 **Lab ID: 60287044022** Collected: 11/15/18 11:01 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**16.6**	ug/L	10.0	1.9	1		11/24/18 03:36	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 03:36	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:36	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:36	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:36	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:36	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:36	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:36	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 03:36	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:36	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:36	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:36	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:36	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 03:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 03:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:36	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:36	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:36	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:36	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:36	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:36	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:36	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:36	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:36	79-00-5	
Trichloroethene	**8.0**	ug/L	1.0	0.17	1		11/27/18 04:08	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:36	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:36	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 03:36	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 03:36	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 03:36	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:36		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-1-201811 **Lab ID: 60287044023** Collected: 11/15/18 12:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**20.3**	ug/L	10.0	1.9	1		11/24/18 03:50	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 03:50	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:50	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:50	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:50	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:50	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:50	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:50	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 03:50	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:50	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:50	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:50	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:50	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:50	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/24/18 03:50	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:50	75-35-4	
cis-1,2-Dichloroethene	**5.4**	ug/L	1.0	0.080	1		11/24/18 03:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:50	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:50	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:50	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:50	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:50	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:50	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:50	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:50	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:50	79-00-5	
Trichloroethene	**12.7**	ug/L	1.0	0.17	1		11/27/18 04:22	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:50	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:50	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		11/24/18 03:50	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/24/18 03:50	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 03:50	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:50		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-5-201811 **Lab ID: 60287044024** Collected: 11/15/18 14:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.7J**	ug/L	10.0	1.9	1		11/26/18 13:48	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 13:48	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 13:48	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 13:48	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 13:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 13:48	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 13:48	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 13:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 13:48	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:48	75-00-3	
Chloroform	**0.62J**	ug/L	1.0	0.14	1		11/26/18 13:48	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 13:48	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 13:48	124-48-1	
1,1-Dichloroethane	**1.5**	ug/L	1.0	0.050	1		11/26/18 13:48	75-34-3	
1,2-Dichloroethane	**0.13J**	ug/L	1.0	0.12	1		11/26/18 13:48	107-06-2	B
1,1-Dichloroethene	**6.0**	ug/L	1.0	0.20	1		11/26/18 13:48	75-35-4	
cis-1,2-Dichloroethene	**36.9**	ug/L	1.0	0.080	1		11/26/18 13:48	156-59-2	
trans-1,2-Dichloroethene	**0.32J**	ug/L	1.0	0.20	1		11/26/18 13:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 13:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 13:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 13:48	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 13:48	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 13:48	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 13:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 13:48	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 13:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:48	79-34-5	
Tetrachloroethene	**1.4**	ug/L	1.0	0.10	1		11/26/18 13:48	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 13:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 13:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 13:48	79-00-5	
Trichloroethene	**2250**	ug/L	20.0	3.4	20		11/26/18 14:02	79-01-6	
Vinyl chloride	**2.0**	ug/L	1.0	0.13	1		11/26/18 13:48	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 13:48	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 13:48	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/26/18 13:48	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 13:48	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 13:48		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-91-201811 **Lab ID: 60287044025** Collected: 11/15/18 15:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 06:53	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 06:53	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 06:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 06:53	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 06:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 06:53	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 06:53	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 06:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 06:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:53	75-00-3	
Chloroform	**0.19J**	ug/L	1.0	0.14	1		11/24/18 06:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 06:53	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 06:53	124-48-1	
1,1-Dichloroethane	**1.6**	ug/L	1.0	0.050	1		11/24/18 06:53	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/24/18 06:53	107-06-2	
1,1-Dichloroethene	**4.1**	ug/L	1.0	0.20	1		11/24/18 06:53	75-35-4	
cis-1,2-Dichloroethene	**33.4**	ug/L	1.0	0.080	1		11/24/18 06:53	156-59-2	
trans-1,2-Dichloroethene	**0.60J**	ug/L	1.0	0.20	1		11/24/18 06:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 06:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 06:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 06:53	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 06:53	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 06:53	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 06:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 06:53	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 06:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:53	79-34-5	
Tetrachloroethene	**4.0**	ug/L	1.0	0.10	1		11/24/18 06:53	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 06:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 06:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 06:53	79-00-5	
Trichloroethene	**437**	ug/L	10.0	1.7	10		11/27/18 04:50	79-01-6	
Vinyl chloride	**0.30J**	ug/L	1.0	0.13	1		11/24/18 06:53	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 06:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/24/18 06:53	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/24/18 06:53	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/24/18 06:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 06:53		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-29-201811 **Lab ID: 60287044026** Collected: 11/15/18 09:10 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 04:04	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 04:04	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:04	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:04	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 04:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:04	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:04	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:04	56-23-5	
Chlorobenzene	**2.1**	ug/L	1.0	0.21	1		11/24/18 04:04	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:04	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:04	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 04:04	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:04	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 04:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:04	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:04	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:04	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:04	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:04	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:04	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 04:04	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:04	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 04:04	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/24/18 04:04	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/24/18 04:04	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:04		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-39R-201811 **Lab ID: 60287044027** Collected: 11/15/18 10:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		11/24/18 04:18	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 04:18	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:18	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:18	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 04:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:18	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:18	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 04:18	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:18	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:18	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 04:18	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:18	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 04:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:18	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:18	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:18	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:18	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:18	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 04:18	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:18	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:18	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		11/24/18 04:18	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/24/18 04:18	17060-07-0	
Toluene-d8 (S)	90	%	80-115		1		11/24/18 04:18	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:18		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-182-201811 **Lab ID: 60287044028** Collected: 11/15/18 14:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.2J**	ug/L	10.0	1.9	1		11/24/18 04:46	67-64-1	
Benzene	**0.19J**	ug/L	1.0	0.060	1		11/24/18 04:46	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:46	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:46	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 04:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:46	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:46	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:46	56-23-5	
Chlorobenzene	**7.3**	ug/L	1.0	0.21	1		11/24/18 04:46	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:46	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:46	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 04:46	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:46	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:46	75-35-4	
cis-1,2-Dichloroethene	**2.5**	ug/L	1.0	0.080	1		11/24/18 04:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:46	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:46	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:46	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:46	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:46	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:46	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:46	79-00-5	
Trichloroethene	**40.8**	ug/L	1.0	0.17	1		11/27/18 04:36	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:46	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:46	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	94	%	80-119		1		11/24/18 04:46	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/24/18 04:46	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/24/18 04:46	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:46		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: IW-78-201811 **Lab ID: 60287044029** Collected: 11/15/18 15:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**15.8**	ug/L	10.0	1.9	1		11/24/18 04:33	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 04:33	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:33	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:33	75-25-2	
Bromomethane	**1.3J**	ug/L	5.0	0.16	1		11/24/18 04:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:33	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:33	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 04:33	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:33	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:33	67-66-3	
Chloromethane	**2.8**	ug/L	1.0	0.080	1		11/24/18 04:33	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:33	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:33	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 04:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:33	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:33	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:33	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:33	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:33	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:33	79-00-5	
Trichloroethene	**0.74J**	ug/L	1.0	0.17	1		11/24/18 04:33	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:33	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:33	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 04:33	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/24/18 04:33	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/24/18 04:33	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:33		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-24-201811 **Lab ID: 60287044030** Collected: 11/15/18 17:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/26/18 12:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 12:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 12:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 12:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 12:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 12:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 12:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 12:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 12:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 12:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 12:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 12:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 12:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 12:51	107-06-2	
1,1-Dichloroethene	**1.1**	ug/L	1.0	0.20	1		11/26/18 12:51	75-35-4	
cis-1,2-Dichloroethene	**10.9**	ug/L	1.0	0.080	1		11/26/18 12:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 12:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 12:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 12:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 12:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 12:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 12:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 12:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 12:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 12:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 12:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 12:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 12:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 12:51	79-00-5	
Trichloroethene	**540**	ug/L	10.0	1.7	10		11/26/18 13:06	79-01-6	
Vinyl chloride	**0.25J**	ug/L	1.0	0.13	1		11/26/18 12:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 12:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 12:51	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/26/18 12:51	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 12:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 12:51		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-26-201811 **Lab ID: 60287044031** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1300000**	ug/L	500	61.5	10	11/29/18 11:42	11/30/18 19:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**242**	ug/L	50.0	9.4	5		11/24/18 05:00	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/24/18 05:00	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/24/18 05:00	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/24/18 05:00	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/24/18 05:00	74-83-9	
2-Butanone (MEK)	**1460**	ug/L	50.0	3.0	5		11/24/18 05:00	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/24/18 05:00	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/24/18 05:00	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/24/18 05:00	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/24/18 05:00	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/24/18 05:00	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/24/18 05:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/24/18 05:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/24/18 05:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	75-35-4	
cis-1,2-Dichloroethene	**11.1**	ug/L	5.0	0.40	5		11/24/18 05:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/24/18 05:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/24/18 05:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/24/18 05:00	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/24/18 05:00	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/24/18 05:00	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/24/18 05:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/24/18 05:00	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/24/18 05:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/24/18 05:00	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/24/18 05:00	127-18-4	
Toluene	**1.1J**	ug/L	5.0	0.85	5		11/24/18 05:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/24/18 05:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/24/18 05:00	79-00-5	
Trichloroethene	**54.4**	ug/L	5.0	0.85	5		11/27/18 21:38	79-01-6	
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/24/18 05:00	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/24/18 05:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		5		11/24/18 05:00	460-00-4	F1
1,2-Dichloroethane-d4 (S)	110	%	80-117		5		11/24/18 05:00	17060-07-0	
Toluene-d8 (S)	95	%	80-115		5		11/24/18 05:00	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	5		11/24/18 05:00		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**431**	mg/L	50.0	14.5	50		12/09/18 17:25	16887-00-6	
Sulfate	**239**	mg/L	20.0	4.8	20		12/09/18 16:42	14808-79-8	M1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-26-201811 **Lab ID: 60287044031** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.16**	mg/L	0.10	0.060	1		11/17/18 10:07		M1
Nitrogen, Nitrite	**0.25**	mg/L	0.10	0.033	1		11/17/18 10:07		
Nitrogen, NO2 plus NO3	**0.41**	mg/L	0.10	0.060	1		11/17/18 10:07		M1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**11800**	mg/L	1000	654	1000		11/29/18 19:13	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**10100**	mg/L	1000	654	1000		11/27/18 14:24	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-25-201811 **Lab ID: 60287044032** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1410000**	ug/L	500	61.5	10	11/29/18 11:42	11/30/18 19:45	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**193**	ug/L	50.0	9.4	5		11/26/18 11:41	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/26/18 11:41	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/26/18 11:41	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/26/18 11:41	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/26/18 11:41	74-83-9	
2-Butanone (MEK)	**328**	ug/L	50.0	3.0	5		11/26/18 11:41	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/26/18 11:41	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/26/18 11:41	56-23-5	
Chlorobenzene	**2.9J**	ug/L	5.0	1.0	5		11/26/18 11:41	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/26/18 11:41	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/26/18 11:41	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/26/18 11:41	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/26/18 11:41	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/26/18 11:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/26/18 11:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/26/18 11:41	75-35-4	
cis-1,2-Dichloroethene	**11.0**	ug/L	5.0	0.40	5		11/26/18 11:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/26/18 11:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/26/18 11:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/26/18 11:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/26/18 11:41	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/26/18 11:41	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/26/18 11:41	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/26/18 11:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/26/18 11:41	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/26/18 11:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/26/18 11:41	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/26/18 11:41	127-18-4	
Toluene	ND	ug/L	5.0	0.85	5		11/26/18 11:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/26/18 11:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/26/18 11:41	79-00-5	
Trichloroethene	**58.6**	ug/L	5.0	0.85	5		11/26/18 11:41	79-01-6	
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/26/18 11:41	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/26/18 11:41	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		5		11/26/18 11:41	460-00-4	F1
1,2-Dichloroethane-d4 (S)	99	%	80-117		5		11/26/18 11:41	17060-07-0	
Toluene-d8 (S)	100	%	80-115		5		11/26/18 11:41	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	5		11/26/18 11:41		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**441**	mg/L	50.0	14.5	50		12/09/18 18:50	16887-00-6	
Sulfate	**186**	mg/L	20.0	4.8	20		12/09/18 18:36	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-25-201811 **Lab ID: 60287044032** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.14**	mg/L	0.10	0.060	1		11/17/18 10:10		
Nitrogen, Nitrite	**0.18**	mg/L	0.10	0.033	1		11/17/18 10:10		
Nitrogen, NO2 plus NO3	**0.32**	mg/L	0.10	0.060	1		11/17/18 10:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**13000**	mg/L	1000	654	1000		11/29/18 19:26	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**11000**	mg/L	1000	654	1000		11/27/18 14:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-21-201811 **Lab ID: 60287044033** Collected: 11/15/18 15:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**131000**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:47	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**331**	ug/L	10.0	1.9	1		11/26/18 13:20	67-64-1	
Benzene	**0.11J**	ug/L	1.0	0.060	1		11/26/18 13:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 13:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 13:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 13:20	74-83-9	
2-Butanone (MEK)	**760**	ug/L	10.0	0.59	1		11/26/18 13:20	78-93-3	
Carbon disulfide	**0.78J**	ug/L	5.0	0.12	1		11/26/18 13:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 13:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 13:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 13:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 13:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 13:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 13:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 13:20	107-06-2	
1,1-Dichloroethene	**0.21J**	ug/L	1.0	0.20	1		11/26/18 13:20	75-35-4	
cis-1,2-Dichloroethene	**86.3**	ug/L	1.0	0.080	1		11/26/18 13:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 13:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 13:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 13:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 13:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 13:20	100-41-4	
2-Hexanone	**6.5J**	ug/L	10.0	1.2	1		11/26/18 13:20	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 13:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.3J**	ug/L	10.0	0.42	1		11/26/18 13:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 13:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 13:20	127-18-4	
Toluene	**0.93J**	ug/L	1.0	0.17	1		11/26/18 13:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 13:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 13:20	79-00-5	
Trichloroethene	**22.1**	ug/L	1.0	0.17	1		11/26/18 13:20	79-01-6	
Vinyl chloride	**0.52J**	ug/L	1.0	0.13	1		11/26/18 13:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 13:20	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/26/18 13:20	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 13:20	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 13:20	2037-26-5	
Preservation pH	**3.0**		0.10	0.10	1		11/26/18 13:20		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**281**	mg/L	20.0	5.8	20		12/09/18 19:05	16887-00-6	
Sulfate	**10.6**	mg/L	1.0	0.24	1		12/10/18 10:04	14808-79-8	M1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-21-201811 **Lab ID: 60287044033** Collected: 11/15/18 15:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:06		
Nitrogen, Nitrite	**0.19**	mg/L	0.10	0.033	1		11/17/18 08:06		
Nitrogen, NO2 plus NO3	**0.13**	mg/L	0.10	0.060	1		11/17/18 08:06		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2770**	mg/L	500	327	500		11/29/18 19:51	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**2670**	mg/L	500	327	500		11/27/18 14:50	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-22R-201811 **Lab ID: 60287044034** Collected: 11/15/18 16:50 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**3510**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:49	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**32.8**	ug/L	10.0	1.9	1		11/26/18 14:16	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/26/18 14:16	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 14:16	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 14:16	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 14:16	74-83-9	
2-Butanone (MEK)	**20.5**	ug/L	10.0	0.59	1		11/26/18 14:16	78-93-3	
Carbon disulfide	**1.3J**	ug/L	5.0	0.12	1		11/26/18 14:16	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 14:16	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 14:16	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:16	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 14:16	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 14:16	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 14:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 14:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 14:16	107-06-2	
1,1-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/26/18 14:16	75-35-4	
cis-1,2-Dichloroethene	**71.2**	ug/L	1.0	0.080	1		11/26/18 14:16	156-59-2	
trans-1,2-Dichloroethene	**0.51J**	ug/L	1.0	0.20	1		11/26/18 14:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 14:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 14:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 14:16	10061-02-6	
Ethylbenzene	**0.36J**	ug/L	1.0	0.18	1		11/26/18 14:16	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 14:16	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 14:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 14:16	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 14:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:16	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 14:16	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 14:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 14:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 14:16	79-00-5	
Trichloroethene	**347**	ug/L	20.0	3.4	20		11/26/18 14:30	79-01-6	
Vinyl chloride	**0.16J**	ug/L	1.0	0.13	1		11/26/18 14:16	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 14:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 14:16	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 14:16	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 14:16	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**148**	mg/L	20.0	5.8	20		12/09/18 19:33	16887-00-6	
Sulfate	**7.3**	mg/L	1.0	0.24	1		12/09/18 19:19	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-22R-201811 **Lab ID: 60287044034** Collected: 11/15/18 16:50 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:12		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:12		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 08:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**161**	mg/L	50.0	32.7	50		11/29/18 20:07	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	500	327	500		11/27/18 15:03	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-58R-201811 **Lab ID: 60287044035** Collected: 11/15/18 14:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**453**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:52	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**7.1J**	ug/L	10.0	1.9	1		11/26/18 11:55	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 11:55	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 11:55	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 11:55	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 11:55	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 11:55	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 11:55	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 11:55	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 11:55	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:55	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 11:55	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 11:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 11:55	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 11:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 11:55	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/26/18 11:55	75-35-4	
cis-1,2-Dichloroethene	**10.2**	ug/L	1.0	0.080	1		11/26/18 11:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 11:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 11:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 11:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 11:55	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 11:55	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 11:55	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 11:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 11:55	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 11:55	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:55	79-34-5	
Tetrachloroethene	**0.13J**	ug/L	1.0	0.10	1		11/26/18 11:55	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 11:55	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 11:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 11:55	79-00-5	
Trichloroethene	**312**	ug/L	5.0	0.85	5		11/26/18 12:09	79-01-6	
Vinyl chloride	**0.43J**	ug/L	1.0	0.13	1		11/26/18 11:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 11:55	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/26/18 11:55	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 11:55	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/26/18 11:55	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 11:55		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:34	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-58R-201811 **Lab ID: 60287044035** Collected: 11/15/18 14:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**2.4**	mg/L	1.0	0.24	1		12/09/18 19:47	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:05		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:05		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 08:05		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/29/18 20:20	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-05-201811 **Lab ID: 60287044036** Collected: 11/15/18 14:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.9J**	ug/L	10.0	1.9	1		11/26/18 11:27	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 11:27	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 11:27	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 11:27	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 11:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 11:27	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 11:27	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 11:27	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 11:27	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:27	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 11:27	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 11:27	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 11:27	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 11:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 11:27	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/26/18 11:27	75-35-4	
cis-1,2-Dichloroethene	**9.8**	ug/L	1.0	0.080	1		11/26/18 11:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 11:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 11:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 11:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 11:27	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 11:27	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 11:27	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 11:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 11:27	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 11:27	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:27	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 11:27	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 11:27	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 11:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 11:27	79-00-5	
Trichloroethene	**319**	ug/L	10.0	1.7	10		11/27/18 21:52	79-01-6	
Vinyl chloride	**0.47J**	ug/L	1.0	0.13	1		11/26/18 11:27	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 11:27	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 11:27	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 11:27	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/26/18 11:27	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 11:27		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-95-201811 **Lab ID: 60287044037** Collected: 11/15/18 15:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**27.4J**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:54	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		11/28/18 13:06	67-64-1	
Benzene	**0.12J**	ug/L	1.0	0.060	1		11/28/18 13:06	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 13:06	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 13:06	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 13:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 13:06	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 13:06	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 13:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 13:06	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 13:06	75-00-3	
Chloroform	**4.8**	ug/L	1.0	0.14	1		11/28/18 13:06	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 13:06	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 13:06	124-48-1	
1,1-Dichloroethane	**0.38J**	ug/L	1.0	0.050	1		11/28/18 13:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 13:06	107-06-2	
1,1-Dichloroethene	**29.5**	ug/L	1.0	0.20	1		11/28/18 13:06	75-35-4	
cis-1,2-Dichloroethene	**152**	ug/L	1.0	0.080	1		11/28/18 13:06	156-59-2	
trans-1,2-Dichloroethene	**7.8**	ug/L	1.0	0.20	1		11/28/18 13:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 13:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 13:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 13:06	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 13:06	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 13:06	591-78-6	
Methylene chloride	**2.9**	ug/L	1.0	0.15	1		11/28/18 13:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 13:06	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 13:06	100-42-5	
1,1,2,2-Tetrachloroethane	**0.34J**	ug/L	1.0	0.15	1		11/28/18 13:06	79-34-5	
Tetrachloroethene	**6.0**	ug/L	1.0	0.10	1		11/28/18 13:06	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 13:06	108-88-3	
1,1,1-Trichloroethane	**0.37J**	ug/L	1.0	0.11	1		11/28/18 13:06	71-55-6	
1,1,2-Trichloroethane	**1.5**	ug/L	1.0	0.20	1		11/28/18 13:06	79-00-5	
Trichloroethene	**20300**	ug/L	200	34.0	200		11/26/18 15:41	79-01-6	
Vinyl chloride	**39.6**	ug/L	1.0	0.13	1		11/28/18 13:06	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 13:06	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/28/18 13:06	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/28/18 13:06	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/28/18 13:06	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 13:06		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:34	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-95-201811 **Lab ID: 60287044037** Collected: 11/15/18 15:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**3.8**	mg/L	1.0	0.24	1		12/09/18 20:01	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.83**	mg/L	0.10	0.060	1		11/17/18 08:10		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:10		
Nitrogen, NO2 plus NO3	**0.86**	mg/L	0.10	0.060	1		11/17/18 08:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/29/18 20:33	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-9-201811 **Lab ID: 60287044038** Collected: 11/15/18 15:20 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**22.3J**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:56	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/26/18 12:23	67-64-1	
Benzene	**1.3**	ug/L	1.0	0.060	1		11/26/18 12:23	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 12:23	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 12:23	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 12:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 12:23	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 12:23	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 12:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 12:23	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:23	75-00-3	
Chloroform	**0.49J**	ug/L	1.0	0.14	1		11/26/18 12:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 12:23	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 12:23	124-48-1	
1,1-Dichloroethane	**4.7**	ug/L	1.0	0.050	1		11/26/18 12:23	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/26/18 12:23	107-06-2	B
1,1-Dichloroethene	**9.9**	ug/L	1.0	0.20	1		11/26/18 12:23	75-35-4	
cis-1,2-Dichloroethene	**77.1**	ug/L	1.0	0.080	1		11/26/18 12:23	156-59-2	
trans-1,2-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/26/18 12:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 12:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 12:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 12:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 12:23	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 12:23	591-78-6	
Methylene chloride	**0.94J**	ug/L	1.0	0.15	1		11/26/18 12:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 12:23	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 12:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:23	79-34-5	
Tetrachloroethene	**2.1**	ug/L	1.0	0.10	1		11/26/18 12:23	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 12:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 12:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 12:23	79-00-5	
Trichloroethene	**1390**	ug/L	20.0	3.4	20		11/27/18 22:06	79-01-6	
Vinyl chloride	**2.0**	ug/L	1.0	0.13	1		11/26/18 12:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 12:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 12:23	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/26/18 12:23	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/26/18 12:23	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 12:23		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:36	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-9-201811 **Lab ID: 60287044038** Collected: 11/15/18 15:20 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**29.0**	mg/L	2.0	0.48	2		12/10/18 10:47	14808-79-8	M1
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**4.3**	mg/L	0.10	0.060	1		11/17/18 08:09		
Nitrogen, Nitrite	**0.18**	mg/L	0.10	0.033	1		11/17/18 08:09		
Nitrogen, NO2 plus NO3	**4.5**	mg/L	0.10	0.060	1		11/17/18 08:09		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.5**	mg/L	1.0	0.65	1		11/29/18 20:45	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-87-201811 **Lab ID: 60287044039** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**47.0J**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:58	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.0J**	ug/L	10.0	1.9	1		11/26/18 14:44	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 14:44	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 14:44	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 14:44	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 14:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 14:44	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 14:44	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 14:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 14:44	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:44	75-00-3	
Chloroform	**0.18J**	ug/L	1.0	0.14	1		11/26/18 14:44	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 14:44	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 14:44	124-48-1	
1,1-Dichloroethane	**1.1**	ug/L	1.0	0.050	1		11/26/18 14:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 14:44	107-06-2	
1,1-Dichloroethene	**2.9**	ug/L	1.0	0.20	1		11/26/18 14:44	75-35-4	
cis-1,2-Dichloroethene	**28.3**	ug/L	1.0	0.080	1		11/26/18 14:44	156-59-2	
trans-1,2-Dichloroethene	**0.95J**	ug/L	1.0	0.20	1		11/26/18 14:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 14:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 14:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 14:44	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 14:44	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 14:44	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 14:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 14:44	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 14:44	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:44	79-34-5	
Tetrachloroethene	**4.8**	ug/L	1.0	0.10	1		11/26/18 14:44	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 14:44	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 14:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 14:44	79-00-5	
Trichloroethene	**397**	ug/L	20.0	3.4	20		11/26/18 14:58	79-01-6	
Vinyl chloride	**0.77J**	ug/L	1.0	0.13	1		11/26/18 14:44	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 14:44	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 14:44	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/26/18 14:44	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 14:44	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 14:44		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:36	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-87-201811 **Lab ID: 60287044039** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**13.5**	mg/L	1.0	0.24	1		12/09/18 20:30	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**2.6**	mg/L	0.10	0.060	1		11/17/18 08:05		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:05		
Nitrogen, NO2 plus NO3	**2.6**	mg/L	0.10	0.060	1		11/17/18 08:05		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.69J**	mg/L	1.0	0.65	1		11/29/18 20:59	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-38-201811 **Lab ID: 60287044040** Collected: 11/15/18 09:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**4250**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 20:01	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		11/26/18 15:12	67-64-1	
Benzene	**0.18J**	ug/L	1.0	0.060	1		11/26/18 15:12	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 15:12	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 15:12	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 15:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 15:12	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 15:12	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 15:12	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 15:12	108-90-7	
Chloroethane	**0.98J**	ug/L	1.0	0.15	1		11/26/18 15:12	75-00-3	
Chloroform	**0.42J**	ug/L	1.0	0.14	1		11/26/18 15:12	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 15:12	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 15:12	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 15:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 15:12	107-06-2	
1,1-Dichloroethene	**7.7**	ug/L	1.0	0.20	1		11/26/18 15:12	75-35-4	
cis-1,2-Dichloroethene	**675**	ug/L	50.0	4.0	50		11/26/18 15:26	156-59-2	
trans-1,2-Dichloroethene	**4.0**	ug/L	1.0	0.20	1		11/26/18 15:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 15:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 15:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 15:12	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 15:12	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 15:12	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 15:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 15:12	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 15:12	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 15:12	79-34-5	
Tetrachloroethene	**0.21J**	ug/L	1.0	0.10	1		11/26/18 15:12	127-18-4	
Toluene	**0.24J**	ug/L	1.0	0.17	1		11/26/18 15:12	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 15:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 15:12	79-00-5	
Trichloroethene	**2340**	ug/L	50.0	8.5	50		11/26/18 15:26	79-01-6	
Vinyl chloride	**360**	ug/L	50.0	6.5	50		11/26/18 15:26	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 15:12	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 15:12	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 15:12	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 15:12	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 15:12		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:37	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-38-201811 **Lab ID: 60287044040** Collected: 11/15/18 09:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**84.7**	mg/L	20.0	4.8	20		12/01/18 12:44	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:00		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:00		
Nitrogen, NO2 plus NO3	**0.061J**	mg/L	0.10	0.060	1		11/17/18 08:00		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.4**	mg/L	1.0	0.65	1		11/29/18 21:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TRIP BLANK **Lab ID: 60287044041** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/26/18 09:06	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 09:06	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:06	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:06	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 09:06	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:06	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:06	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:06	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:06	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 09:06	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:06	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:06	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/26/18 09:06	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:06	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:06	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:06	591-78-6	
Methylene chloride	**0.39J**	ug/L	1.0	0.15	1		11/26/18 09:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 09:06	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:06	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:06	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 09:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:06	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 09:06	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 09:06	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:06	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/26/18 09:06	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	80-117		1		11/26/18 09:06	17060-07-0	S0
Toluene-d8 (S)	94	%	80-115		1		11/26/18 09:06	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:06		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TRIP BLANK **Lab ID: 60287044042** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		11/26/18 09:20	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 09:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 09:20	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 09:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 09:20	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:20	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:20	591-78-6	
Methylene chloride	**0.56J**	ug/L	1.0	0.15	1		11/26/18 09:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 09:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:20	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 09:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:20	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 09:20	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 09:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:20	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 09:20	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/26/18 09:20	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/26/18 09:20	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:20		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557483 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2287058 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	7.4J	50.0	6.1	12/01/18 14:49	

LABORATORY CONTROL SAMPLE: 2287059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2287060 2287061

Parameter	Units	40179870001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	19000	10000	10000	28400	28800	94	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556253 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044001, 60287044002, 60287044003, 60287044004

METHOD BLANK: 2282307 Matrix: Water
Associated Lab Samples: 60287044001, 60287044002, 60287044003, 60287044004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 02:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 02:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/21/18 02:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 02:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 02:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 02:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 02:06	
Acetone	ug/L	ND	10.0	1.9	11/21/18 02:06	
Benzene	ug/L	ND	1.0	0.060	11/21/18 02:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 02:06	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 02:06	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 02:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 02:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 02:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 02:06	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 02:06	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 02:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 02:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 02:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 02:06	
Styrene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 02:06	
Toluene	ug/L	ND	1.0	0.17	11/21/18 02:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 02:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 02:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 02:06	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/21/18 02:06	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 02:06	
Toluene-d8 (S)	%	98	80-115		11/21/18 02:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2282308

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.7	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.3	102	77-120	
1,2-Dichloropropane	ug/L	20	20.6	103	81-126	
2-Butanone (MEK)	ug/L	100	102	102	65-134	
2-Hexanone	ug/L	100	97.8	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	66-139	
Acetone	ug/L	100	99.0	99	62-142	
Benzene	ug/L	20	19.5	97	81-118	
Bromodichloromethane	ug/L	20	22.2	111	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.7	108	85-126	
Chlorobenzene	ug/L	20	20.3	101	87-118	
Chloroethane	ug/L	20	22.1	110	73-134	
Chloroform	ug/L	20	21.0	105	85-119	
Chloromethane	ug/L	20	22.7	114	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	20.6	103	83-122	
Ethylbenzene	ug/L	20	19.4	97	80-118	
Methylene chloride	ug/L	20	22.2	111	81-126	
Styrene	ug/L	20	20.5	103	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	19.9	100	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	101	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.1	100	80-122	
Trichloroethene	ug/L	20	22.7	113	82-120	
Vinyl chloride	ug/L	20	24.5	122	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	23.2	112	116	79-135	4	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	71-124	1	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.3	21.4	107	107	77-135	0	12	
1,1-Dichloroethene	ug/L	1.3	20	20	20.6	23.8	96	112	77-138	14	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.6	20.3	98	102	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	21.5	106	107	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	95.2	98.9	95	99	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	97.3	98.8	97	99	53-133	2	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	99.2	101	99	101	62-134	2	15	
Acetone	ug/L	3.0J	100	100	90.1	93.1	87	90	50-127	3	28	
Benzene	ug/L	ND	20	20	20.1	20.8	100	104	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.5	22.5	108	112	75-126	4	12	
Bromoform	ug/L	ND	20	20	19.2	20.8	96	104	70-122	8	14	
Bromomethane	ug/L	ND	20	20	19.5	20.9	98	104	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	20.7	21.4	103	107	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.4	116	117	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	20.4	21.5	102	107	74-130	5	10	
Chloroethane	ug/L	ND	20	20	23.0	23.4	115	117	67-153	2	27	
Chloroform	ug/L	ND	20	20	21.1	20.9	106	105	75-127	1	12	
Chloromethane	ug/L	ND	20	20	16.1	16.5	80	83	22-188	3	68	
cis-1,2-Dichloroethene	ug/L	5.4	20	20	25.4	25.7	100	101	69-135	1	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.9	100	105	61-129	4	11	
Dibromochloromethane	ug/L	ND	20	20	20.3	21.7	102	108	60-133	6	14	
Ethylbenzene	ug/L	ND	20	20	19.7	20.5	98	103	60-140	4	32	
Methylene chloride	ug/L	ND	20	20	21.4	21.5	107	107	72-131	0	16	
Styrene	ug/L	ND	20	20	19.4	20.3	97	101	59-142	5	12	
Tetrachloroethene	ug/L	ND	20	20	20.5	21.6	102	108	72-136	5	15	
Toluene	ug/L	ND	20	20	20.6	20.9	103	104	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.0	108	105	75-137	3	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.2	100	101	60-128	1	13	
Trichloroethene	ug/L	141	20	20	169	167	138	130	66-136	1	15	M1
Vinyl chloride	ug/L	0.53J	20	20	25.2	25.0	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	57.2	59.3	95	99	69-133	4	31	
1,2-Dichloroethane-d4 (S)	%						105	105	80-117			
4-Bromofluorobenzene (S)	%						103	101	80-119			
Toluene-d8 (S)	%						95	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556483 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044001, 60287044004

METHOD BLANK: 2283187 Matrix: Water
Associated Lab Samples: 60287044001, 60287044004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/23/18 09:17	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/23/18 09:17	
4-Bromofluorobenzene (S)	%	102	80-119		11/23/18 09:17	
Toluene-d8 (S)	%	98	80-115		11/23/18 09:17	

LABORATORY CONTROL SAMPLE: 2283188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	23.5	117	82-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556488 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044005, 60287044006, 60287044007, 60287044008, 60287044009, 60287044010, 60287044011

METHOD BLANK: 2283209 Matrix: Water
Associated Lab Samples: 60287044005, 60287044006, 60287044007, 60287044008, 60287044009, 60287044010, 60287044011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/23/18 21:02	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/23/18 21:02	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/23/18 21:02	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/23/18 21:02	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 21:02	
1,2-Dichloroethane	ug/L	0.17J	1.0	0.12	11/23/18 21:02	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/23/18 21:02	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/23/18 21:02	
2-Hexanone	ug/L	ND	10.0	1.2	11/23/18 21:02	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/23/18 21:02	
Acetone	ug/L	ND	10.0	1.9	11/23/18 21:02	
Benzene	ug/L	ND	1.0	0.060	11/23/18 21:02	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/23/18 21:02	
Bromoform	ug/L	ND	1.0	0.070	11/23/18 21:02	
Bromomethane	ug/L	ND	5.0	0.16	11/23/18 21:02	
Carbon disulfide	ug/L	ND	5.0	0.12	11/23/18 21:02	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/23/18 21:02	
Chlorobenzene	ug/L	ND	1.0	0.21	11/23/18 21:02	
Chloroethane	ug/L	ND	1.0	0.15	11/23/18 21:02	
Chloroform	ug/L	ND	1.0	0.14	11/23/18 21:02	
Chloromethane	ug/L	ND	1.0	0.080	11/23/18 21:02	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/23/18 21:02	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/23/18 21:02	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/23/18 21:02	
Ethylbenzene	ug/L	ND	1.0	0.18	11/23/18 21:02	
Methylene chloride	ug/L	ND	1.0	0.15	11/23/18 21:02	
Styrene	ug/L	ND	1.0	0.12	11/23/18 21:02	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/23/18 21:02	
Toluene	ug/L	ND	1.0	0.17	11/23/18 21:02	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 21:02	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/23/18 21:02	
Trichloroethene	ug/L	ND	1.0	0.17	11/23/18 21:02	
Vinyl chloride	ug/L	ND	1.0	0.13	11/23/18 21:02	
Xylene (Total)	ug/L	ND	3.0	0.42	11/23/18 21:02	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/23/18 21:02	
4-Bromofluorobenzene (S)	%	100	80-119		11/23/18 21:02	
Toluene-d8 (S)	%	96	80-115		11/23/18 21:02	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2283210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.9	114	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.9	104	83-119	
1,1-Dichloroethane	ug/L	20	22.6	113	85-128	
1,1-Dichloroethene	ug/L	20	22.5	112	85-123	
1,2-Dichloroethane	ug/L	20	22.3	111	77-120	
1,2-Dichloropropane	ug/L	20	21.5	107	81-126	
2-Butanone (MEK)	ug/L	100	111	111	65-134	
2-Hexanone	ug/L	100	104	104	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	108	108	66-139	
Acetone	ug/L	100	116	116	62-142	
Benzene	ug/L	20	20.6	103	81-118	
Bromodichloromethane	ug/L	20	24.1	120	85-123	
Bromoform	ug/L	20	21.9	110	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.7	103	85-124	
Carbon tetrachloride	ug/L	20	23.7	119	85-126	
Chlorobenzene	ug/L	20	21.6	108	87-118	
Chloroethane	ug/L	20	22.3	111	73-134	
Chloroform	ug/L	20	23.1	116	85-119	
Chloromethane	ug/L	20	26.3	131	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.3	107	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.1	110	80-124	
Dibromochloromethane	ug/L	20	22.7	113	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	23.5	118	81-126	
Styrene	ug/L	20	21.7	108	85-120	
Tetrachloroethene	ug/L	20	21.9	110	87-120	
Toluene	ug/L	20	21.5	107	82-118	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	83-121	
trans-1,3-Dichloropropene	ug/L	20	21.6	108	80-122	
Trichloroethene	ug/L	20	23.8	119	82-120	
Vinyl chloride	ug/L	20	24.9	125	74-147	
Xylene (Total)	ug/L	60	62.4	104	81-120	
1,2-Dichloroethane-d4 (S)	%			109	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			95	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556489 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044012, 60287044013, 60287044014, 60287044015, 60287044016, 60287044018, 60287044019, 60287044020, 60287044021, 60287044022, 60287044023, 60287044025, 60287044026, 60287044027, 60287044028, 60287044029, 60287044031

METHOD BLANK: 2283211 Matrix: Water
Associated Lab Samples: 60287044012, 60287044013, 60287044014, 60287044015, 60287044016, 60287044018, 60287044019, 60287044020, 60287044021, 60287044022, 60287044023, 60287044025, 60287044026, 60287044027, 60287044028, 60287044029, 60287044031

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/24/18 02:12	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/24/18 02:12	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/24/18 02:12	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/24/18 02:12	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/24/18 02:12	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/24/18 02:12	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/24/18 02:12	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/24/18 02:12	
2-Hexanone	ug/L	ND	10.0	1.2	11/24/18 02:12	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/24/18 02:12	
Acetone	ug/L	ND	10.0	1.9	11/24/18 02:12	
Benzene	ug/L	ND	1.0	0.060	11/24/18 02:12	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/24/18 02:12	
Bromoform	ug/L	ND	1.0	0.070	11/24/18 02:12	
Bromomethane	ug/L	ND	5.0	0.16	11/24/18 02:12	
Carbon disulfide	ug/L	ND	5.0	0.12	11/24/18 02:12	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/24/18 02:12	
Chlorobenzene	ug/L	ND	1.0	0.21	11/24/18 02:12	
Chloroethane	ug/L	ND	1.0	0.15	11/24/18 02:12	
Chloroform	ug/L	ND	1.0	0.14	11/24/18 02:12	
Chloromethane	ug/L	ND	1.0	0.080	11/24/18 02:12	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/24/18 02:12	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/24/18 02:12	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/24/18 02:12	
Ethylbenzene	ug/L	ND	1.0	0.18	11/24/18 02:12	
Methylene chloride	ug/L	ND	1.0	0.15	11/24/18 02:12	
Styrene	ug/L	ND	1.0	0.12	11/24/18 02:12	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/24/18 02:12	
Toluene	ug/L	ND	1.0	0.17	11/24/18 02:12	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/24/18 02:12	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/24/18 02:12	
Trichloroethene	ug/L	ND	1.0	0.17	11/24/18 02:12	
Vinyl chloride	ug/L	ND	1.0	0.13	11/24/18 02:12	
Xylene (Total)	ug/L	ND	3.0	0.42	11/24/18 02:12	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/24/18 02:12	
4-Bromofluorobenzene (S)	%	101	80-119		11/24/18 02:12	
Toluene-d8 (S)	%	94	80-115		11/24/18 02:12	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2283212

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	23.5	118	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.6	103	74-121	
1,1,2-Trichloroethane	ug/L	20	23.3	117	83-119	
1,1-Dichloroethane	ug/L	20	21.7	109	85-128	
1,1-Dichloroethene	ug/L	20	22.4	112	85-123	
1,2-Dichloroethane	ug/L	20	21.9	110	77-120	
1,2-Dichloropropane	ug/L	20	21.9	110	81-126	
2-Butanone (MEK)	ug/L	100	108	108	65-134	
2-Hexanone	ug/L	100	109	109	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	109	109	66-139	
Acetone	ug/L	100	110	110	62-142	
Benzene	ug/L	20	20.4	102	81-118	
Bromodichloromethane	ug/L	20	24.4	122	85-123	
Bromoform	ug/L	20	24.0	120	83-123	
Bromomethane	ug/L	20	16.3	82	39-149	
Carbon disulfide	ug/L	20	19.7	98	85-124	
Carbon tetrachloride	ug/L	20	23.9	120	85-126	
Chlorobenzene	ug/L	20	21.9	110	87-118	
Chloroethane	ug/L	20	22.1	111	73-134	
Chloroform	ug/L	20	22.7	114	85-119	
Chloromethane	ug/L	20	20.1	100	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.7	104	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.5	112	80-124	
Dibromochloromethane	ug/L	20	23.1	116	83-122	
Ethylbenzene	ug/L	20	20.5	103	80-118	
Methylene chloride	ug/L	20	22.1	110	81-126	
Styrene	ug/L	20	21.2	106	85-120	
Tetrachloroethene	ug/L	20	21.5	107	87-120	
Toluene	ug/L	20	21.6	108	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.1	105	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.3	111	80-122	
Trichloroethene	ug/L	20	24.4	122	82-120	L1
Vinyl chloride	ug/L	20	22.9	115	74-147	
Xylene (Total)	ug/L	60	60.5	101	81-120	
1,2-Dichloroethane-d4 (S)	%			108	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556702 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044011, 60287044012, 60287044013

METHOD BLANK: 2284126 Matrix: Water
Associated Lab Samples: 60287044011, 60287044012, 60287044013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 01:00	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 01:00	
4-Bromofluorobenzene (S)	%	97	80-119		11/26/18 01:00	
Toluene-d8 (S)	%	97	80-115		11/26/18 01:00	

LABORATORY CONTROL SAMPLE: 2284127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.2	101	82-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556704 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044024, 60287044030, 60287044032, 60287044033, 60287044034, 60287044035, 60287044036, 60287044037, 60287044038, 60287044039, 60287044040, 60287044041, 60287044042

METHOD BLANK: 2284130 Matrix: Water
Associated Lab Samples: 60287044024, 60287044030, 60287044032, 60287044033, 60287044034, 60287044035, 60287044036, 60287044037, 60287044038, 60287044039, 60287044040, 60287044041, 60287044042

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/26/18 08:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/26/18 08:52	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,2-Dichloroethane	ug/L	0.12J	1.0	0.12	11/26/18 08:52	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/26/18 08:52	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/26/18 08:52	
2-Hexanone	ug/L	ND	10.0	1.2	11/26/18 08:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/26/18 08:52	
Acetone	ug/L	ND	10.0	1.9	11/26/18 08:52	
Benzene	ug/L	ND	1.0	0.060	11/26/18 08:52	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/26/18 08:52	
Bromoform	ug/L	ND	1.0	0.070	11/26/18 08:52	
Bromomethane	ug/L	ND	5.0	0.16	11/26/18 08:52	
Carbon disulfide	ug/L	ND	5.0	0.12	11/26/18 08:52	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/26/18 08:52	
Chlorobenzene	ug/L	ND	1.0	0.21	11/26/18 08:52	
Chloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
Chloroform	ug/L	ND	1.0	0.14	11/26/18 08:52	
Chloromethane	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/26/18 08:52	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/26/18 08:52	
Ethylbenzene	ug/L	ND	1.0	0.18	11/26/18 08:52	
Methylene chloride	ug/L	ND	1.0	0.15	11/26/18 08:52	
Styrene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/26/18 08:52	
Toluene	ug/L	ND	1.0	0.17	11/26/18 08:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 08:52	
Vinyl chloride	ug/L	ND	1.0	0.13	11/26/18 08:52	
Xylene (Total)	ug/L	ND	3.0	0.42	11/26/18 08:52	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 08:52	
4-Bromofluorobenzene (S)	%	99	80-119		11/26/18 08:52	
Toluene-d8 (S)	%	99	80-115		11/26/18 08:52	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2284131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.5	97	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.2	101	74-121	
1,1,2-Trichloroethane	ug/L	20	19.8	99	83-119	
1,1-Dichloroethane	ug/L	20	19.1	95	85-128	
1,1-Dichloroethene	ug/L	20	17.8	89	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	19.6	98	81-126	
2-Butanone (MEK)	ug/L	100	91.7	92	65-134	
2-Hexanone	ug/L	100	98.3	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.1	98	66-139	
Acetone	ug/L	100	81.3	81	62-142	
Benzene	ug/L	20	19.4	97	81-118	
Bromodichloromethane	ug/L	20	19.6	98	85-123	
Bromoform	ug/L	20	17.4	87	83-123	
Bromomethane	ug/L	20	24.3	122	39-149	
Carbon disulfide	ug/L	20	18.4	92	85-124	
Carbon tetrachloride	ug/L	20	19.4	97	85-126	
Chlorobenzene	ug/L	20	19.5	98	87-118	
Chloroethane	ug/L	20	22.5	113	73-134	
Chloroform	ug/L	20	19.3	96	85-119	
Chloromethane	ug/L	20	16.8	84	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.9	100	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.3	97	80-124	
Dibromochloromethane	ug/L	20	19.0	95	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.2	101	81-126	
Styrene	ug/L	20	18.9	95	85-120	
Tetrachloroethene	ug/L	20	18.8	94	87-120	
Toluene	ug/L	20	18.7	93	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.3	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.8	94	80-122	
Trichloroethene	ug/L	20	20.6	103	82-120	
Vinyl chloride	ug/L	20	22.5	113	74-147	
Xylene (Total)	ug/L	60	55.7	93	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556810 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044014, 60287044015, 60287044016, 60287044017, 60287044018

METHOD BLANK: 2284786 Matrix: Water
Associated Lab Samples: 60287044014, 60287044015, 60287044016, 60287044017, 60287044018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 20:36	
1,2-Dichloroethane-d4 (S)	%	101	80-117		11/26/18 20:36	
4-Bromofluorobenzene (S)	%	98	80-119		11/26/18 20:36	
Toluene-d8 (S)	%	98	80-115		11/26/18 20:36	

LABORATORY CONTROL SAMPLE: 2284787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.4	102	82-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			99	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556812 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044022, 60287044023, 60287044025, 60287044028

METHOD BLANK: 2284790 Matrix: Water
Associated Lab Samples: 60287044022, 60287044023, 60287044025, 60287044028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	0.19J	1.0	0.17	11/27/18 02:15	
1,2-Dichloroethane-d4 (S)	%	99	80-117		11/27/18 02:15	
4-Bromofluorobenzene (S)	%	98	80-119		11/27/18 02:15	
Toluene-d8 (S)	%	100	80-115		11/27/18 02:15	

LABORATORY CONTROL SAMPLE: 2284791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.9	104	82-120	
1,2-Dichloroethane-d4 (S)	%			100	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556988 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044031, 60287044036, 60287044038

METHOD BLANK: 2285301 Matrix: Water
Associated Lab Samples: 60287044031, 60287044036, 60287044038

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/27/18 18:20	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/27/18 18:20	
4-Bromofluorobenzene (S)	%	98	80-119		11/27/18 18:20	
Toluene-d8 (S)	%	100	80-115		11/27/18 18:20	

LABORATORY CONTROL SAMPLE: 2285302

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	21.5	108	82-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			101	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557295 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044017, 60287044037

METHOD BLANK: 2286312 Matrix: Water
Associated Lab Samples: 60287044017, 60287044037

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 11:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 11:56	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 11:56	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 11:56	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 11:56	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 11:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 11:56	
Acetone	ug/L	ND	10.0	1.9	11/28/18 11:56	
Benzene	ug/L	ND	1.0	0.060	11/28/18 11:56	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 11:56	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 11:56	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 11:56	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 11:56	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 11:56	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 11:56	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 11:56	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 11:56	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 11:56	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 11:56	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 11:56	
Styrene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 11:56	
Toluene	ug/L	ND	1.0	0.17	11/28/18 11:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 11:56	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 11:56	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/28/18 11:56	
4-Bromofluorobenzene (S)	%	101	80-119		11/28/18 11:56	
Toluene-d8 (S)	%	98	80-115		11/28/18 11:56	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2286313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.9	94	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	19.7	99	83-119	
1,1-Dichloroethane	ug/L	20	18.9	94	85-128	
1,1-Dichloroethene	ug/L	20	17.2	86	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	19.1	96	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	97.9	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.7	98	66-139	
Acetone	ug/L	100	90.8	91	62-142	
Benzene	ug/L	20	18.9	95	81-118	
Bromodichloromethane	ug/L	20	18.9	95	85-123	
Bromoform	ug/L	20	18.8	94	83-123	
Bromomethane	ug/L	20	10.5	53	39-149	
Carbon disulfide	ug/L	20	15.7	78	85-124	L2
Carbon tetrachloride	ug/L	20	19.2	96	85-126	
Chlorobenzene	ug/L	20	18.7	94	87-118	
Chloroethane	ug/L	20	18.5	92	73-134	
Chloroform	ug/L	20	18.6	93	85-119	
Chloromethane	ug/L	20	12.4	62	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.7	93	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	19.5	97	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	19.2	96	81-126	
Styrene	ug/L	20	18.8	94	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	18.2	91	82-118	
trans-1,2-Dichloroethene	ug/L	20	17.9	89	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.9	95	80-122	
Vinyl chloride	ug/L	20	15.1	76	74-147	
Xylene (Total)	ug/L	60	54.9	92	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555865 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2281117 Matrix: Water
Associated Lab Samples: 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/19/18 09:17	

LABORATORY CONTROL SAMPLE: 2281118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.48	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281119 2281120

Parameter	Units	60286928002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.47	0.48	95	95	75-125	1	20	

SAMPLE DUPLICATE: 2281121

Parameter	Units	60286928002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2281122

Parameter	Units	60286947002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557759
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044040

METHOD BLANK: 2288315
Matrix: Water
Associated Lab Samples: 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/01/18 02:48	

LABORATORY CONTROL SAMPLE: 2288316

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	10	10.5	105	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 558789 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044039

METHOD BLANK: 2292726 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/09/18 15:02	
Sulfate	mg/L	ND	1.0	0.24	12/09/18 15:02	

LABORATORY CONTROL SAMPLE: 2292727

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2292728 2292729

Parameter	Units	60287044031 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	431	250	250	670	656	96	90	90-110	2	15	
Sulfate	mg/L	239	100	100	386	404	148	166	90-110	5	15	E,M1

MATRIX SPIKE SAMPLE: 2292730

Parameter	Units	60287132005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.8	5	7.3	91	90-110	
Sulfate	mg/L	806	500	1230	85	90-110	M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 559201 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044033, 60287044038

METHOD BLANK: 2295155 Matrix: Water
Associated Lab Samples: 60287044033, 60287044038

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/10/18 08:43	

LABORATORY CONTROL SAMPLE: 2295156

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2295157 2295158

Parameter	Units	60287044033 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	10.6	5	5	12.7	14.4	44	76	90-110	12	15	M1

MATRIX SPIKE SAMPLE: 2295159

Parameter	Units	60287044038 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	29.0	250	698	267	90-110	M1

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(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555762 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2280185 Matrix: Water
Associated Lab Samples: 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 07:59	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 07:59	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 07:59	

LABORATORY CONTROL SAMPLE: 2280186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.92	92	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	102	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280187

Parameter	Units	60287044040 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.97	94	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.061J	2	2.0	97	90-110	

SAMPLE DUPLICATE: 2280188

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.14	ND		20	
Nitrogen, Nitrite	mg/L	0.18	0.60	7	20	
Nitrogen, NO2 plus NO3	mg/L	0.32	0.31	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555770 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287044031, 60287044032

METHOD BLANK: 2280236 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 10:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 10:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 10:04	

LABORATORY CONTROL SAMPLE: 2280237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.91	91	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	103	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280238

Parameter	Units	60287044031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.16	1	0.55	39	70-130	M1
Nitrogen, Nitrite	mg/L	0.25	1	1.3	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.41	2	1.8	71	90-110	M1

SAMPLE DUPLICATE: 2280239

Parameter	Units	60286849026 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10J		20	H1
Nitrogen, Nitrite	mg/L	0.14	0.22	43	20	D6,H1
Nitrogen, NO2 plus NO3	mg/L	0.13	0.31	85	20	D6,H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557381 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2286692 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 16:39	

LABORATORY CONTROL SAMPLE: 2286693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.8	115	80-120	

MATRIX SPIKE SAMPLE: 2286694

Parameter	Units	60287017004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	9.8	5	14.0	84	80-120	

SAMPLE DUPLICATE: 2286695

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13000	13000	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556483
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556488
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556489
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556702
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556704
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556810
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556812
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 557295
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
H1	Analysis conducted outside the EPA method holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044031	**TMW-26-201811**	EPA 3010	557483	EPA 6010	557608
60287044032	**TMW-25-201811**	EPA 3010	557483	EPA 6010	557608
60287044033	**TMW-21-201811**	EPA 3010	557483	EPA 6010	557608
60287044034	**TMW-22R-201811**	EPA 3010	557483	EPA 6010	557608
60287044035	**MW-58R-201811**	EPA 3010	557483	EPA 6010	557608
60287044037	**MW-95-201811**	EPA 3010	557483	EPA 6010	557608
60287044038	**ITMW-9-201811**	EPA 3010	557483	EPA 6010	557608
60287044039	**MW-87-201811**	EPA 3010	557483	EPA 6010	557608
60287044040	**MW-38-201811**	EPA 3010	557483	EPA 6010	557608
60287044001	**DUP-07-201811**	EPA 5030B/8260	556253		
60287044001	**DUP-07-201811**	EPA 5030B/8260	556483		
60287044002	**MW-192-201811**	EPA 5030B/8260	556253		
60287044003	**MW-187-201811**	EPA 5030B/8260	556253		
60287044004	**ITMW-18-201811**	EPA 5030B/8260	556253		
60287044004	**ITMW-18-201811**	EPA 5030B/8260	556483		
60287044005	**MW-96-201811**	EPA 5030B/8260	556488		
60287044006	**MW-97-201811**	EPA 5030B/8260	556488		
60287044007	**MW-24-201811**	EPA 5030B/8260	556488		
60287044008	**DUP-02-201811**	EPA 5030B/8260	556488		
60287044009	**MW-55R-201811**	EPA 5030B/8260	556488		
60287044010	**DUP-08-201811**	EPA 5030B/8260	556488		
60287044011	**IW-77-201811**	EPA 5030B/8260	556488		
60287044011	**IW-77-201811**	EPA 5030B/8260	556702		
60287044012	**TMW-12-201811**	EPA 5030B/8260	556489		
60287044012	**TMW-12-201811**	EPA 5030B/8260	556702		
60287044013	**DUP-04-201811**	EPA 5030B/8260	556489		
60287044013	**DUP-04-201811**	EPA 5030B/8260	556702		
60287044014	**MW-82-201811**	EPA 5030B/8260	556489		
60287044014	**MW-82-201811**	EPA 5030B/8260	556810		
60287044015	**ITMW-7-201811**	EPA 5030B/8260	556489		
60287044015	**ITMW-7-201811**	EPA 5030B/8260	556810		
60287044016	**ITMW-19-201811**	EPA 5030B/8260	556489		
60287044016	**ITMW-19-201811**	EPA 5030B/8260	556810		
60287044017	**MW-93-201811**	EPA 5030B/8260	556810		
60287044017	**MW-93-201811**	EPA 5030B/8260	557295		
60287044018	**MW-189-201811**	EPA 5030B/8260	556489		
60287044018	**MW-189-201811**	EPA 5030B/8260	556810		
60287044019	**TRIP BLANK**	EPA 5030B/8260	556489		
60287044020	**EB-01-201811**	EPA 5030B/8260	556489		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044021	**MW-190-201811**	EPA 5030B/8260	556489		
60287044022	**ITMW-21-201811**	EPA 5030B/8260	556489		
60287044022	**ITMW-21-201811**	EPA 5030B/8260	556812		
60287044023	**ITMW-1-201811**	EPA 5030B/8260	556489		
60287044023	**ITMW-1-201811**	EPA 5030B/8260	556812		
60287044024	**ITMW-5-201811**	EPA 5030B/8260	556704		
60287044025	**MW-91-201811**	EPA 5030B/8260	556489		
60287044025	**MW-91-201811**	EPA 5030B/8260	556812		
60287044026	**MW-29-201811**	EPA 5030B/8260	556489		
60287044027	**MW-39R-201811**	EPA 5030B/8260	556489		
60287044028	**MW-182-201811**	EPA 5030B/8260	556489		
60287044028	**MW-182-201811**	EPA 5030B/8260	556812		
60287044029	**IW-78-201811**	EPA 5030B/8260	556489		
60287044030	**TMW-24-201811**	EPA 5030B/8260	556704		
60287044031	**TMW-26-201811**	EPA 5030B/8260	556489		
60287044031	**TMW-26-201811**	EPA 5030B/8260	556988		
60287044032	**TMW-25-201811**	EPA 5030B/8260	556704		
60287044033	**TMW-21-201811**	EPA 5030B/8260	556704		
60287044034	**TMW-22R-201811**	EPA 5030B/8260	556704		
60287044035	**MW-58R-201811**	EPA 5030B/8260	556704		
60287044036	**DUP-05-201811**	EPA 5030B/8260	556704		
60287044036	**DUP-05-201811**	EPA 5030B/8260	556988		
60287044037	**MW-95-201811**	EPA 5030B/8260	556704		
60287044037	**MW-95-201811**	EPA 5030B/8260	557295		
60287044038	**ITMW-9-201811**	EPA 5030B/8260	556704		
60287044038	**ITMW-9-201811**	EPA 5030B/8260	556988		
60287044039	**MW-87-201811**	EPA 5030B/8260	556704		
60287044040	**MW-38-201811**	EPA 5030B/8260	556704		
60287044041	**TRIP BLANK**	EPA 5030B/8260	556704		
60287044042	**TRIP BLANK**	EPA 5030B/8260	556704		
60287044035	**MW-58R-201811**	SM 4500-S-2 D	555865		
60287044037	**MW-95-201811**	SM 4500-S-2 D	555865		
60287044038	**ITMW-9-201811**	SM 4500-S-2 D	555865		
60287044039	**MW-87-201811**	SM 4500-S-2 D	555865		
60287044040	**MW-38-201811**	SM 4500-S-2 D	555865		
60287044031	**TMW-26-201811**	EPA 300.0	558789		
60287044032	**TMW-25-201811**	EPA 300.0	558789		
60287044033	**TMW-21-201811**	EPA 300.0	558789		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044033	**TMW-21-201811**	EPA 300.0	559201		
60287044034	**TMW-22R-201811**	EPA 300.0	558789		
60287044035	**MW-58R-201811**	EPA 300.0	558789		
60287044037	**MW-95-201811**	EPA 300.0	558789		
60287044038	**ITMW-9-201811**	EPA 300.0	559201		
60287044039	**MW-87-201811**	EPA 300.0	558789		
60287044040	**MW-38-201811**	EPA 300.0	557759		
60287044031	**TMW-26-201811**	EPA 353.2	555770		
60287044032	**TMW-25-201811**	EPA 353.2	555770		
60287044033	**TMW-21-201811**	EPA 353.2	555762		
60287044034	**TMW-22R-201811**	EPA 353.2	555762		
60287044035	**MW-58R-201811**	EPA 353.2	555762		
60287044037	**MW-95-201811**	EPA 353.2	555762		
60287044038	**ITMW-9-201811**	EPA 353.2	555762		
60287044039	**MW-87-201811**	EPA 353.2	555762		
60287044040	**MW-38-201811**	EPA 353.2	555762		
60287044031	**TMW-26-201811**	SM 5310C	557381		
60287044032	**TMW-25-201811**	SM 5310C	557381		
60287044033	**TMW-21-201811**	SM 5310C	557381		
60287044034	**TMW-22R-201811**	SM 5310C	557381		
60287044035	**MW-58R-201811**	SM 5310C	557381		
60287044037	**MW-95-201811**	SM 5310C	557381		
60287044038	**ITMW-9-201811**	SM 5310C	557381		
60287044039	**MW-87-201811**	SM 5310C	557381		
60287044040	**MW-38-201811**	SM 5310C	557381		
60287044031	**TMW-26-201811**	SM 5310C	556798		
60287044032	**TMW-25-201811**	SM 5310C	556798		
60287044033	**TMW-21-201811**	SM 5310C	556798		
60287044034	**TMW-22R-201811**	SM 5310C	556798		

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Pace Analytical

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LAB USE ONLY — WO# : 60287044 — 60287044

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number:

State: AR County/City: Fort Smith Time Zone Collected: PT MT (CT) ET

Phone: Email: 314-833-7325

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): Jo Pavlowsky

Purchase Order #:

DW PWS ID #:

Quote #:

DW Location Code #:

Collected by (signature): Jo Pavlowsky

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: 8881-1			
Sample pH Acceptable	(Y)	N	NA
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	LAB USE ONLY: Lab Sample # / Comments
DUP-07-201811	GW	G	11-14-18	1500				3	-001
MW-192-201811	GW	G	11-14-18	1505				3	-002
MW-187-201811	GW	G	11-14-18	1345				3	-003
ITMW-18-201811	GW	G	11-14-18	1700				3	-004
MW-96-201811	GW	G	11-15-18	0946				3	-005
MW-97-201811	GW	G		1142				3	-006
MW-24-201811	GW	G		1325				3	-007
DUP-02-201811	GW	G		1325				3	-008
MW-55R-201811	GW	G		1556				3	-009
DUP-08-201811	GW	G		1556				3	-010

3D69H; 8260+HR; 3D69H

Customer Remarks/ Special Conditions/ Possible Hazards: MW-24-201811 & DUP-02 were both ascorbic acid bottles, not HCl bottles

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zplc

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client (X) Courier [ ] Pace Courier [ ]

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Jo Pavlowsky (Ramb)	11-15-18 1400	UPS of 1 pcs.	11-16-18 0550
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4, 1.8 oC

Comments: _____

Trip Blank Received: (Y) N N/A HCL MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page 1)

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	N	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	8260 Full List VOCs		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
IW-77-201811	GW	G	11-15-18	1710				3	X		3D69H	-011
TMW-12-201811				0930				3	X			-012
DUP-04-201811				0930				3	X			-013
MW-82-201811				1115				3	X			-014
ITMW-7-201811				1330				3	X			-015
ITMW-19-201811				1430				3		X	3D7HR	-016
MW-93-201811				1545				3		X		-017
MW-189-201811				1655				3	X		3D69H	-018
---- Trip Blank				—				2	X		2D69H	-019
EB-01-201811								3	X		3D69H	-020

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zpcl

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.5, 1.2 °C 1.6

Cooler Therm Corr. Factor +0.2 °C

Cooler Temp Corrected 0.7, 1.4 °C 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature) Client / Pace	11.16.18 0550
Relinquished by/Company : (Signature) (see page 1)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page 1)

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 full list VOCs; 8260 full list VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns			Lab Sample # / Comments
MW-190-201811	GW	G	11-15-18	0925				3	X	3D69H	-021
ITMW-21-201811				1101					X		-022
ITMW-1-201811				1225					X		-023
ITMW-5-201811				1425					X		-024
MW-91-201811				1545					X		-025
MW-29-201811				0910					X		-026
MW-39R-201811				1030					X		-027
MW-182-201811				1430					X		-028
IW-78-201811				1525					X	3D69H	-029
TMW-24-201811				1700					X		-030

Customer Remarks/ Special Conditions/ Possible Hazards: IW-78 has ascorbic acid VOAs, not HCl

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zpk

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)		Received / Pass.	11-16-18 0550
Relinquished by/Company : (Signature) (see page 1)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T500

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

HCL MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State: KS | County/City | Time Zone Collected: / PT MT CT ET

Phone: see page #1

Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: Dissolved org carbon

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) D D | U U 2 U U U 45

Lab Project Manager: 60287044

**Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

LAB Profile/Line: 7444 Line 1

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Methane Ethane Ethene	MEE, A	Metals- TOTAL IRON	Sulfate/Nitrate/Chloride	TOTAL ORGANIC CARBON	Volatile fatty acids	dissolved organic carbon	Sulfate/Nitrate	Sulfide	Lab Sample # / Comments
TMW-26-201811	SP3U	GW	G	11-15-18	1115				X	X	AG3U	X	X	X	X	X			-031
TMW-25-201811					1330				X	X		X	X	X	X	X			-032
TMW-21-201811					1515				X	X		X	X	X	X	X			-033
TMW-22R-201811					1650				X	X		X	X	X	X	X			-034
MW-58R-201811					1400				X		X	X		X	BP3B		X	X	-035
DUP-05-201811					1400			3	X										-036
MW-95-201811					1555				X	X		X		X			X	X	-037
ITMW-9-201811					1520				X	X		X		X			X	X	-038
MW-87-201811					1330				X	X		X		X			X	X	-039
MW-36-201811					0955				X	X		X		X			X	X	-046

2D69U, 1D69Q, AG3S, BP3U

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags Zac

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		UC of / Pac.	11-16-18 0550
Relinquished by/Company : (Signature) see page #1	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: TJ00

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

4

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: see page

State / County/City / Time Zone Collected: PT MT CT ET

Phone: see page
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3)

Lab Project Manager: L00287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 full list VOC

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
Trip Blank	-	-	-	-				2	X	2D68H -041
Trip Blank	-	-	-	-				2	X	-042

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble bags Zpk

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:
Temp Blank received: Y (N) NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6
Cooler Therm Corr. Factor +0.2 oC
Cooler Temp Corrected 0.7, 1.4 oC 1.8
Comments: _____

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature) NCI pf Pace	11-16-18 0550
Relinquished by/Company : (Signature) see page	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 30, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60287044**

Pace Workorder: 28772

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, November 20, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/30/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 21

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Energy Services LLC.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287720001	TMW-26-201811	Water	11/15/2018 11:15	11/20/2018 11:45
287720002	TMW-25-201811	Water	11/15/2018 13:30	11/20/2018 11:45
287720003	TMW-21-201811	Water	11/15/2018 15:15	11/20/2018 11:45
287720004	TMW-22R-201811	Water	11/15/2018 16:50	11/20/2018 11:45
287720005	MW-58R-201811	Water	11/15/2018 14:00	11/20/2018 11:45
287720006	MW-95-201811	Water	11/15/2018 15:55	11/20/2018 11:45
287720007	ITMW-9-201811	Water	11/15/2018 15:20	11/20/2018 11:45
287720008	MW-87-201811	Water	11/15/2018 13:30	11/20/2018 11:45
287720009	MW-38-201811	Water	11/15/2018 09:55	11/20/2018 11:45

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PROJECT SUMMARY

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Workorder Comments

The container pH for samples 28772 (0001-0003) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720001** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-26-201811** Date Collected: 11/15/2018 11:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<200**	mg/l	200	14	1000	11/27/2018 02:02	KB	d
Acetic Acid	**4000**	mg/l	100	24	1000	11/27/2018 02:02	KB	d,B
Propionic Acid	**16000**	mg/l	1000	44	10000	11/27/2018 02:58	KB	d,B
Butyric Acid	**1600**	mg/l	100	4.7	1000	11/27/2018 02:02	KB	d,B
Pyruvic Acid	**83**	mg/l	10	0.57	100	11/27/2018 01:05	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**11000**	ug/l	0.50	0.014	1	11/29/2018 09:48	BW	n
Ethane	**1.5**	ug/l	0.10	0.0070	1	11/29/2018 09:48	BW	n
Ethene	**15**	ug/l	0.10	0.0050	1	11/29/2018 09:48	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720002** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-25-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**220**	mg/l	20	1.4	100	11/27/2018 03:54	KB	d
Acetic Acid	**3800**	mg/l	100	24	1000	11/27/2018 04:50	KB	d,B
Propionic Acid	**19000**	mg/l	1000	44	10000	11/27/2018 05:47	KB	d,B
Butyric Acid	**1200**	mg/l	100	4.7	1000	11/27/2018 04:50	KB	d,B
Pyruvic Acid	**<100**	mg/l	100	5.7	1000	11/27/2018 04:50	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**900**	ug/l	0.50	0.014	1	11/29/2018 11:02	BW	n
Ethane	**6.3**	ug/l	0.10	0.0070	1	11/29/2018 11:02	BW	n
Ethene	**31**	ug/l	0.10	0.0050	1	11/29/2018 11:02	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720003** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-21-201811** Date Collected: 11/15/2018 15:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<20**	mg/l	20	1.4	100	11/27/2018 06:43	KB	d
Acetic Acid	**260**	mg/l	10	2.4	100	11/27/2018 06:43	KB	d,B
Propionic Acid	**4600**	mg/l	100	4.4	1000	11/27/2018 07:39	KB	d,B
Butyric Acid	**130**	mg/l	10	0.47	100	11/27/2018 06:43	KB	d,B
Pyruvic Acid	**38**	mg/l	10	0.57	100	11/27/2018 06:43	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**15000**	ug/l	0.50	0.014	1	11/29/2018 11:15	BW	n
Ethane	**0.49**	ug/l	0.10	0.0070	1	11/29/2018 11:15	BW	n
Ethene	**1.9**	ug/l	0.10	0.0050	1	11/29/2018 11:15	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720004** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-22R-201811** Date Collected: 11/15/2018 16:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/22/2018 08:08	KB	d
Acetic Acid	**62**	mg/l	10	2.4	100	11/27/2018 08:36	KB	d,B
Propionic Acid	**230**	mg/l	10	0.44	100	11/27/2018 08:36	KB	d,B
Butyric Acid	**12**	mg/l	1.0	0.047	10	11/22/2018 08:08	KB	d,B
Pyruvic Acid	**2.1**	mg/l	1.0	0.057	10	11/22/2018 08:08	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**700**	ug/l	0.50	0.014	1	11/29/2018 11:28	BW	n
Ethane	**1.6**	ug/l	0.10	0.0070	1	11/29/2018 11:28	BW	n
Ethene	**4.2**	ug/l	0.10	0.0050	1	11/29/2018 11:28	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720005** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-58R-201811** Date Collected: 11/15/2018 14:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**24**	ug/l	0.50	0.014	1	11/29/2018 11:43	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 11:43	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 11:43	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 11:43	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720006** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-95-201811** Date Collected: 11/15/2018 15:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**7.3**	ug/l	0.50	0.014	1	11/29/2018 11:56	BW	n
Ethane	**0.64**	ug/l	0.10	0.0070	1	11/29/2018 11:56	BW	n
Ethene	**0.10**	ug/l	0.10	0.0050	1	11/29/2018 11:56	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 11:56	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720007** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **ITMW-9-201811** Date Collected: 11/15/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**29**	ug/l	0.50	0.014	1	11/29/2018 12:09	BW	n
Ethane	**0.13**	ug/l	0.10	0.0070	1	11/29/2018 12:09	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 12:09	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:09	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720008** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-87-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**2.0**	ug/l	0.50	0.014	1	11/29/2018 12:21	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 12:21	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 12:21	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:21	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720009** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-38-201811** Date Collected: 11/15/2018 09:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**18**	ug/l	0.50	0.014	1	11/29/2018 12:37	BW	n
Ethane	**0.62**	ug/l	0.10	0.0070	1	11/29/2018 12:37	BW	n
Ethene	**16**	ug/l	0.10	0.0050	1	11/29/2018 12:37	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:37	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287720004

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	110	70-130	
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.036	20	21	21	107	106	70-130	1.2	30	d
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
Pyruvic Acid	mg/l	1	20	21	21	100	99	70-130	0.28	30	d

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: DISG/7237 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287720001, 287720002, 287720003, 287720004, 287720005, 287720006, 287720007, 287720008, 287720009

METHOD BLANK: 58691

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58692 58693

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	97	96	80-120	0.86	20	n
Ethane	ug/l	38	41	41	108	109	80-120	0.88	20	n
Ethene	ug/l	35	38	39	109	109	80-120	0.49	20	n
Acetylene	ug/l	33	37	37	113	114	80-120	1.3	20	n

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287720001, 287720002, 287720003, 287720004

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	109	70-130	
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287720004	TMW-22R-201811			AM23G	EDON/3943
287720001	TMW-26-201811			AM20GAX	DISG/7237
287720002	TMW-25-201811			AM20GAX	DISG/7237
287720003	TMW-21-201811			AM20GAX	DISG/7237
287720004	TMW-22R-201811			AM20GAX	DISG/7237
287720005	MW-58R-201811			AM20GAX	DISG/7237
287720006	MW-95-201811			AM20GAX	DISG/7237
287720007	ITMW-9-201811			AM20GAX	DISG/7237
287720008	MW-87-201811			AM20GAX	DISG/7237
287720009	MW-38-201811			AM20GAX	DISG/7237
287720001	TMW-26-201811			AM23G	EDON/3944
287720002	TMW-25-201811			AM23G	EDON/3944
287720003	TMW-21-201811			AM23G	EDON/3944
287720004	TMW-22R-201811			AM23G	EDON/3944

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Chain of Custody

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Workorder: 60287044 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 11/30/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9567	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: TSP	Volatile Fatty Acids	Methane, Ethane, Ethene	M,E,E,A	LAB USE ONLY
1	TMW-26-201811	11/15/2018 11:15	60287044031	Water	2	3	X	X		
2	TMW-25-201811	11/15/2018 13:30	60287044032	Water	2	3	X	X		
3	TMW-21-201811	11/15/2018 15:15	60287044033	Water	2	3	X	X		
4	TMW-22R-201811	11/15/2018 16:50	60287044034	Water	2	3	X	X		
5	MW-58R-201811	11/15/2018 14:00	60287044035	Water		3			X	
6	MW-95-201811	11/15/2018 15:55	60287044037	Water		3			X	
7	ITMW-9-201811	11/15/2018 15:20	60287044038	Water		3			X	
8	MW-87-201811	11/15/2018 13:30	60287044039	Water		3			X	
9	MW-38-201811	11/15/2018 09:55	60287044040	Water		3			X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Faulkenberry	11.9.18 1800		
2				
3				

Comments

Cooler Temperature on Receipt 3 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: _____ **Project:** _____ **Lab Work Order:** _____

A. **Shipping/Container Information** (circle appropriate response)

Courier: FedEx UPS USPS Client Other:_____ **Air bill Present:** Yes No

Tracking Number:_____

Custody Seal on Cooler/Box Present: Yes No **Seals Intact:** Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other:_____

Type of Ice: Wet Blue None **Ice Intact:** Yes Melted

Cooler Temperature:_____ **Radiation Screened:** Yes No **Chain of Custody Present:** Yes No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out				
Chain of Custody relinquished				
Sampler Name & Signature on COC				
Containers intact				
Were samples in separate bags				
Sample container labels match COC Sample name/date and time collected				
Sufficient volume provided				
PAES containers used				
Are containers properly preserved for the requested testing? (as labeled)				
If an unknown preservation state, were containers checked? Exception: VOA's coliform				If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?				
Headspace present?				

Comments:_____

_____

Cooler contents examined/received by :_____ **Date:**_____

Project Manager Review :_____ **Date:**_____

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
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(913)599-5665

November 30, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287058001	**VP-7-201811**	Water	11/15/18 11:35	11/16/18 05:50
60287058002	**VP-8-201811**	Water	11/15/18 11:42	11/16/18 05:50
60287058003	**VP-10-201811**	Water	11/15/18 11:05	11/16/18 05:50
60287058004	**VP-12-201811**	Water	11/15/18 12:09	11/16/18 05:50
60287058005	**VP-14-201811**	Water	11/15/18 12:30	11/16/18 05:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287058001	**VP-7-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058002	**VP-8-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058003	**VP-10-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058004	**VP-12-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058005	**VP-14-201811**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
5 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 556704

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556704 [MSV/9344 (Lab ID: 2284130)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556704

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-7-201811 **Lab ID: 60287058001** Collected: 11/15/18 11:35 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**23.3**	ug/L	10.0	1.9	1		11/26/18 09:34	67-64-1	
Benzene	**0.97J**	ug/L	1.0	0.060	1		11/26/18 09:34	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:34	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:34	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 09:34	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:34	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:34	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:34	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:34	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:34	67-66-3	
Chloromethane	**0.12J**	ug/L	1.0	0.080	1		11/26/18 09:34	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:34	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:34	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		11/26/18 09:34	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:34	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:34	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:34	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 09:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.66J**	ug/L	10.0	0.42	1		11/26/18 09:34	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:34	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:34	127-18-4	
Toluene	**0.21J**	ug/L	1.0	0.17	1		11/26/18 09:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:34	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 09:34	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 09:34	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:34	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 09:34	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 09:34	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/26/18 09:34	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:34		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-8-201811 **Lab ID: 60287058002** Collected: 11/15/18 11:42 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**69.1**	ug/L	10.0	1.9	1		11/26/18 09:48	67-64-1	
Benzene	**0.89J**	ug/L	1.0	0.060	1		11/26/18 09:48	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:48	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:48	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:48	74-83-9	
2-Butanone (MEK)	**12.7**	ug/L	10.0	0.59	1		11/26/18 09:48	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:48	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:48	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:48	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:48	67-66-3	
Chloromethane	**0.39J**	ug/L	1.0	0.080	1		11/26/18 09:48	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:48	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:48	75-34-3	
1,2-Dichloroethane	**0.24J**	ug/L	1.0	0.12	1		11/26/18 09:48	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:48	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:48	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:48	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 09:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.92J**	ug/L	10.0	0.42	1		11/26/18 09:48	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:48	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:48	127-18-4	
Toluene	**0.33J**	ug/L	1.0	0.17	1		11/26/18 09:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:48	79-00-5	
Trichloroethene	**4.5**	ug/L	1.0	0.17	1		11/26/18 09:48	79-01-6	
Vinyl chloride	**0.17J**	ug/L	1.0	0.13	1		11/26/18 09:48	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:48	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 09:48	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/26/18 09:48	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/26/18 09:48	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:48		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-10-201811 **Lab ID: 60287058003** Collected: 11/15/18 11:05 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.1J**	ug/L	10.0	1.9	1		11/26/18 10:59	67-64-1	
Benzene	**0.26J**	ug/L	1.0	0.060	1		11/26/18 10:59	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 10:59	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 10:59	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 10:59	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 10:59	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 10:59	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 10:59	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 10:59	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:59	75-00-3	
Chloroform	**0.83J**	ug/L	1.0	0.14	1		11/26/18 10:59	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 10:59	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 10:59	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 10:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 10:59	107-06-2	
1,1-Dichloroethene	**1.6**	ug/L	1.0	0.20	1		11/26/18 10:59	75-35-4	
cis-1,2-Dichloroethene	**14.4**	ug/L	1.0	0.080	1		11/26/18 10:59	156-59-2	
trans-1,2-Dichloroethene	**0.36J**	ug/L	1.0	0.20	1		11/26/18 10:59	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 10:59	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 10:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 10:59	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 10:59	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 10:59	591-78-6	
Methylene chloride	**0.35J**	ug/L	1.0	0.15	1		11/26/18 10:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 10:59	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 10:59	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:59	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 10:59	127-18-4	
Toluene	**0.41J**	ug/L	1.0	0.17	1		11/26/18 10:59	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 10:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 10:59	79-00-5	
Trichloroethene	**250**	ug/L	5.0	0.85	5		11/26/18 11:13	79-01-6	
Vinyl chloride	**0.55J**	ug/L	1.0	0.13	1		11/26/18 10:59	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 10:59	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 10:59	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/26/18 10:59	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/26/18 10:59	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 10:59		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-12-201811 **Lab ID: 60287058004** Collected: 11/15/18 12:09 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.5J**	ug/L	10.0	1.9	1		11/26/18 10:02	67-64-1	
Benzene	**0.17J**	ug/L	1.0	0.060	1		11/26/18 10:02	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 10:02	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 10:02	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 10:02	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 10:02	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 10:02	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 10:02	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 10:02	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:02	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 10:02	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 10:02	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 10:02	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 10:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 10:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 10:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 10:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 10:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 10:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 10:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 10:02	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 10:02	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 10:02	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 10:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 10:02	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 10:02	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:02	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 10:02	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 10:02	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 10:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 10:02	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 10:02	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 10:02	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 10:02	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 10:02	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 10:02	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 10:02	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 10:02		

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-14-201811 **Lab ID: 60287058005** Collected: 11/15/18 12:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/26/18 10:45	67-64-1	
Benzene	**0.18J**	ug/L	1.0	0.060	1		11/26/18 10:45	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 10:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 10:45	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 10:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 10:45	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 10:45	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 10:45	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 10:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:45	75-00-3	
Chloroform	**0.32J**	ug/L	1.0	0.14	1		11/26/18 10:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 10:45	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 10:45	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 10:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 10:45	107-06-2	
1,1-Dichloroethene	**0.80J**	ug/L	1.0	0.20	1		11/26/18 10:45	75-35-4	
cis-1,2-Dichloroethene	**2.6**	ug/L	1.0	0.080	1		11/26/18 10:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 10:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 10:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 10:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 10:45	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 10:45	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 10:45	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 10:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 10:45	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 10:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:45	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 10:45	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 10:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 10:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 10:45	79-00-5	
Trichloroethene	**64.1**	ug/L	1.0	0.17	1		11/26/18 10:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 10:45	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 10:45	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/26/18 10:45	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 10:45	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 10:45	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 10:45		

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

QC Batch: 556704 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287058001, 60287058002, 60287058003, 60287058004, 60287058005

METHOD BLANK: 2284130 Matrix: Water
Associated Lab Samples: 60287058001, 60287058002, 60287058003, 60287058004, 60287058005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/26/18 08:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/26/18 08:52	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,2-Dichloroethane	ug/L	0.12J	1.0	0.12	11/26/18 08:52	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/26/18 08:52	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/26/18 08:52	
2-Hexanone	ug/L	ND	10.0	1.2	11/26/18 08:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/26/18 08:52	
Acetone	ug/L	ND	10.0	1.9	11/26/18 08:52	
Benzene	ug/L	ND	1.0	0.060	11/26/18 08:52	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/26/18 08:52	
Bromoform	ug/L	ND	1.0	0.070	11/26/18 08:52	
Bromomethane	ug/L	ND	5.0	0.16	11/26/18 08:52	
Carbon disulfide	ug/L	ND	5.0	0.12	11/26/18 08:52	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/26/18 08:52	
Chlorobenzene	ug/L	ND	1.0	0.21	11/26/18 08:52	
Chloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
Chloroform	ug/L	ND	1.0	0.14	11/26/18 08:52	
Chloromethane	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/26/18 08:52	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/26/18 08:52	
Ethylbenzene	ug/L	ND	1.0	0.18	11/26/18 08:52	
Methylene chloride	ug/L	ND	1.0	0.15	11/26/18 08:52	
Styrene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/26/18 08:52	
Toluene	ug/L	ND	1.0	0.17	11/26/18 08:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 08:52	
Vinyl chloride	ug/L	ND	1.0	0.13	11/26/18 08:52	
Xylene (Total)	ug/L	ND	3.0	0.42	11/26/18 08:52	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 08:52	
4-Bromofluorobenzene (S)	%	99	80-119		11/26/18 08:52	
Toluene-d8 (S)	%	99	80-115		11/26/18 08:52	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

LABORATORY CONTROL SAMPLE: 2284131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.5	97	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.2	101	74-121	
1,1,2-Trichloroethane	ug/L	20	19.8	99	83-119	
1,1-Dichloroethane	ug/L	20	19.1	95	85-128	
1,1-Dichloroethene	ug/L	20	17.8	89	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	19.6	98	81-126	
2-Butanone (MEK)	ug/L	100	91.7	92	65-134	
2-Hexanone	ug/L	100	98.3	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.1	98	66-139	
Acetone	ug/L	100	81.3	81	62-142	
Benzene	ug/L	20	19.4	97	81-118	
Bromodichloromethane	ug/L	20	19.6	98	85-123	
Bromoform	ug/L	20	17.4	87	83-123	
Bromomethane	ug/L	20	24.3	122	39-149	
Carbon disulfide	ug/L	20	18.4	92	85-124	
Carbon tetrachloride	ug/L	20	19.4	97	85-126	
Chlorobenzene	ug/L	20	19.5	98	87-118	
Chloroethane	ug/L	20	22.5	113	73-134	
Chloroform	ug/L	20	19.3	96	85-119	
Chloromethane	ug/L	20	16.8	84	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.9	100	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.3	97	80-124	
Dibromochloromethane	ug/L	20	19.0	95	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.2	101	81-126	
Styrene	ug/L	20	18.9	95	85-120	
Tetrachloroethene	ug/L	20	18.8	94	87-120	
Toluene	ug/L	20	18.7	93	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.3	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.8	94	80-122	
Trichloroethene	ug/L	20	20.6	103	82-120	
Vinyl chloride	ug/L	20	22.5	113	74-147	
Xylene (Total)	ug/L	60	55.7	93	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			99	80-115	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556704

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287058001	**VP-7-201811**	EPA 5030B/8260	556704		
60287058002	**VP-8-201811**	EPA 5030B/8260	556704		
60287058003	**VP-10-201811**	EPA 5030B/8260	556704		
60287058004	**VP-12-201811**	EPA 5030B/8260	556704		
60287058005	**VP-14-201811**	EPA 5030B/8260	556704		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY

WO# : 60287058

60287058

er or MTJL Log-in

AL ILY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Container Preservative Type **

(3)

Lab Project Manager: 60287058

* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690010033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

Phone: Email: 314-853-7325

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print): Nick Zurweller

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required: Standard

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses

8260 Full List VOC

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	(Y)	N	NA
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
VP-7-201811		G	11-15-18	1135					X	-001
VP-8-201811		G	11-15-18	1142					X	-002
VP-10-201811		G	11-15-18	1105					X	-003
VP-12-201811		G	11-15-18	1209					X	-004
VP-14-201811		G	11-15-18	1230					X	-005

3D69H

Customer Remarks/ Special Conditions/ Possible Hazards: separate chain page 1 of 1

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags Zplc

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor: +0.2 oC

Cooler Temp Corrected: 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[illegible] Pavlowsky/REM	11/15/18 1500	[illegible] of/Pest	11-16-18 0550
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 10, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church for
Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287140001	**TMW-23-201811**	Water	11/16/18 09:55	11/17/18 09:00
60287140002	**DUP-03-201811**	Water	11/16/18 09:55	11/17/18 09:00
60287140003	**EB-08-201811**	Water	11/16/18 10:30	11/17/18 09:00
60287140004	**EB-02-201811**	Water	11/16/18 10:53	11/17/18 09:00
60287140005	**MW-86-201811**	Water	11/16/18 09:40	11/17/18 09:00
60287140006	**MW-25-201811**	Water	11/16/18 09:25	11/17/18 09:00
60287140007	**TMW-16-201811**	Water	11/16/18 10:25	11/17/18 09:00
60287140008	**TMW-32-201811**	Water	11/16/18 09:35	11/17/18 09:00
60287140009	**MW-89-201811**	Water	11/16/18 09:35	11/17/18 09:00
60287140010	**MW-50R-201811**	Water	11/16/18 12:10	11/17/18 09:00
60287140011	**MW-87-201811**	Air	11/15/18 13:30	11/17/18 09:00
60287140012	**MW-86-201811**	Air	11/16/18 09:40	11/17/18 09:00
60287140013	**MW-25-201811**	Air	11/16/18 08:00	11/17/18 09:00
60287140014	**RW-69-201811**	Water	11/16/18 13:15	11/17/18 09:00
60287140015	**MW-73-201811**	Water	11/16/18 13:20	11/17/18 09:00
60287140016	**IW-73-201811**	Air	11/14/18 15:10	11/17/18 09:00
60287140017	**MW-58R-201811**	Air	11/15/18 14:00	11/17/18 09:00
60287140018	**RW-69-201811**	Air	11/14/18 12:30	11/17/18 09:00
60287140019	**MW-95-201811**	Air	11/15/18 08:00	11/17/18 09:00
60287140020	**ITMW-9-201811**	Air	11/15/18 15:20	11/17/18 09:00
60287140021	**MW-38-201811**	Air	11/15/18 09:55	11/17/18 09:00
60287140022	**MW-89-201811**	Air	11/14/18 10:10	11/17/18 09:00
60287140023	**MW-50R-201811**	Air	11/13/18 14:10	11/17/18 09:00
60287140024	**TMW-11-201811**	Air	11/13/18 16:45	11/17/18 09:00
60287140025	**TMW-10-201811**	Air	11/13/18 16:55	11/17/18 09:00

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287140001	**TMW-23-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140002	**DUP-03-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140003	**EB-08-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140004	**EB-02-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140005	**MW-86-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140006	**MW-25-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140007	**TMW-16-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140008	**TMW-32-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
8 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 557295

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 2286313)
  - Carbon disulfide

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557295

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557298

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557528

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
2 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557819

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286569009,60286770001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2288550)
  - Chloride
- MSD (Lab ID: 2288551)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-23-201811 **Lab ID: 60287140001** Collected: 11/16/18 09:55 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**13.2**	ug/L	10.0	1.9	1		11/28/18 16:09	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:09	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:09	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:09	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:09	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 16:09	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:09	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:09	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:09	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:09	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:09	75-35-4	
cis-1,2-Dichloroethene	**1.2**	ug/L	1.0	0.080	1		11/28/18 16:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:09	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:09	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:09	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:09	591-78-6	
Methylene chloride	**0.17J**	ug/L	1.0	0.15	1		11/28/18 16:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:09	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:09	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:09	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:09	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:09	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:09	79-00-5	
Trichloroethene	**110**	ug/L	1.0	0.17	1		11/28/18 16:09	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:09	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:09	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	108	%	80-119		1		11/28/18 16:09	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/28/18 16:09	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/28/18 16:09	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:09		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: DUP-03-201811 **Lab ID: 60287140002** Collected: 11/16/18 09:55 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.5J**	ug/L	10.0	1.9	1		11/28/18 16:23	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:23	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:23	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:23	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:23	78-93-3	
Carbon disulfide	**0.13J**	ug/L	5.0	0.12	1		11/28/18 16:23	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:23	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:23	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:23	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:23	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:23	107-06-2	
1,1-Dichloroethene	**0.21J**	ug/L	1.0	0.20	1		11/28/18 16:23	75-35-4	
cis-1,2-Dichloroethene	**1.6**	ug/L	1.0	0.080	1		11/28/18 16:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:23	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:23	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/28/18 16:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:23	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:23	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:23	79-00-5	
Trichloroethene	**116**	ug/L	1.0	0.17	1		11/28/18 16:23	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		1		11/28/18 16:23	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/28/18 16:23	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/28/18 16:23	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:23		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: EB-08-201811 **Lab ID: 60287140003** Collected: 11/16/18 10:30 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**1.9J**	ug/L	10.0	1.9	1		11/28/18 16:37	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:37	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:37	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:37	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:37	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 16:37	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:37	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:37	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:37	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:37	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:37	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/28/18 16:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:37	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:37	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:37	591-78-6	
Methylene chloride	**0.55J**	ug/L	1.0	0.15	1		11/28/18 16:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:37	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:37	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:37	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:37	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:37	79-00-5	
Trichloroethene	**0.83J**	ug/L	1.0	0.17	1		11/28/18 16:37	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:37	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:37	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	108	%	80-119		1		11/28/18 16:37	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/28/18 16:37	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 16:37	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:37		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: EB-02-201811 **Lab ID: 60287140004** Collected: 11/16/18 10:53 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/28/18 16:52	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:52	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 16:52	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/28/18 16:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:52	591-78-6	
Methylene chloride	**0.58J**	ug/L	1.0	0.15	1		11/28/18 16:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:52	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:52	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:52	79-00-5	
Trichloroethene	**0.54J**	ug/L	1.0	0.17	1		11/28/18 16:52	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	109	%	80-119		1		11/28/18 16:52	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/28/18 16:52	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 16:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:52		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-86-201811 **Lab ID: 60287140005** Collected: 11/16/18 09:40 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**295**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 12:39	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**21.2**	ug/L	10.0	1.9	1		11/28/18 19:41	67-64-1	
Benzene	**0.41J**	ug/L	1.0	0.060	1		11/28/18 19:41	71-43-2	
Bromodichloromethane	**2.5**	ug/L	1.0	0.19	1		11/28/18 19:41	75-27-4	
Bromoform	**3.6**	ug/L	1.0	0.070	1		11/28/18 19:41	75-25-2	
Bromomethane	**0.26J**	ug/L	5.0	0.16	1		11/28/18 19:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 19:41	78-93-3	
Carbon disulfide	**3.3J**	ug/L	5.0	0.12	1		11/28/18 19:41	75-15-0	
Carbon tetrachloride	**0.92J**	ug/L	1.0	0.18	1		11/28/18 19:41	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 19:41	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 19:41	75-00-3	
Chloroform	**29.9**	ug/L	1.0	0.14	1		11/28/18 19:41	67-66-3	
Chloromethane	**3.5**	ug/L	1.0	0.080	1		11/28/18 19:41	74-87-3	
Dibromochloromethane	**0.70J**	ug/L	1.0	0.21	1		11/28/18 19:41	124-48-1	
1,1-Dichloroethane	**4.6**	ug/L	1.0	0.050	1		11/28/18 19:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 19:41	107-06-2	
1,1-Dichloroethene	**84.0**	ug/L	1.0	0.20	1		11/28/18 19:41	75-35-4	
cis-1,2-Dichloroethene	**19500**	ug/L	2000	160	2000		11/28/18 19:55	156-59-2	
trans-1,2-Dichloroethene	**1890J**	ug/L	2000	400	2000		11/28/18 19:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 19:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 19:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 19:41	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 19:41	100-41-4	
2-Hexanone	**29.3**	ug/L	10.0	1.2	1		11/28/18 19:41	591-78-6	
Methylene chloride	**6.5**	ug/L	1.0	0.15	1		11/28/18 19:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.44J**	ug/L	10.0	0.42	1		11/28/18 19:41	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 19:41	100-42-5	
1,1,2,2-Tetrachloroethane	**133**	ug/L	1.0	0.15	1		11/28/18 19:41	79-34-5	
Tetrachloroethene	**43.1**	ug/L	1.0	0.10	1		11/28/18 19:41	127-18-4	
Toluene	**4.8**	ug/L	1.0	0.17	1		11/28/18 19:41	108-88-3	
1,1,1-Trichloroethane	**73.9**	ug/L	1.0	0.11	1		11/28/18 19:41	71-55-6	
1,1,2-Trichloroethane	**3.5**	ug/L	1.0	0.20	1		11/28/18 19:41	79-00-5	
Trichloroethene	**188000**	ug/L	2000	340	2000		11/28/18 19:55	79-01-6	
Vinyl chloride	**2780**	ug/L	2000	260	2000		11/28/18 19:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 19:41	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	111	%	80-119		1		11/28/18 19:41	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/28/18 19:41	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/28/18 19:41	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 19:41		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/20/18 16:43	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-86-201811 **Lab ID: 60287140005** Collected: 11/16/18 09:40 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**1250**	mg/L	200	48.0	200		12/08/18 07:45	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.14**	mg/L	0.10	0.060	1		11/17/18 12:54		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:54		
Nitrogen, NO2 plus NO3	**0.14**	mg/L	0.10	0.060	1		11/17/18 12:54		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.8**	mg/L	1.0	0.65	1		11/30/18 02:08	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-25-201811 **Lab ID: 60287140006** Collected: 11/16/18 09:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**5570**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 12:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**112**	ug/L	10.0	1.9	1		11/28/18 20:09	67-64-1	
Benzene	**0.37J**	ug/L	1.0	0.060	1		11/28/18 20:09	71-43-2	
Bromodichloromethane	**1.6**	ug/L	1.0	0.19	1		11/28/18 20:09	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:09	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 20:09	78-93-3	
Carbon disulfide	**3.0J**	ug/L	5.0	0.12	1		11/28/18 20:09	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 20:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:09	75-00-3	
Chloroform	**52.9**	ug/L	1.0	0.14	1		11/28/18 20:09	67-66-3	
Chloromethane	**4.7**	ug/L	1.0	0.080	1		11/28/18 20:09	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:09	124-48-1	
1,1-Dichloroethane	**11.6**	ug/L	1.0	0.050	1		11/28/18 20:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	2000	400	2000		11/29/18 14:04	75-35-4	
cis-1,2-Dichloroethene	**18200**	ug/L	2000	160	2000		11/29/18 14:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2000	400	2000		11/29/18 14:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:09	10061-02-6	
Ethylbenzene	**0.22J**	ug/L	1.0	0.18	1		11/28/18 20:09	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 20:09	591-78-6	
Methylene chloride	**17.9**	ug/L	1.0	0.15	1		11/28/18 20:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.6J**	ug/L	10.0	0.42	1		11/28/18 20:09	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:09	100-42-5	
1,1,2,2-Tetrachloroethane	**192**	ug/L	1.0	0.15	1		11/28/18 20:09	79-34-5	
Tetrachloroethene	**49.6**	ug/L	1.0	0.10	1		11/28/18 20:09	127-18-4	
Toluene	**11.6**	ug/L	1.0	0.17	1		11/28/18 20:09	108-88-3	
1,1,1-Trichloroethane	**10.7**	ug/L	1.0	0.11	1		11/28/18 20:09	71-55-6	
1,1,2-Trichloroethane	**4.1**	ug/L	1.0	0.20	1		11/28/18 20:09	79-00-5	
Trichloroethene	**94300**	ug/L	2000	340	2000		11/29/18 14:04	79-01-6	
Vinyl chloride	**762J**	ug/L	2000	260	2000		11/29/18 14:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:09	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	110	%	80-119		1		11/28/18 20:09	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/28/18 20:09	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 20:09	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:09		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/20/18 16:44	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-25-201811 **Lab ID: 60287140006** Collected: 11/16/18 09:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**486**	mg/L	50.0	14.5	50		12/08/18 08:01	16887-00-6	
Sulfate	**500**	mg/L	50.0	12.0	50		12/08/18 08:01	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 12:52		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:52		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 12:52		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.2**	mg/L	1.0	0.65	1		11/30/18 02:47	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-16-201811 **Lab ID: 60287140007** Collected: 11/16/18 10:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**186000**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 16:29	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**146**	ug/L	10.0	1.9	1		11/28/18 20:38	67-64-1	
Benzene	**0.13J**	ug/L	1.0	0.060	1		11/28/18 20:38	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 20:38	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:38	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:38	74-83-9	
2-Butanone (MEK)	**1090**	ug/L	100	5.9	10		11/29/18 14:19	78-93-3	
Carbon disulfide	**0.97J**	ug/L	5.0	0.12	1		11/28/18 20:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:38	56-23-5	
Chlorobenzene	**0.33J**	ug/L	1.0	0.21	1		11/28/18 20:38	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:38	75-00-3	
Chloroform	**0.15J**	ug/L	1.0	0.14	1		11/28/18 20:38	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 20:38	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:38	124-48-1	
1,1-Dichloroethane	**0.25J**	ug/L	1.0	0.050	1		11/28/18 20:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:38	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	2.0	10		11/29/18 14:19	75-35-4	
cis-1,2-Dichloroethene	**29.1**	ug/L	10.0	0.80	10		11/29/18 14:19	156-59-2	
trans-1,2-Dichloroethene	**6.8J**	ug/L	10.0	2.0	10		11/29/18 14:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 20:38	100-41-4	
2-Hexanone	**22.0**	ug/L	10.0	1.2	1		11/28/18 20:38	591-78-6	
Methylene chloride	**0.72J**	ug/L	1.0	0.15	1		11/28/18 20:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 20:38	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:38	100-42-5	
1,1,2,2-Tetrachloroethane	**1.6**	ug/L	1.0	0.15	1		11/28/18 20:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 20:38	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 20:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 20:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 20:38	79-00-5	
Trichloroethene	**368**	ug/L	10.0	1.7	10		11/29/18 14:19	79-01-6	
Vinyl chloride	**1.6J**	ug/L	10.0	1.3	10		11/29/18 14:19	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:38	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	106	%	80-119		1		11/28/18 20:38	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/28/18 20:38	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/28/18 20:38	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**480**	mg/L	50.0	14.5	50		12/06/18 19:09	16887-00-6	
Sulfate	**10.9**	mg/L	10.0	2.4	10		12/01/18 19:44	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-16-201811 **Lab ID: 60287140007** Collected: 11/16/18 10:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.072J**	mg/L	0.10	0.060	1		11/17/18 12:57		
Nitrogen, Nitrite	**0.10**	mg/L	0.10	0.033	1		11/17/18 12:57		
Nitrogen, NO2 plus NO3	**0.18**	mg/L	0.10	0.060	1		11/17/18 12:57		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2980**	mg/L	500	327	500		11/30/18 06:00	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**5910**	mg/L	1000	654	1000		11/27/18 15:16	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-32-201811 **Lab ID: 60287140008** Collected: 11/16/18 09:35 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**7780**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 16:31	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.6J**	ug/L	10.0	1.9	1		11/28/18 20:52	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 20:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 20:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:52	74-83-9	
2-Butanone (MEK)	**21.4**	ug/L	10.0	0.59	1		11/28/18 20:52	78-93-3	
Carbon disulfide	**1.2J**	ug/L	5.0	0.12	1		11/28/18 20:52	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:52	56-23-5	
Chlorobenzene	**1.9**	ug/L	1.0	0.21	1		11/28/18 20:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 20:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 20:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 20:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 20:52	75-35-4	
cis-1,2-Dichloroethene	**1.9**	ug/L	1.0	0.080	1		11/29/18 14:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 20:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 20:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 20:52	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/28/18 20:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 20:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:52	100-42-5	
1,1,2,2-Tetrachloroethane	**0.41J**	ug/L	1.0	0.15	1		11/28/18 20:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 20:52	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 20:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 20:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 20:52	79-00-5	
Trichloroethene	**16.0**	ug/L	1.0	0.17	1		11/29/18 14:33	79-01-6	
Vinyl chloride	**0.35J**	ug/L	1.0	0.13	1		11/28/18 20:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	106	%	80-119		1		11/28/18 20:52	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/28/18 20:52	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/28/18 20:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**98.9**	mg/L	10.0	2.9	10		12/01/18 20:00	16887-00-6	
Sulfate	**22.3**	mg/L	10.0	2.4	10		12/01/18 20:00	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-32-201811 **Lab ID: 60287140008** Collected: 11/16/18 09:35 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 12:53		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:53		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 12:53		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.8**	mg/L	1.0	0.65	1		11/30/18 14:50	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**4.6**	mg/L	1.0	0.65	1		11/27/18 15:54	7440-44-0	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557711 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2288074 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	12/03/18 11:43	

LABORATORY CONTROL SAMPLE: 2288075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9960	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288076 2288077

Parameter	Units	60287171008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	371	10000	10000	10200	10300	98	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557716 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2288094 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	55.1	50.0	6.1	12/03/18 16:24	

LABORATORY CONTROL SAMPLE: 2288095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9630	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288096 2288097

Parameter	Units	60287155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	13400	10000	10000	23000	23800	95	104	75-125	4	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557295 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140001, 60287140002, 60287140003, 60287140004

METHOD BLANK: 2286312 Matrix: Water
Associated Lab Samples: 60287140001, 60287140002, 60287140003, 60287140004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 11:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 11:56	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 11:56	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 11:56	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 11:56	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 11:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 11:56	
Acetone	ug/L	ND	10.0	1.9	11/28/18 11:56	
Benzene	ug/L	ND	1.0	0.060	11/28/18 11:56	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 11:56	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 11:56	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 11:56	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 11:56	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 11:56	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 11:56	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 11:56	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 11:56	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 11:56	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 11:56	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 11:56	
Styrene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 11:56	
Toluene	ug/L	ND	1.0	0.17	11/28/18 11:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Trichloroethene	ug/L	ND	1.0	0.17	11/28/18 11:56	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 11:56	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 11:56	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/28/18 11:56	
4-Bromofluorobenzene (S)	%	101	80-119		11/28/18 11:56	
Toluene-d8 (S)	%	98	80-115		11/28/18 11:56	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

LABORATORY CONTROL SAMPLE: 2286313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.9	94	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	19.7	99	83-119	
1,1-Dichloroethane	ug/L	20	18.9	94	85-128	
1,1-Dichloroethene	ug/L	20	17.2	86	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	19.1	96	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	97.9	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.7	98	66-139	
Acetone	ug/L	100	90.8	91	62-142	
Benzene	ug/L	20	18.9	95	81-118	
Bromodichloromethane	ug/L	20	18.9	95	85-123	
Bromoform	ug/L	20	18.8	94	83-123	
Bromomethane	ug/L	20	10.5	53	39-149	
Carbon disulfide	ug/L	20	15.7	78	85-124	L2
Carbon tetrachloride	ug/L	20	19.2	96	85-126	
Chlorobenzene	ug/L	20	18.7	94	87-118	
Chloroethane	ug/L	20	18.5	92	73-134	
Chloroform	ug/L	20	18.6	93	85-119	
Chloromethane	ug/L	20	12.4	62	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.7	93	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	19.5	97	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	19.2	96	81-126	
Styrene	ug/L	20	18.8	94	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	18.2	91	82-118	
trans-1,2-Dichloroethene	ug/L	20	17.9	89	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.9	95	80-122	
Trichloroethene	ug/L	20	20.4	102	82-120	
Vinyl chloride	ug/L	20	15.1	76	74-147	
Xylene (Total)	ug/L	60	54.9	92	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557298 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

METHOD BLANK: 2286322 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 17:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 17:34	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 17:34	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 17:34	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 17:34	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 17:34	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 17:34	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 17:34	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 17:34	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 17:34	
Acetone	ug/L	ND	10.0	1.9	11/28/18 17:34	
Benzene	ug/L	ND	1.0	0.060	11/28/18 17:34	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 17:34	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 17:34	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 17:34	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 17:34	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 17:34	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 17:34	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 17:34	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 17:34	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 17:34	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 17:34	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 17:34	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 17:34	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 17:34	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 17:34	
Styrene	ug/L	ND	1.0	0.12	11/28/18 17:34	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 17:34	
Toluene	ug/L	ND	1.0	0.17	11/28/18 17:34	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 17:34	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 17:34	
Trichloroethene	ug/L	0.39J	1.0	0.17	11/28/18 17:34	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 17:34	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 17:34	
1,2-Dichloroethane-d4 (S)	%	107	80-117		11/28/18 17:34	
4-Bromofluorobenzene (S)	%	106	80-119		11/28/18 17:34	
Toluene-d8 (S)	%	102	80-115		11/28/18 17:34	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

LABORATORY CONTROL SAMPLE: 2286323

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.7	98	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	74-121	
1,1,2-Trichloroethane	ug/L	20	19.9	100	83-119	
1,1-Dichloroethane	ug/L	20	20.0	100	85-128	
1,1-Dichloroethene	ug/L	20	20.0	100	85-123	
1,2-Dichloroethane	ug/L	20	21.4	107	77-120	
1,2-Dichloropropane	ug/L	20	20.2	101	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	105	105	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	66-139	
Acetone	ug/L	100	89.4	89	62-142	
Benzene	ug/L	20	20.5	102	81-118	
Bromodichloromethane	ug/L	20	19.3	96	85-123	
Bromoform	ug/L	20	18.9	95	83-123	
Bromomethane	ug/L	20	10.8	54	39-149	
Carbon disulfide	ug/L	20	19.3	97	85-124	
Carbon tetrachloride	ug/L	20	19.8	99	85-126	
Chlorobenzene	ug/L	20	19.1	95	87-118	
Chloroethane	ug/L	20	24.7	124	73-134	
Chloroform	ug/L	20	19.0	95	85-119	
Chloromethane	ug/L	20	24.8	124	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.8	94	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.1	101	80-124	
Dibromochloromethane	ug/L	20	19.1	96	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.8	104	81-126	
Styrene	ug/L	20	19.4	97	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	19.1	95	82-118	
trans-1,2-Dichloroethene	ug/L	20	18.9	94	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.4	102	80-122	
Trichloroethene	ug/L	20	21.7	108	82-120	
Vinyl chloride	ug/L	20	26.1	130	74-147	
Xylene (Total)	ug/L	60	55.9	93	81-120	
1,2-Dichloroethane-d4 (S)	%			102	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557528 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140006, 60287140007, 60287140008

METHOD BLANK: 2287263 Matrix: Water
Associated Lab Samples: 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/29/18 12:12	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/29/18 12:12	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/29/18 12:12	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/29/18 12:12	
Trichloroethene	ug/L	0.43J	1.0	0.17	11/29/18 12:12	
Vinyl chloride	ug/L	ND	1.0	0.13	11/29/18 12:12	
1,2-Dichloroethane-d4 (S)	%	109	80-117		11/29/18 12:12	
4-Bromofluorobenzene (S)	%	105	80-119		11/29/18 12:12	
Toluene-d8 (S)	%	98	80-115		11/29/18 12:12	

LABORATORY CONTROL SAMPLE: 2287264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	20	19.4	97	85-123	
2-Butanone (MEK)	ug/L	100	112	112	65-134	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	84-121	
trans-1,2-Dichloroethene	ug/L	20	18.4	92	83-121	
Trichloroethene	ug/L	20	20.9	104	82-120	
Vinyl chloride	ug/L	20	21.5	108	74-147	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			106	80-119	
Toluene-d8 (S)	%			100	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 556356 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2282714 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/20/18 16:36	

LABORATORY CONTROL SAMPLE: 2282715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.48	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282716 2282717

Parameter	Units	60287027001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.48	0.48	95	96	75-125	0	20	

SAMPLE DUPLICATE: 2282718

Parameter	Units	60287027001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	2.7		20	

SAMPLE DUPLICATE: 2282719

Parameter	Units	60287027002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	2.7	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557819 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2288548 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/01/18 16:31	
Sulfate	mg/L	ND	1.0	0.24	12/01/18 16:31	

LABORATORY CONTROL SAMPLE: 2288549

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.6	96	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288550 2288551

Parameter	Units	60286569009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	<0.29	5	5	4.4	4.4	89	88	90-110	1	15	M1
Sulfate	mg/L	<0.24	5	5	4.8	4.8	96	95	90-110	1	15	

MATRIX SPIKE SAMPLE: 2288552

Parameter	Units	60286770001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	24.0	25	50.8	107	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557949
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140007

METHOD BLANK: 2289235 Matrix: Water
Associated Lab Samples: 60287140007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/06/18 15:48	

LABORATORY CONTROL SAMPLE: 2289236

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	11.0	110	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 558973 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2293697 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/08/18 01:22	
Sulfate	mg/L	ND	1.0	0.24	12/08/18 01:22	

LABORATORY CONTROL SAMPLE: 2293698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2293699 2293700

Parameter	Units	60286737028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	183	100	100	290	287	106	103	90-110	1	15	
Sulfate	mg/L	149	100	100	249	247	100	98	90-110	1	15	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 555800 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

METHOD BLANK: 2280436 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 12:46	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 12:46	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 12:46	

LABORATORY CONTROL SAMPLE: 2280437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.96	96	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE SAMPLE: 2280438

Parameter	Units	60287143001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	1.0	101	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.0	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.1	102	90-110	

SAMPLE DUPLICATE: 2280439

Parameter	Units	60287143003 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557615 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287140005, 60287140006, 60287140007

METHOD BLANK: 2287655 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/30/18 00:51	

LABORATORY CONTROL SAMPLE: 2287656

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	107	80-120	

MATRIX SPIKE SAMPLE: 2287657

Parameter	Units	60287477002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	106	50	152	90	80-120	

SAMPLE DUPLICATE: 2287658

Parameter	Units	60287477003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	6.5	6.6	2	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557682 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287140008

METHOD BLANK: 2287966 Matrix: Water
Associated Lab Samples: 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/30/18 12:41	

LABORATORY CONTROL SAMPLE: 2287967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	102	80-120	

MATRIX SPIKE SAMPLE: 2287968

Parameter	Units	60287257002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	5.5	97	80-120	

SAMPLE DUPLICATE: 2287969

Parameter	Units	60287257003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	0.88J	0.85J		25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 557295

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 557298

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 557528

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287140005	**MW-86-201811**	EPA 3010	557711	EPA 6010	557885
60287140006	**MW-25-201811**	EPA 3010	557711	EPA 6010	557885
60287140007	**TMW-16-201811**	EPA 3010	557716	EPA 6010	557883
60287140008	**TMW-32-201811**	EPA 3010	557716	EPA 6010	557883
60287140001	**TMW-23-201811**	EPA 5030B/8260	557295		
60287140002	**DUP-03-201811**	EPA 5030B/8260	557295		
60287140003	**EB-08-201811**	EPA 5030B/8260	557295		
60287140004	**EB-02-201811**	EPA 5030B/8260	557295		
60287140005	**MW-86-201811**	EPA 5030B/8260	557298		
60287140006	**MW-25-201811**	EPA 5030B/8260	557298		
60287140006	**MW-25-201811**	EPA 5030B/8260	557528		
60287140007	**TMW-16-201811**	EPA 5030B/8260	557298		
60287140007	**TMW-16-201811**	EPA 5030B/8260	557528		
60287140008	**TMW-32-201811**	EPA 5030B/8260	557298		
60287140008	**TMW-32-201811**	EPA 5030B/8260	557528		
60287140005	**MW-86-201811**	SM 4500-S-2 D	556356		
60287140006	**MW-25-201811**	SM 4500-S-2 D	556356		
60287140005	**MW-86-201811**	EPA 300.0	558973		
60287140006	**MW-25-201811**	EPA 300.0	558973		
60287140007	**TMW-16-201811**	EPA 300.0	557819		
60287140007	**TMW-16-201811**	EPA 300.0	557949		
60287140008	**TMW-32-201811**	EPA 300.0	557819		
60287140005	**MW-86-201811**	EPA 353.2	555800		
60287140006	**MW-25-201811**	EPA 353.2	555800		
60287140007	**TMW-16-201811**	EPA 353.2	555800		
60287140008	**TMW-32-201811**	EPA 353.2	555800		
60287140005	**MW-86-201811**	SM 5310C	557615		
60287140006	**MW-25-201811**	SM 5310C	557615		
60287140007	**TMW-16-201811**	SM 5310C	557615		
60287140008	**TMW-32-201811**	SM 5310C	557682		
60287140007	**TMW-16-201811**	SM 5310C	556798		
60287140008	**TMW-32-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder

WO# : 60287140

60287140

ALL SHADE

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool

Customer Project Name/Number: 1690010333

State: AR County/City: Fort Smith Time Zone Collected: PT MT CT ET

Phone: 314-633-7325

Email:

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): JO Pavlowsky

Purchase Order #:

DW PWS ID #:

Collected by (signature):

Quote #:

DW Location Code #:

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive [ ] Hold

Turnaround Date Required: Standard

Immediately Packed on Ice? [ ] Yes [ ] No

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: DOC

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

(3)	U	U	I	D	D	U	U	2	4,5

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Project Manager: Rm

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	X	N	NA
Samples in holding time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	8260 Full List VOCs	Volatile Fatty Acids	Dissolved Organic Carbon	Iron (mg/L) TOTAL METALS (mg/L)	Mn, E, E	Mn, E, E, A	Sulfate, nitrate	Sulfate, nitrate, chloride	TOTAL Organic carbon	Sulfide
MW-23-201811	GW	G	11-16-18	0955				3	X									
DUP-03-201811				0955				3	X									
EB-08-201811				1030				3	X									
EB-02-201811				1053				3	X									
Trip Blank				-				2	X									
MW-86-201811				0940				10	X			X		X	X		X	X
MW-25-201811				0925				10	X			X		X	X		X	X
MW-16-201811				1025				12	X	X	X	X	X			X	X	
MW-32-201811				0935				12	X	X	X	X	X			X	X	
MW-89-201811	GW	G		1218				3						X				

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

(3)DG9H (3)DG9Q AG3S BP3U BP3Z BP3N (2)DG9H (3)DG9Q

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [X] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used:

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: 301

Cooler Temp Upon Receipt: 4.9 oC

Cooler Therm Corr. Factor: 0.0 oC

Cooler Temp Corrected: 4.9 oC

Comments:

Trip Blank Received: Y (N) N/A HCL MeOH TSP Other

NonConformance(s): YES / NO

Page: of

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JO Pavlowsky / REM	11/16/18 1300		11/17/18 0980
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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F-ALL-C-010-rev.00, 05Jul2018

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller (see page 1)

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected: PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: D U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: MEA, nydrogen

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in holding time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	MEA	nydrogen	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-50R-20181l	GW	G	11-16-18	1210				3	X		(3)D6Q
MW-87-20181l	A	G	11-15-18	1320				1		X	
MW-86-20181l	A	G	11-16-18	0940				1		X	OTHR
MW-25-20181l	A	G	11-16-18					1		X	
RW-69-20181l	GW	G	11-16-18	1315				3	X		
MW-73-20181l	GW	G	11-16-18	1320				3	X		

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet (Blue) [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used:

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier [ ]

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	11/17 0900
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

(see page 1)

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: 301

Cooler Temp Upon Receipt: 9.0 oC

Cooler Therm Corr. Factor: 0.0 oC

Cooler Temp Corrected: 9.0 oC

Comments: _____

Trip Blank Received: Y (N) N/A
HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Report To (optional)		Bill To (optional)	
Contact:	nzurweller@rampoll.com	Contact:	
Company:		Company:	
Address:		Address:	
Address:		Address:	
Phone:	314-833-7325	Phone:	
Fax:		Fax:	
E-Mail:	jpavlowsky@rampoll.com	PO#/Reference#	

Lab Job #: _____

Chain of Custody Number: _____

Page _____ of _____

Temperature °C of Cooler: _____

Client	Client Project #	Preservative	8									
Rampoll	169001033											
Project Name		Parameter	Hydrogen									
Whirlpool Annual												
Project Location/State	Lab Project #											
Fort Smith, AR	(see page 1)											
Sampler	Lab PM											
Johanna Pavlowsky	Richard Mannz											

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	Hydrogen								Comments
		IW-73-201811	11-14-18	1510	1	A	X			THE					
		MW-58R-201811	11-15-18	1400	1										
		RW-69-201811	11-14-18	1230											
		MW-95-201811	11-15-18												
		IMW-9-201811	11-15-18	1520											
		MW-38-201811	11-15-18	0955											
		MW-89-201811	11-14-18	1010											
		MW-50R-201811	11-13-18	1410											
		TMW-11-201811	11-13-18	1645											
		TMW-10-201811	11-13-18	1655	↓	↓	↓			↓					

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days) Standard

___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other

Requested Due Date _____

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
J Pavlowsky	REH	B30 11/16/18				11/17	0900
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier _____

Shipped _____

Hand Delivered _____

Matrix Key

WW – Wastewater	SE – Sediment
W – Water	SO – Soil
S – Solid	L – Leachate
SL – Sludge	WI – Wipe
MS – Miscellaneous	DW – Drinking Water
OL – Oil	O – Other
A – Air	

Client Comments

Lab Comments:

TAL-4124-500 (1209)

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

Date: 11/17	Evaluated by: JDB
Client: Campbell	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

	Collection date/time missing or incorrect		Analyses or analytes: missing or clarification needed		Samples listed on COC do not match samples received (missing, additional, etc.)
	Sample IDs on COC do not match sample labels		Required trip blanks were not received	X	Required signatures are missing

Comments/Details/Other Issues not listed above: No Trip Blanks received, listed on COC

3. Sample integrity issues: check applicable issues below and add details where appropriate:

	Samples: Past holding time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samples: Not field filtered		Containers: Broken or compromised		Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temperature: Samples arrived frozen
	Samples: Cooler damaged or compromised		Custody Seals: Missing or compromised on samples, trip blanks or coolers		Vials received with improper headspace
	Samples: contain chlorine or sulfides		Packing Material: Insufficient/Improper		Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:	
PM Initials:	Date/Time:	

Client Comments/Instructions:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

December 4, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60287140**

Pace Workorder: 28771

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, November 20, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 12/04/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 37

CERTIFICATE OF ANALYSIS

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

CERTIFICATE OF ANALYSIS
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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287710001	MW-86-201811	Water	11/16/2018 09:40	11/20/2018 11:45
287710002	MW-25-201811	Water	11/16/2018 09:25	11/20/2018 11:45
287710003	MW-89-201811	Water	11/16/2018 09:35	11/20/2018 11:45
287710004	MW-50R-201811	Water	11/16/2018 12:10	11/20/2018 11:45
287710005	RW-69-201811	Water	11/16/2018 13:15	11/20/2018 11:45
287710006	MW-73-201811	Water	11/16/2018 13:20	11/20/2018 11:45
287710007	TMW-16-201811	Water	11/16/2018 10:25	11/20/2018 11:45
287710008	TMW-32-201811	Water	11/16/2018 09:35	11/20/2018 11:45
287710009	MW-87-201811	Bubble Strip	11/15/2018 13:30	11/20/2018 11:45
287710010	MW-86-201811	Bubble Strip	11/16/2018 09:40	11/20/2018 11:45
287710011	MW-25-201811	Bubble Strip	11/16/2018 08:00	11/20/2018 11:45
287710012	IW-73-201811	Bubble Strip	11/14/2018 15:10	11/20/2018 11:45
287710013	MW-58R-201811	Bubble Strip	11/15/2018 14:00	11/20/2018 11:45
287710014	RW-69-201811	Bubble Strip	11/14/2018 12:30	11/20/2018 11:45
287710015	MW-95-201811	Bubble Strip	11/15/2018 08:00	11/20/2018 11:45
287710016	ITMW-9-201811	Bubble Strip	11/15/2018 15:20	11/20/2018 11:45
287710017	MW-38-201811	Bubble Strip	11/15/2018 09:55	11/20/2018 11:45
287710018	MW-89-201811	Bubble Strip	11/14/2018 10:10	11/20/2018 11:45
287710019	MW-50R-201811	Bubble Strip	11/13/2018 14:10	11/20/2018 11:45
287710020	TMW-11-201811	Bubble Strip	11/13/2018 16:45	11/20/2018 11:45
287710021	TMW-10-201811	Bubble Strip	11/13/2018 16:55	11/20/2018 11:45

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PROJECT SUMMARY

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Workorder Comments

The container pH for samples 28771 (0001, 0007) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Sample Comments

Lab ID: 287710013 **Sample ID:** MW-58R-201811 **Sample Type:** N

Sample headspace vial not sufficiently pressurized for analysis. Vial pressurized with an equal volume of UHP Nitrogen and analyzed. Results reported at a dilution.

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

Batch: DISG/7239 - AM20GAX Bubble Strip QC

The percent recovery for the closing calibration verification analysis was above laboratory control limits. Analytes Hydrogen. Results associated to the analytes in samples may be biased high; affected samples flagged accordingly.

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710001** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-86-201811** Date Collected: 11/16/2018 09:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**61**	ug/l	0.50	0.014	1	11/29/2018 08:16	BW	n
Ethane	**9.6**	ug/l	0.10	0.0070	1	11/29/2018 08:16	BW	n
Ethene	**0.78**	ug/l	0.10	0.0050	1	11/29/2018 08:16	BW	n
Acetylene	**3.6**	ug/l	0.50	0.034	1	11/29/2018 08:16	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710002** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-25-201811** Date Collected: 11/16/2018 09:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**72**	ug/l	0.50	0.014	1	11/29/2018 08:28	BW	n
Ethane	**16**	ug/l	0.10	0.0070	1	11/29/2018 08:28	BW	n
Ethene	**1.7**	ug/l	0.10	0.0050	1	11/29/2018 08:28	BW	n
Acetylene	**6.0**	ug/l	0.50	0.034	1	11/29/2018 08:28	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710003** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-89-201811** Date Collected: 11/16/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**12**	ug/l	0.50	0.014	1	11/29/2018 08:46	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 08:46	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 08:46	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 08:46	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710004** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-50R-201811** Date Collected: 11/16/2018 12:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**280**	ug/l	0.50	0.014	1	11/29/2018 08:58	BW	n
Ethane	**0.18**	ug/l	0.10	0.0070	1	11/29/2018 08:58	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 08:58	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 08:58	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710005** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **RW-69-201811** Date Collected: 11/16/2018 13:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**47**	ug/l	0.50	0.014	1	11/29/2018 09:10	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 09:10	BW	n
Ethene	**0.16**	ug/l	0.10	0.0050	1	11/29/2018 09:10	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 09:10	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710006** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-73-201811** Date Collected: 11/16/2018 13:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**5.8**	ug/l	0.50	0.014	1	11/29/2018 09:23	BW	n
Ethane	**0.13**	ug/l	0.10	0.0070	1	11/29/2018 09:23	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 09:23	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 09:23	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710007** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-16-201811** Date Collected: 11/16/2018 10:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<20**	mg/l	20	1.4	100	11/26/2018 23:13	KB	d
Acetic Acid	**1400**	mg/l	100	24	1000	11/27/2018 00:09	KB	d,B
Propionic Acid	**4500**	mg/l	100	4.4	1000	11/27/2018 00:09	KB	d,B
Butyric Acid	**190**	mg/l	100	4.7	1000	11/27/2018 00:09	KB	d,B
Pyruvic Acid	**17**	mg/l	10	0.57	100	11/26/2018 23:13	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**10000**	ug/l	0.50	0.014	1	11/29/2018 09:36	BW	n
Ethane	**5.3**	ug/l	0.10	0.0070	1	11/29/2018 09:36	BW	n
Ethene	**18**	ug/l	0.10	0.0050	1	11/29/2018 09:36	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710008** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-32-201811** Date Collected: 11/16/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/22/2018 04:22	KB	d
Acetic Acid	**4.0**	mg/l	1.0	0.24	10	11/22/2018 04:22	KB	d,M3,B,M5
Propionic Acid	**15**	mg/l	1.0	0.044	10	11/22/2018 04:22	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/22/2018 04:22	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/22/2018 04:22	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**410**	ug/l	0.50	0.014	1	11/30/2018 08:59	BW	n
Ethane	**0.31**	ug/l	0.10	0.0070	1	11/30/2018 08:59	BW	n
Ethene	**0.75**	ug/l	0.10	0.0050	1	11/30/2018 08:59	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710009** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-87-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**4.7**	nM	1.0	0.65	1	11/27/2018 16:31	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710010** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-86-201811** Date Collected: 11/16/2018 09:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**130**	nM	20	13	20	11/29/2018 14:28	MM	d,M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710011** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-25-201811** Date Collected: 11/16/2018 08:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**10**	nM	1.0	0.65	1	11/27/2018 17:09	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710012** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **IW-73-201811** Date Collected: 11/14/2018 15:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**2.6**	nM	1.0	0.65	1	11/27/2018 15:16	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710013** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-58R-201811** Date Collected: 11/15/2018 14:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.6**	nM	2.0	1.3	2	11/29/2018 15:01	MM	d,M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710014** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **RW-69-201811** Date Collected: 11/14/2018 12:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**2.6**	nM	1.0	0.65	1	11/27/2018 15:29	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710015** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-95-201811** Date Collected: 11/15/2018 08:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.0**	nM	1.0	0.65	1	11/29/2018 15:14	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710016** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **ITMW-9-201811** Date Collected: 11/15/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**4.4**	nM	1.0	0.65	1	11/29/2018 15:31	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710017** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-38-201811** Date Collected: 11/15/2018 09:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.5**	nM	1.0	0.65	1	11/29/2018 15:44	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710018** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-89-201811** Date Collected: 11/14/2018 10:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**6.3**	nM	1.0	0.65	1	11/27/2018 15:41	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710019** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-50R-201811** Date Collected: 11/13/2018 14:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**3.3**	nM	1.0	0.65	1	11/27/2018 15:53	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710020** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **TMW-11-201811** Date Collected: 11/13/2018 16:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**6.7**	nM	1.0	0.65	1	11/27/2018 16:06	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710021** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **TMW-10-201811** Date Collected: 11/13/2018 16:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**11**	nM	1.0	0.65	1	11/27/2018 16:19	MM	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
M1	The continuing calibration verification recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
M3	The matrix spike sample recovery was outside laboratory control limits.

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287710008

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.25	0.10	M3,B,M5
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	110	70-130	
Acetic Acid	mg/l	2	2.3	114	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.1	105	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.036	20	21	21	107	106	70-130	1.2	30	d
Acetic Acid	mg/l	120	20	150	150	145	150	70-130	0.67	30	d,M3,B,M5
Propionic Acid	mg/l	73	20	87	88	70	73	70-130	0.5	30	d,B
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
Pyruvic Acid	mg/l	1	20	21	21	100	99	70-130	0.28	30	d

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Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7234 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710009, 287710011, 287710012, 287710014, 287710018, 287710019, 287710020, 287710021

METHOD BLANK: 58669

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 58671 58673

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Hydrogen	nM	24	25	26	103	107	80-120	3.5	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7237 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710001, 287710002, 287710003, 287710004, 287710005, 287710006, 287710007

METHOD BLANK: 58691

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58692 58693

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	97	96	80-120	0.86	20	n
Ethane	ug/l	38	41	41	108	109	80-120	0.88	20	n
Ethene	ug/l	35	38	39	109	109	80-120	0.49	20	n
Acetylene	ug/l	33	37	37	113	114	80-120	1.3	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287710007

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	109	70-130	
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7238 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710008

METHOD BLANK: 58700

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 58701 58702

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	730	710	97	95	80-120	2.5	20	n
Ethane	ug/l	38	40	40	106	105	80-120	1.5	20	n
Ethene	ug/l	35	38	37	106	104	80-120	2.4	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58713 58714 Original: 287680007

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	210	750	840	850	85	86	70-130	0.97	20	n
Ethane	ug/l	1.3	38	37	36	94	93	70-130	1.4	20	n
Ethene	ug/l	1.1	35	34	33	93	91	70-130	2.9	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58719 58720 Original: 288320003

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	300	750	930	970	84	89	70-130	4.3	20	n
Ethane	ug/l	7.4	38	49	50	110	111	70-130	1.2	20	n
Ethene	ug/l	17	35	55	56	108	109	70-130	0.36	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7239 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710010, 287710013, 287710015, 287710016, 287710017

METHOD BLANK: 58707

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 58708 58709

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Hydrogen	nM	12	13	13	109	109	80-120	0.27	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
M3	The matrix spike sample recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287710008	TMW-32-201811			AM23G	EDON/3943
287710009	MW-87-201811			AM20GAX	DISG/7234
287710011	MW-25-201811			AM20GAX	DISG/7234
287710012	IW-73-201811			AM20GAX	DISG/7234
287710014	RW-69-201811			AM20GAX	DISG/7234
287710018	MW-89-201811			AM20GAX	DISG/7234
287710019	MW-50R-201811			AM20GAX	DISG/7234
287710020	TMW-11-201811			AM20GAX	DISG/7234
287710021	TMW-10-201811			AM20GAX	DISG/7234
287710001	MW-86-201811			AM20GAX	DISG/7237
287710002	MW-25-201811			AM20GAX	DISG/7237
287710003	MW-89-201811			AM20GAX	DISG/7237
287710004	MW-50R-201811			AM20GAX	DISG/7237
287710005	RW-69-201811			AM20GAX	DISG/7237
287710006	MW-73-201811			AM20GAX	DISG/7237
287710007	TMW-16-201811			AM20GAX	DISG/7237
287710007	TMW-16-201811			AM23G	EDON/3944
287710008	TMW-32-201811			AM20GAX	DISG/7238
287710010	MW-86-201811			AM20GAX	DISG/7239
287710013	MW-58R-201811			AM20GAX	DISG/7239
287710015	MW-95-201811			AM20GAX	DISG/7239
287710016	ITMW-9-201811			AM20GAX	DISG/7239
287710017	MW-38-201811			AM20GAX	DISG/7239

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Chain of Custody

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www.pacelabs.com

Workorder: 60287140 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 12/3/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9572

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	TSP	Other				Requested Analysis: M,E,E,A	Hydrogen		Volatile Fatty Acids		Methane, Ethane, Ethene							LAB USE ONLY
1	MW-86-201811	11/16/2018 09:40	60287140005	Water		3					X												
2	MW-25-201811	11/16/2018 09:25	60287140006	Water		3					X												
3	MW-89-201811	11/16/2018 09:35	60287140009	Water		3					X												
4	MW-50R-201811	11/16/2018 12:10	60287140010	Water		3					X												
5	RW-69-201811	11/16/2018 13:15	60287140014	Water		3					X												
6	MW-73-201811	11/16/2018 13:20	60287140015	Water		3					X												
7	TMW-16-201811	11/16/2018 10:25	60287140007	Water	2	3								X		X							
8	TMW-32-201811	11/16/2018 09:35	60287140008	Water	2	3								X		X							
9	MW-87-201811	11/15/2018 13:30	60287140011	Air			1					X											
10	MW-86-201811	11/16/2018 09:40	60287140012	Air			1					X											
11	MW-25-201811	11/16/2018 08:00	60287140013	Air			1					X											
12	IW-73-201811	11/14/2018 15:10	60287140016	Air			1					X											
13	MW-58R-201811	11/15/2018 14:00	60287140017	Air			1					X											
14	RW-69-201811	11/14/2018 12:30	60287140018	Air			1					X											
15	MW-95-201811	11/15/2018 08:00	60287140019	Air			1					X											
16	ITMW-9-201811	11/15/2018 15:20	60287140020	Air			1					X											
17	MW-38-201811	11/15/2018 09:55	60287140021	Air			1					X											
18	MW-89-201811	11/14/2018 10:10	60287140022	Air			1					X											
19	MW-50R-201811	11/13/2018 14:10	60287140023	Air			1					X											
20	TMW-11-201811	11/13/2018 16:45	60287140024	Air			1					X											
21	TMW-10-201811	11/13/2018 16:55	60287140025	Air			1					X											

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Holly Fowler POSI	11/18/1800			
2					
3					

Cooler Temperature on Receipt ___ °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N

Cooler Receipt Form

Client Name: _____ **Project:** _____ **Lab Work Order:** _____

A. **Shipping/Container Information** (circle appropriate response)

Courier: FedEx UPS USPS Client Other:_____ **Air bill Present:** Yes No

Tracking Number:_____

Custody Seal on Cooler/Box Present: Yes No **Seals Intact:** Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other:_____

Type of Ice: Wet Blue None **Ice Intact:** Yes Melted

Cooler Temperature:_____ **Radiation Screened:** Yes No **Chain of Custody Present:** Yes No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by :_____ **Date:**_____

Project Manager Review :_____ **Date:**_____

F-PAE-Q-009-rev.01, 3Oct2017

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Nick Zurweller
Ramboll Environ
1807 Park 270 Drive
Suite 450
St. Louis, MO 63146

Phone: 314-590-2977

Fax:

Identifier: 050PK **Date Rec:** 11/14/2018 **Report Date:** 11/21/2018

Client Project #: 1690010633 **Client Project Name:** Whirlpool Fort Smith

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

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Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**TMW-10-201811**	**TMW-11-201811**	**MW-50R-201811**	**RW-69-201811**	**IW-73-201811**
Sample Date:		11/13/2018	11/13/2018	11/13/2018	11/14/2018	11/14/2018
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	<2.00E+00	<2.00E+00	<5.00E-01	**2.00E-01 (J)**	**2.10E+00**
tceA Reductase	TCE	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	**3.00E-01 (J)**
Vinyl Chloride Reductase	VCR	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**MW-89-201811**	**MW-58R-201811**	**MW-95-201811**	**MW-38-201811**	**MW-87-201811**
Sample Date:		11/14/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	<5.00E-01	**2.67E+01**	<5.00E-01
tceA Reductase	TCE	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01	**3.00E+01**	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**ITMW-9-201811**	**MW-25-201811**	**MW-86-201811**
Sample Date:		11/15/2018	11/16/2018	11/16/2018
Units:		cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS
Dechlorinating Bacteria				
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	<5.00E-01
tceA Reductase	TCE	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **11/14/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/14/2018	11/20/2018	1 °C	112%	non-detect	non-detect
BVC	11/14/2018	11/20/2018	1 °C	102%	non-detect	non-detect
TCE	11/14/2018	11/20/2018	1 °C	101%	non-detect	non-detect
VCR	11/14/2018	11/20/2018	1 °C	97%	non-detect	non-detect

Samples Received **11/15/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/15/2018	11/20/2018	0 °C	98%	non-detect	non-detect
BVC	11/15/2018	11/20/2018	0 °C	102%	non-detect	non-detect
TCE	11/15/2018	11/20/2018	0 °C	101%	non-detect	non-detect
VCR	11/15/2018	11/20/2018	0 °C	97%	non-detect	non-detect

Samples Received **11/16/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/16/2018	11/20/2018	1 °C	103%	non-detect	non-detect
BVC	11/16/2018	11/20/2018	1 °C	101%	non-detect	non-detect
TCE	11/16/2018	11/20/2018	1 °C	100%	non-detect	non-detect
VCR	11/16/2018	11/20/2018	1 °C	97%	non-detect	non-detect
DHC	11/16/2018	11/20/2018	1 °C	99%	non-detect	non-detect

Samples Received **11/17/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/17/2018	11/20/2018	0 °C	103%	non-detect	non-detect
BVC	11/17/2018	11/20/2018	0 °C	101%	non-detect	non-detect
TCE	11/17/2018	11/20/2018	0 °C	100%	non-detect	non-detect
VCR	11/17/2018	11/20/2018	0 °C	97%	non-detect	non-detect

Appendix B

Field Notes and Weather Data for November 2018

Search Locations

Log in (/log…

★ (/member/favorites)

Popular Cities

San Francisco, CA ⚠
57 ° F Sunny

Manhattan, NY
44 ° F Partly Cloudy

Atlanta, GA ⚠
58 ° F Fair

Chicago, IL ⚠
45 ° F Partly Cloudy

Elev **466**ft **35.34** °N, **94.37** °W

Fort Smith Regional, AR ★

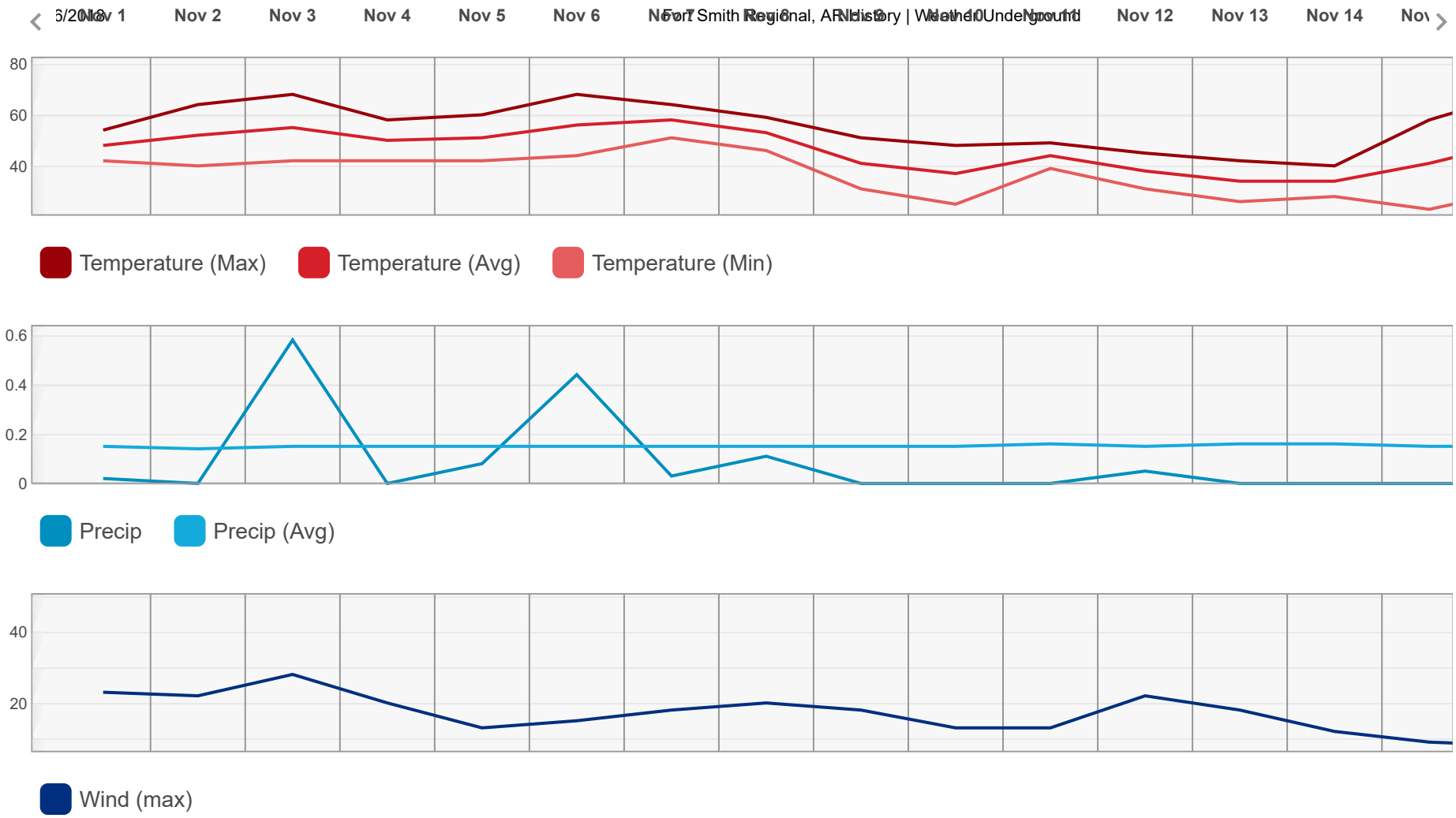
56° FORT SMITH REGIONAL STATION (/HISTORY/DAILY/US/AR/FORT-SMITH/KFSM/DATE/2018-12-26?CM_VEN=LOCALWX_PWSDASH) | CHANGE

HISTORY (/HISTORY/DAILY/US/AR/FORT-SMITH/KFSM/DATE/2018-12-26)

- TODAY (/WEATHER/US/AR/FORT-SMITH/KFSM/DATE/2018-11)
- HOURLY (/HOURLY/US/AR/FORT-SMITH/KFSM/DATE/2018-11)
- 10-DAY (/FORECAST/US/AR/FORT-SMITH/KFSM/DATE/2018-11)
- CALENDAR (/CALENDAR/US/AR/FORT-SMITH/KFSM/DATE/2018-12)
- HISTORY (/HISTORY/DAILY/US/AR/FORT-SMITH/KFSM/DATE/2018-12-26)
- WUNDERMAP (/WUNDERMAP?LAT=35.33638763&LON=-94.36722565)

Daily | Weekly | **Monthly**

November **2018** View



Summary

Temperature (° F)	Max	Average	Min	Sum
Max Temperature	75	61	51	-
Avg Temperature	58	47	35	-
Min Temperature	40	34	23	-

Precipitation (Inches)	Max	Average	Min	Sum

Temperature (° F)	Max	Average	Min	Sum
Precipitation	0.58	0.06	0	1.67

Dew Point (° F)	Max	Average	Min	Sum
Dew Point	64	35	10	-

Daily Observations

Time	Temperature (° F)			Dew Point (° F)			Humidity (%)			Wind Speed (mph)			Pressure (Hg)			Precipation (in)		
Nov	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min
1	54	48	42	51	44	40	93	-	63	23	-	0	30.01	-	29.71	-	0.02	-
2	64	52	40	43	41	37	96	-	39	22	-	0	29.99	-	29.88	-	0.00	-
3	68	55	42	55	46	39	92	-	42	28	-	5	29.97	-	29.83	-	0.58	-
4	58	50	42	55	47	39	93	-	51	20	-	0	30.05	-	29.85	-	0.00	-
5	60	51	42	54	48	41	100	-	80	13	-	0	29.97	-	29.68	-	0.08	-
6	68	56	44	53	47	43	100	-	49	15	-	0	30.05	-	29.87	-	0.44	-
7	64	58	51	53	49	43	93	-	52	18	-	4	30.17	-	30.03	-	0.03	-
8	59	53	46	45	40	35	86	-	43	20	-	4	30.2	-	30.05	-	0.11	-
9	51	41	31	40	31	17	83	-	44	18	-	7	30.51	-	30.18	-	0.00	-
10	48	37	25	25	21	17	81	-	31	13	-	4	30.53	-	30.28	-	0.00	-
11	49	44	39	33	30	26	65	-	46	13	-	5	30.29	-	30.16	-	0.00	-

Time	Temperature (° F)			Dew Point (° F)			Humidity (%)			Wind Speed (mph)			Pressure (Hg)			Precipation (in)	
12	45	38	31	36	31	22	79	-	58	22	-	6	30.45	-	30.12	-	0.05	-
13	42	34	26	21	15	12	72	-	30	18	-	4	30.58	-	30.46	-	0.00	-
14	40	34	28	21	16	10	69	-	30	12	-	0	30.53	-	30.32	-	0.00	-
15	58	41	23	30	24	18	81	-	29	9	-	0	30.31	-	30.08	-	0.00	-
16	69	50	31	39	35	27	85	-	31	8	-	0	30.18	-	30.04	-	0.00	-
17	70	52	34	43	38	31	89	-	31	15	-	0	30.17	-	30.06	-	0.00	-
18	50	44	37	42	37	33	92	-	71	17	-	0	30.23	-	30.13	-	0.00	-
19	47	40	33	33	31	30	89	-	58	14	-	0	30.28	-	30.18	-	0.00	-
20	56	43	30	32	29	26	92	-	35	18	-	0	30.42	-	30.29	-	0.00	-
21	61	45	28	35	31	25	85	-	36	8	-	0	30.43	-	30.3	-	0.00	-
22	66	49	32	37	34	30	89	-	28	13	-	0	30.35	-	30.06	-	0.00	-
23	55	47	39	47	41	37	96	-	61	13	-	0	30.04	-	29.68	-	0.04	-
24	68	54	39	47	41	37	100	-	40	12	-	0	29.85	-	29.63	-	0.00	-
25	62	48	34	50	33	21	82	-	44	41	-	0	30.13	-	29.54	-	0.00	-
26	45	35	25	23	19	16	74	-	37	21	-	0	30.33	-	30.14	-	0.00	-
27	51	37	23	29	25	18	81	-	39	7	-	0	30.25	-	30.08	-	0.00	-
28	59	45	31	36	32	27	82	-	40	16	-	5	30.05	-	29.8	-	0.00	-
29	74	57	40	51	45	36	86	-	46	15	-	0	29.84	-	29.67	-	0.00	-
30	75	61	47	64	55	43	93	-	57	46	-	0	29.84	-	29.43	-	0.32	-

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11/16/18 Whirlpool, Ft. Smith (8) Sunny 32°F

0700 Ramboll on-site to calibrate YSIs, conduct H&S meeting, & prepare to sample.

0820 Arrived at TMW-32 & prepared to purge. See sample log for parameters.

0930 TMW-32 Stable, reducing environment, will Sample.

Sampled TMW-32-201811 @ 0930

Fe^{2+}: 0.50 mg/L

1115 Arrived at mw-50R to purge & resample for MEEA using trisodium phosphate preserved VOAs, see sample log for parameters.

1205 Parameters Stable at MW-50R

Sampled MW-50R-201811 (MEEA only) @ 1210

1230 Returned to boiler room to start packing samples and demobilizing.

1345 Samples relinquished to courier.

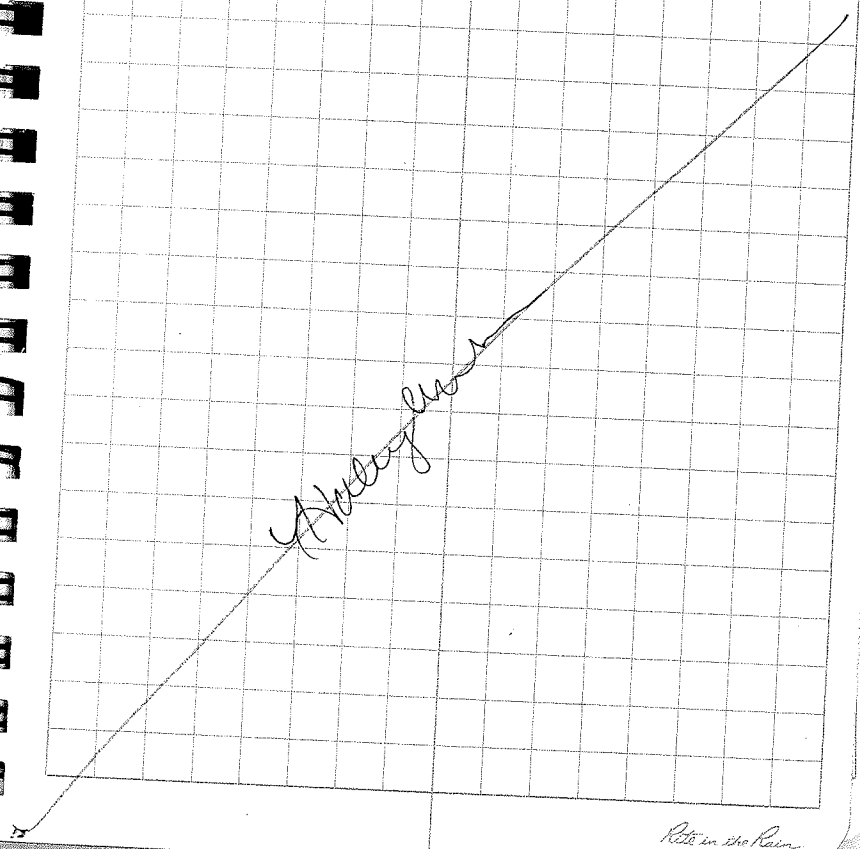
1545 Pumps & microbial insights samples relinquished to FedEx. Ramboll off-site.

11/12/18 Whirlpool, Ft. Smith (1) 20°F 40°F Sunny

~~0700~~ 1615 H. Anders, N. Zurweller, N. Martin, J. Kretch, V. Sieglen, J. Pavlowsky, & A. McCabe ~~on-site~~ for Ramboll.

1630 Divided into teams to open wells & allow for them to equilibrate overnight prior to gauging.

1830 All wells open, Ramboll off-site.



Rite in the Rain

11/13/18 Whirlpool, Ft. Smith (2) 27°F sunny

0700 HA, NZ, JK, NM, AM, JP, VS on-site for Ramboll. Began dividing equipment between cars, calibrating YSIs & preparing to gauge wells & sample.

0900 Began well repairs with NZ.

1255 Arrived at MW-61R to prepare to purge. See sample logs for parameters.

1415 MW-61R stabilized. Will sample.

Sampled MW-61R-201811 @ 1420 + DUP-06

Fe^{2+}: 1.15 mg/L

1540 Arrived at TMW-11 to prepare to purge. See sample log for parameters.

1640 TMW-11 stabilized. will sample

Sampled TMW-11-201811 @ 1645

Fe^{2+}: 1.91 mg/L

1730 Began bubble stripping at 250 mL/min

~~HA~~ 1745 Finished bubble stripping TMW-11.

11/13/18 Whirlpool, Ft. Smith (3) Sunny 34°F

1800 Finished packing up car, returned to boiler room to pack samples and prepare the chain.

1830 Coolers off-site to Fed-Ex.

1840 Ramboll off-site.

Rite in the Rain

11/14/18 Whirlpool, Ft. Smith (4) cloudy 28°F

0700 Ramboll on-site to begin calibrating YSIs.

0845 Arrived at MW-186 to begin purging. See sample log for parameters.

1002 MW-186 Stabilized. Reductive environment. Will sample.

Sampled MW-186-201811 @ 1005

Fe^{2+}: >3.3 mg/L

1040 Arrived at MW-185 & prepared to purge. See Sample log for parameters.

1135 MW-185 Stabilized, will sample.

Sampled MW-185-201811 @ 1140

Fe^{2+}: 0.02 mg/L

1215 Arrived at TMW-34 to prepare to purge. See log for parameters.

1225 pH reading of 12.17, much higher than anticipated. Checked probe with calibration solution to ensure proper calibration.

pH 7 solution reading: 7.06

pH 10 solution reading: 9.97

11/14/18 Whirlpool, Ft. Smith (5) 30°F cloudy

1245 Resumed purging - see log

1450 After purging 6 well volumes, parameters stable. pH ended at 6.26. Will prepare to sample

Sampled TMW-34-201811 @ 1500

Fe^{2+}: 0.00 mg/L

1520 Returned to site to dump purge water.

1540 Arrived at MW-194 & prepared to purge. See sampling log for parameters.

1715 Purged 3 well volumes, MW-194 stable, will sample.

Sampled MW-194-201811 @ 1720

Fe^{2+}: 0.61 mg/L

1735 Returned to boiler room to prepare samples for shipment.

1800 Courier off-site with relinquished samples.

1815 Ramboll off-site.

Rite in the Rain

11/15/18 Whirlpool, Ft. Smith (6) Sunny 28°F

0700 Ramboll on-site to calibrate YSIs, shift well assignments, & prepare to sample.

0900 HA & NZ to VP-9 to prepare to leak test & collect 8-hour air sample. See log.

0930 Started VP-9 canister. Ran for 15 minutes with helium in the shroud.

1000 Arrived at TMW-26 to prepare to purge. See log for parameters.

1105 well stabilized, reducing environment, will sample.

Sampled TMW-26-201811 @ 1115

Fe^{2+}: >3.3 mg/L

1210 Arrived at TMW-25 & prepared to purge. See sample log for parameters.

1325 TMW-25 stable, reducing environment, will sample.

Sampled TMW-25-201811 @ 1330

Fe^{2+}: >3.3 mg/L

1400 Arrived at TMW-21 & prepared to purge. See sample log for parameters. cph

11/15/18 Whirlpool, Ft. Smith (7) Sunny 56°F

1510 TMW-21 stable, reducing environment, will sample.

Sampled TMW-21-201811 @ 1515

Fe^{2+}: >3.3 mg/L

1540 Arrived at TMW-22R & prepared to purge. See sample log for parameters.

1645 TMW-22R stable, reducing environment, will sample.

Sampled TMW-22R-201811 @ 1650

Fe^{2+}: 1.20 mg/L

1720 Return to site to dump purge water, fill out chain, & prepare samples for shipment.

1800 Pace samples relinquished to courier.

1830 Ramboll off-site.

Rite in the Rain

Location Ft. Smith, AR Date 10/13/15

Project / Client Whirlpool

clear, 35°

0700 SK, SP, NZ, NM, VS, HA, AM on site

0705 Separate equipment into carts

Calibrate Equipment

YSI Serial:

	Before	After
ORP	258.0	240.0
Spec. Cond.	1.327	1.413
pH 7	6.87	7.00
pH 4	3.87	4.00
pH 10	9.91	9.99
DO	98.7	99.9

Water Level Meter: Heron Instruments

dipper-T SN: R9157

La Motte 2020we turbidimeter

SN: 3971-5113

HACH DR 900

SN: 025087

0815 Calibrate Water Levels

Jo = 14.92 - red group 14.92

Victoria = 14.91

Jocl = 14.88 - green

0900 Begin gauging w/ NM

1100 Finish gauging

Location Ft. Smith AR Date 11/13/18

Project / Client Whirlpool

11 30 Collect additional equipment from boiler room

12 05 Set up at shallow wells

MW-175

DTW - 2.13 DTB ~ 14.51

Purge begin @ 12:09

Flow decreased to 75 mL/min due to DTW drop

Sample @ 13:25

Sample ID: MW-175-201811

Did not stabilize

- DTW only non-stable

Total purged - 1.5

13 35 Set up @ MW-176

DTW - 2.31

Begin Purge @ 1349

Flow rate @ 100 mL/min

sample @ 15:00

Sample ID: MW-176-201811

Did not stabilize, 1 hour reached

Total purged -

15 30 Set up @ MW-179

DTW - 1.36

Begin Purge @ 1535

Location Ft Smith, AR Date 11/13/18

Project / Client Whirlpool

Sample @ 1645

Sample ID: MW-179-201811

Did not stabilize, 1 hour reached

Total purged - 1.5 gal

1645 Set up @ MW-178

DTW - 3.98 TD ~ 7.97

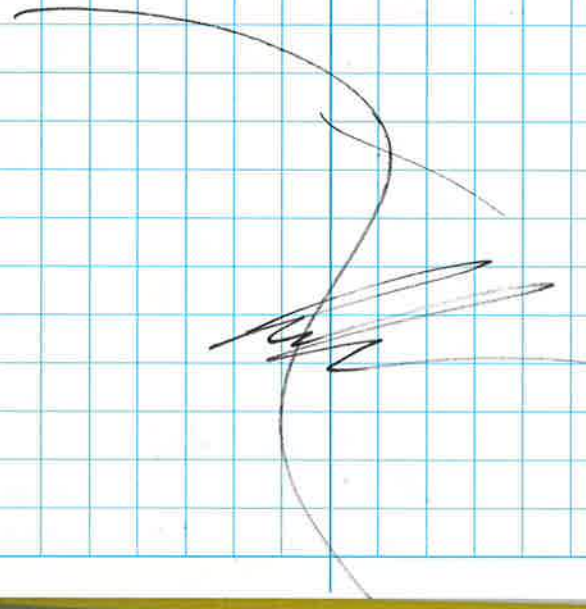
Begin purge @ 1648

Pumped until dry

Will allow to recharge, then sample

1750 Return to boiler room to assist with cooler packing

1820 Ramboll offsite



Location Ft. Smith Date 11/14/18

Project / Client Whirlpool

0700 Rumball Onsite

SK, AM, JP, HA, NM, NZ, VS

0705 Calibrate Equipment. Same Equipment as yesterday YSI Calibration

	Before	After
Spec Cond	1402	1413
ORP	229.1	240.0
pH 7	7.08	7.00
pH 4	4.03	4.00
pH 10	9.87	9.98
DO	98.6	100.0

MS/MSD notation

MW-####-201811-MS

-MSD

Put times same SK as samples

0900 H+S meeting

0815 Set up @ MW-84

DTW - 12.34 TD = 25.19

DTW Stable @ 12.43

Persulfate tested: 1260 ppm

3 drops used

Sample @ 0920 ID: MW-84-201811

Ascorbic Acid VOAs used

Location Ft. Smith Date 11/14/18

Project / Client Whirlpool

gal purged - 1.5

0930 Set up @ MW-83

DTW - 12.25 TD - 26.77

Begin Purge @ 0935

DTW stable @ 12.29

Persulfate tested: 210

3 drops 300·0.7 = 210

Sample @ 10:50

Sample ID: MW-83-201811

Ascorbic Acid VOAs used

Gal purged: 1.6

1100 Set up @ MW-178

Purged dry yesterday - will purge till clear, then sample

DTW - 4.32

Turbidity to 9.73

Sample @ 1120

Sample ID MW-178-201811

MS/MSD Taken:

MW-178-201811-MS @ 1120

MW-178-201811-MSD @ 1120

Total gal purged - 1.8

Location Ft. Smith, AR Date 11/14/18

Project / Client Whirlpool

1145 Set up @ MW-22
DTW - 12.90 TD - 29.20
Begin Purge @ 1152
Sample @ 1245
Sample ID MW-22-20181114
DTW stable @ 12.98
Gal purged - 1.8

1300 Empty purge water

1330 Set up @ MW-56R
DTW - 2.33 TD - 19.79
Begin Purge @ 1345
Sample @ 1425
Well Stabilized
DTW stable @ 2.88
Gal Purged - 0.9

1430 Set up @ MW-57R
DTW - 2.28 TD - 19.35
Begin Purge @ 1431
Sample @ 1540
Well not stabilized, 1 hour reached
Sample ID MW-57R-20181114
DTW stable @ 3.25 100 mL/min
Gal purged - 1.9

Location Ft. Smith, AR Date 11/14/18

Project / Client Whirlpool

1530 Set up @ MW-46R
DTW - 2.69 TD - 21.51
Begin purge @ 1557
Sample @ 1710
Sample ID MW-46R
DTW stable @ 3.0' @ 100 mL/min
Gal purged - 1.8

1720 Empty Purge water

1740 Equipment Blank taken on water level meter
SN: 29157
Sample ID EB-04-20181114
Sample @ 1740

1750 Pack up samples for courier

1815 Randall Office

Location Ft. Smith, AR Date 11/15/18

Project / Client Whirlpool

0700 Rambell Onsite
JK, JP, HA, VS, NM, NZ, AM

0710 Calibrate Equipment
Same Equipment as whole event
YSI Calibration

	Before	After
Spec. Cond	1368	1413
ORP	239.2	240.0
pH 7	7.01	7.00
pH 4	3.92	4.00
pH 10	9.99	10.00
DO	99.2%	

Barometric Pressure - 753.3

0815 H+S meeting

0830 Set up @ TMW-12
DTW - 4.55 TD: 20
Begin Purge @ 0835
Sample @ 0930
Sample ID TMW-12-201811
DUP taken DUP-04-201811
DTW stable @ 4.65
Gal purged - 1.6

Location Ft. Smith, AR Date 11/15/18

Project / Client Whirlpool

0955 Set up @ MW-82
DTW - 10.02 TD 25.98
Begin purge @ 10:00
Persulfate tested - Oppm
5 drops added
Sample @ 11:15
Sample ID MW-82-201811
DTW stable @ 10.02
Gal purged - 1.8

1200 Set up @ ITMW-7
1200 DTW - 20.90 TD - 36.98
DTW From fence - 25.60
Referenced From fence in sampling log.
Begin purge @ 12:24
Sample @ 13:30
Sample ID ITMW-7-201811
DTW stable @ 25.75
Gal purged - 2
Well Stabilized

Location Ft. Smith, AR Date 11/13/18

Project / Client Whirlpool

1340 Set up @ ITMW-19
DTW - 12.76 TD - 33.23
Begin Purge @ 1351
Sample @ 1430
Sample ID ITMW-19-201811
DTW Stable @ 12.90
Well Stabilized
Gal purged - 1.1

1445 Set up @ MW-93
DTW - 14.35 TD - 34.21
Begin Purge @ 14:58
Sample @ 15:45
Persulfate tested - 840ppm
3 drops
Ascorbic acid VOAs used
Sample ID MW-93-201811
DTW Stable @ 14.39'
Gal purged - 1.4

1600 Set up @ MW-189
DTW - 25.58 TD - 40.85
Begin purge @ 16:10
Sample @ 16:55
Persulfate tested due to high Spec. cond. 0ppm

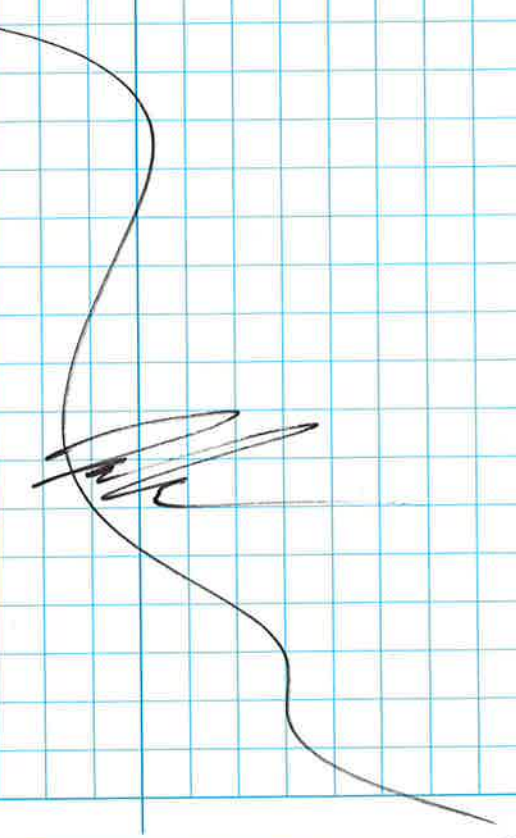
Location Ft. Smith, AR Date 11/15/18

Project / Client Whirlpool

MW-189 cont
Sample ID MW-189-201811
DTW Stable @ 25.58
Gal purged - 1.1

17:30 Empty Purge water to 55 gal drums

18:20 Ramboll Offsite



Fort Smith, AR
Whirlpool

11/12/2018

1515 Ramboll onsite

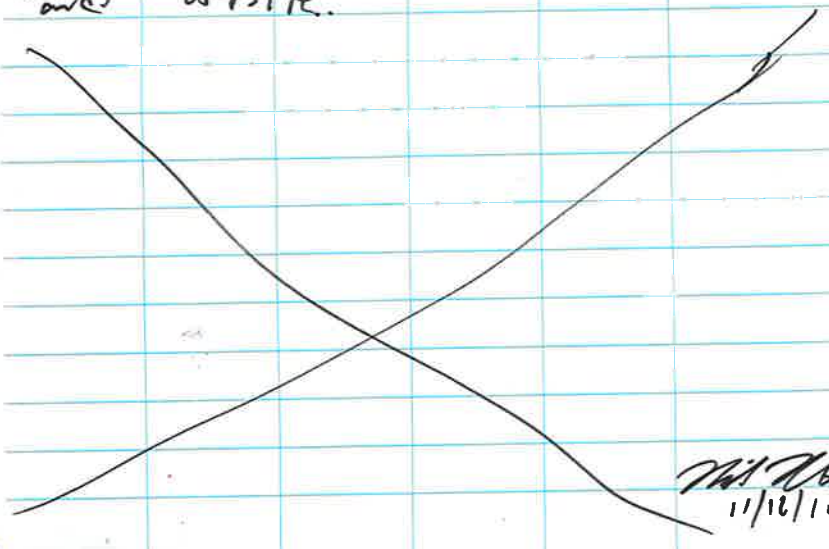
Personnel: Nick Martin. Others will be arriving shortly [N. Martin field notebook]

Weather: Low 30s, snowy, winds 5–20 mph, cloudy.

Objectives: Open all wells for gaging in AM, Organize equipment for tomorrow, purchase necessary supplies.

1600 All Ramboll personnel onsite, see project roster for personnel. Deploy to open all wells onsite

1810 All wells opened for gaging. Ramboll pack up equipment, and offsite.



11/12/18

0655 Ramboll onsite (N. Martin's field book)

0700 Begin dividing up equipment and calibration of YSI + turbidity meter. H&S tailgate conducted @ ~0820

Calibration info:

YSI S/N + Model: YSI Professional Plus / 19850

Sp. Cond: 1413 µS/cm

pH: 7 ✓ 7.00

4 ✓ 4.00

10 ✓ 10.00

ORP: 240.0

DO% Chamber: 105.3% → 100%

Turbidity meter S/N + Model: LaMotte 2020we, 25106

↳ calibrated at 0 NTU, 1 NTU, and 10 NTUs

0850 Begin gaging wells w/ J. Krach

1100 Finish gaging wells, offsite for lunch + gas, ice

1210 Ramboll returns to site (N. Martin), mob to MW-28.

1250 Begin purge at MW-28

1306 End purge sample collected ✓

MW-28-201811 @ 1310, 3 VOAs collected for VOC analysis. All samples will be collected in same fashion

Objectives: Gage wells, begin GW sampling cleanup water

Weather: 35–38°F, calm, sunny

Personnel: See H&S signin

Rite in the Rain 11/13/18

unless otherwise noted.
1335 Mob to MW-27.
1355 Begin purge @ MW-27.
1442 End purge @ MW-27, well stabilized. Sample collected @ 1445
$ MW-27-201811 @ 1445
1455 Mob to ITMW-16.
1510 Begin Purge @ ITMW-16.
1535 End purge after well stabilizing
$ ITMW-16-201811 @ 1540
1600 Mob to TMW-29
1615 Begin purge @ TMW-29
1700 Well stabilized, end purge, sample
$ TMW-29-201811 @ 1700
1715 Mob back to boiler room for packing of samples.
1625 Mob to Fedex to ship 2 coolers to Pace/KS, and 1 cooler to Microbial Insights, both via Fedex Express. All Ronball offsite soon after.

11/13/10

0700 Ronball onsite
Personnel: N. Martin (Boot), see sign-in sheet for crew roster
Weather: Current 31°F, high of 40°F, clear winds 5-15mph
Objectives: Continue groundwater sampling at Northern neighborhood wells.
0715 Begin calibration of equipment
Calibration Info: YSI: Professional Plus / 19258
Sp. Cond: 1342µS/cm → 1413µS/cm
ORP: 220.5mV → 240mV
pH: 7.08 → 7.00; 4.06 → 4.00; 9.98 → 10.00
DO%: 101.7% → 100% @ 760.293mmHg
0830 Mob to MW-60R
0850 Begin purge @ MW-60R
0915 Well stabilized, begin sampling
$ MW-60R-201811 @ 0920
Again, 3 VOAs sampled for VOC analysis will be same at every well unless specified.
0945 Mob to MW-40R.
1015 Begin purge @ MW-40R
1047 MW-40R stabilized, sampling started
1050 Sample collected
$ MW-40R-201811 @ 1050,

11/14/10

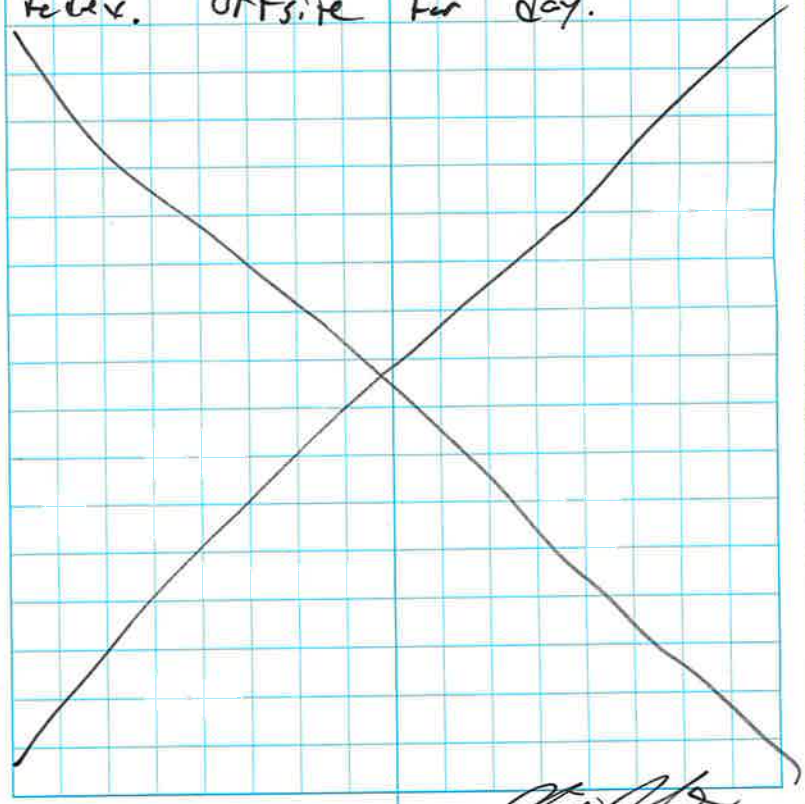
triplicate volume collected for MS/MSD samples. Named:

MS/MSD MW-40R-201811-MS @1050
MW-40R-201811-MSD @1050

1120 Mob to MW-62R
1135 Begin purge at MW-62R
1205 MW-62R stabilized, begin samp. collection
$ MW-62R-201811 @1210
1220 N. Martin offsite for lunch
1300 Mob to MW-63R
1305 Begin purge at MW-63R.
1340 well stabilized, sample collected
$ MW-63R-201811 @1340
1400 Mob to MW-26.
1430 Begin purge at MW-26.
1525 Well stabilized, sample + dup collected
$ MW-26-201811 @1525
↳ dup = DUP-09-201811 @1525
1550 Mob to ITMW-20
1600 Begin purge at ITMW-20
1624 Well stabilized, sample collected ITMW-20-201811 @1625

11/14/18

Equipment blank collected from water level meter:
$ EB-03-201811 @1700
(3 VOAs for VOCs)
1810 Ramboll personnel pack up equipment, pack coolers (handoff coolers to coolers), bring single cooler to Fedex. Offsite for day.



11/14/2018

Fort Smith, AR
Whirlpool Corp.

10/15/12

0700 Ramboll onsite
Personnel: Nick Martin. See H&S sign-in for complete list.
Weather: Low 30s in AM, up to 55°F by early afternoon, clear, calm wind.
Objectives: Complete assigned sampling list, and sample additional wells if needed / if time allows.
0715 Begin Calibration of YSI Professional Plus S/N: 19858
sp cond: 1380 µS/cm → 1413 µS/cm
ORP: 241.2 mV → 240 mV
pH: 6.98 → 7.00; 3.98 → 4.00; 10.01 → 10.00
DO%: 97.9% → 100% @ 753.9 mm
0810 Tailgate H&S meeting conducted, see NASP for topics discussed.
0820 Mob to MW-29
0840 Begin purge at MW-29
0907 Well stabilized, begin sample collection
$ MW-29-20181(@0910
0930 Mob to MW-39R
0950 Begin purge at MW-39R
1027 Well stabilized
$ MW-39R-20181 @1030

11/15/12

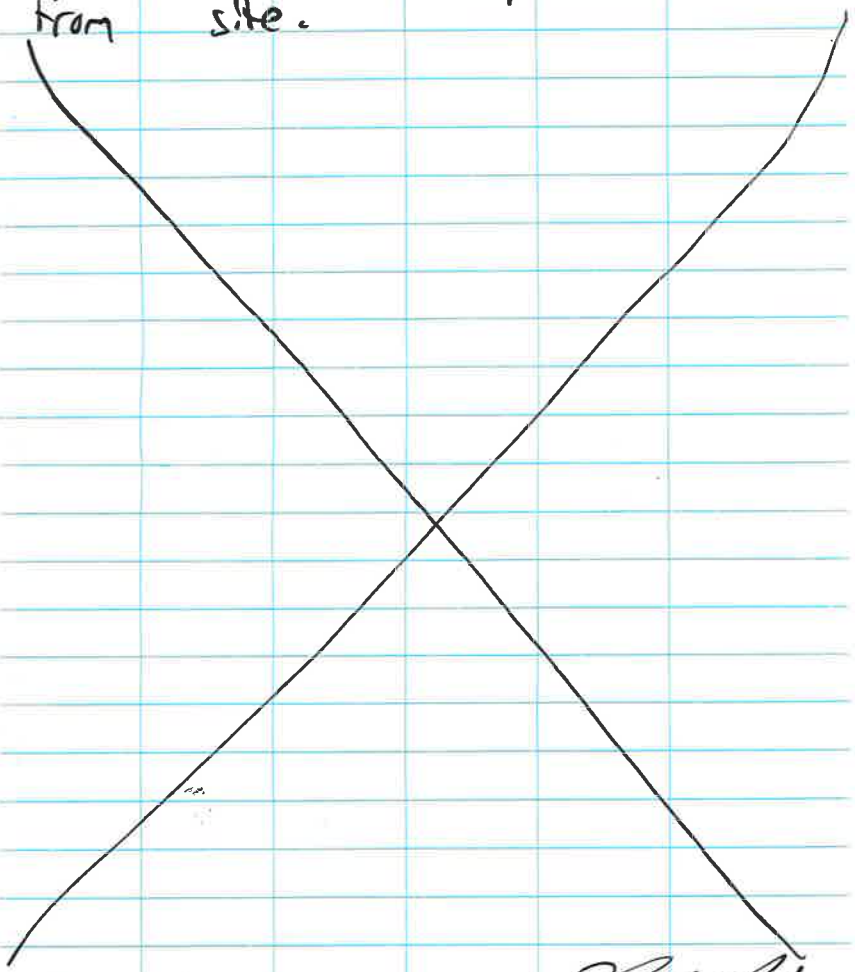
1050 Mob to IW-78
1108 Begin purge at IW-78
1201 Well stabilized, begin sample collection
$ ~~IW-78-20181~~ @1205 MSM 11/15/12
1230 N. Martin offsite for lunch
1315 N. Martin onsite, mob to MW-182. Begin purge at 1358.
1426 Well stabilized, sampling begins
$ MW-182-20181 @1430
1445 Mob back to IW-78 to resample w/ ascorbic acid VOAs
1505 Begin purge at IW-78. Will proceed until turbidity is stable at <10 NTU, because well was recently stabilized ≤3 hours ago.
1525 Well turb. stable, sample collected w/ ascorbic acid vocs
$ IW-78-20181 @1525
1545 Mob to TMW-24
1555 Begin purge at TMW-24
1700 Well stabilized, sampling begins
$ TMW-24-20181 @1700
1720 Mob back to boiler room to pack equipment / samples

11/15/12

Fort Smith, AR

11/15/18

1820 Samples shipped via courier to ALS Car Feder for microbe samples), handed off equipment to other Ramboll personnel, and demobed from site.



11/15/18

Rite in the Rain

11/14/18 Whirlpool

1243 MOB to TMW-30 & started set up at well
1250 Began purging well, prepped to take readings
1335 Well vent dry will return to purged sample. Began packing up. ~1gal
1350 MOB to ~~IT~~ AM MW-191
1400 setup at site
am ~~2~~ 1406 Began purge
1410 Started taking readings
1455 Readings stable
sampled MW-191 for VOCs
Ferrous Iron = 0.00
Total purge ≈ 1.5gal
1506 Began packing up
1519 MOB back to TMW-30 to sample
1521 Set up at TMW-30
16.14 ft = depth to water
1527 Began pursing
~~1532 Sampled TMW-30~~ AM
1608 am sampled from well TMW-30
readings still stable
Ferrous Iron: 0.98 mg/L
Total purge ≈ ~~1gal~~ am ~1gal
1630 MOB to boiler room
Helped team w/ crawl packing coolers. Wrapping up for day

11/14/18 Whirlpool

1815 left site for day

11/15/18 Whirlpool

0700 arrived on site
0715 YSI calibration
Serial # 18J102186
Specific Conductivity: 1397 µs/cm
ORP: 241.2 pH @ 10 = 10.14
pH @ 7 = 6.91 DO% = 105.5%
pH @ 4 = 4.18
0810 Health and safety meeting
0815 MOB to MW190
& started setting up at site to purge
0831 took first reading
0925 sampled MW-190 for VOCs
~2gal purged
ferrous iron = 2.75 mg/L &
cloudy in color
0938 Began packing up
0950 MOB to ITMW-21
set up at well
1008 Began purging well
1011 Began taking readings
1101 sampled ITMW-21
purged ~1.25gal
ferrous iron = 0.05 mg/L

CM

Rite in the Rain

11/15/18 Whirlpool

1110 Began packing up
1130 MOB to ITMW-1 & set up at well
1135 Began purge
1142 Began taking readings
1225 sampled ITMW-1 for VOCs
Total purge ↓ ~ 1.75 gal
Ferrous iron = 0.00 mg/L
1232 Began packing up
1245 MOB to gas station
1255 MOB back to site to ITMW-5
1300 Break for lunch
1330 set up at ITMW-5
1338 Began purging well
1340 TOOK first reading
1425 sampled ITMW-5 for VOCs
Ferrous iron = 0.00
Total ↓ purged ~1.25 gal

1435 MOB to MW-91
1450 Set up at MW-91
1456 Began pumping
1500 Began taking readings
1545 sampled MW-91
total purge ↓ = ~1.5 gal
ferrous iron = 0.01

AM 1604
~~0404~~ MOB to gas station to get ice & to additional wells to help team
1727 Met outside boiler room to pack coolers

1721 TOOK equipment blank
1830 Left site for day

11/16/18 Whirlpool
0715 Arrived on site for the day
0720 YSI calibration
serial # 18J102186
5+55 Health & safety Meeting
YSI calibration results:
specific conductivity: 1432 µs/cm
ORP: 233.2
pH_7: 7.0
pH_4: 4.09
pH_{10}: 10.10
% DO: 98.6
0757 Pack up
0810 MOB to TMW-23
0837 Setting up at the well

Rite in the Rain

11/16/18 Wilmington

0842 started pumping at TMW-23

0843 started taking readings

AM ~~0950~~ sampled ~~TMW~~ TMW-23 for VOCs

0955 sampled DUP-03 for VOCs

Ferrous Iron = 0.00 mg/L

Total Purge ~ 25 gal

MOB to TMW-86

1030 Helped team finish well MW-86

1045 Drove around to check stick up wells in need of repair, replaced locks, locked wells

1200 MOB to RW-69

1205 set up at well

1223 started pumping well

1227 took first reading

1315 sampled RW-69:
3-40mL 4 Trisodium phosphate Preservative for Methane
ferrous iron not sampled

1320 MOB back to facility

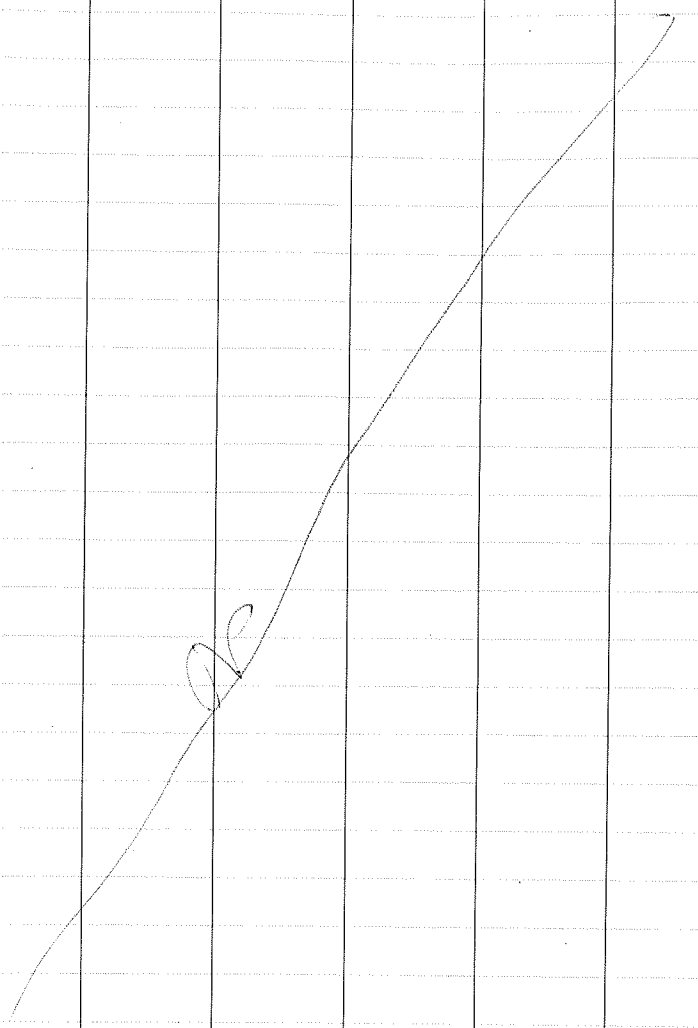
1330 Packed coolers to be mailed
Packed supplies & prepared equipment to be mailed, organized equipment in cars

1530 left site

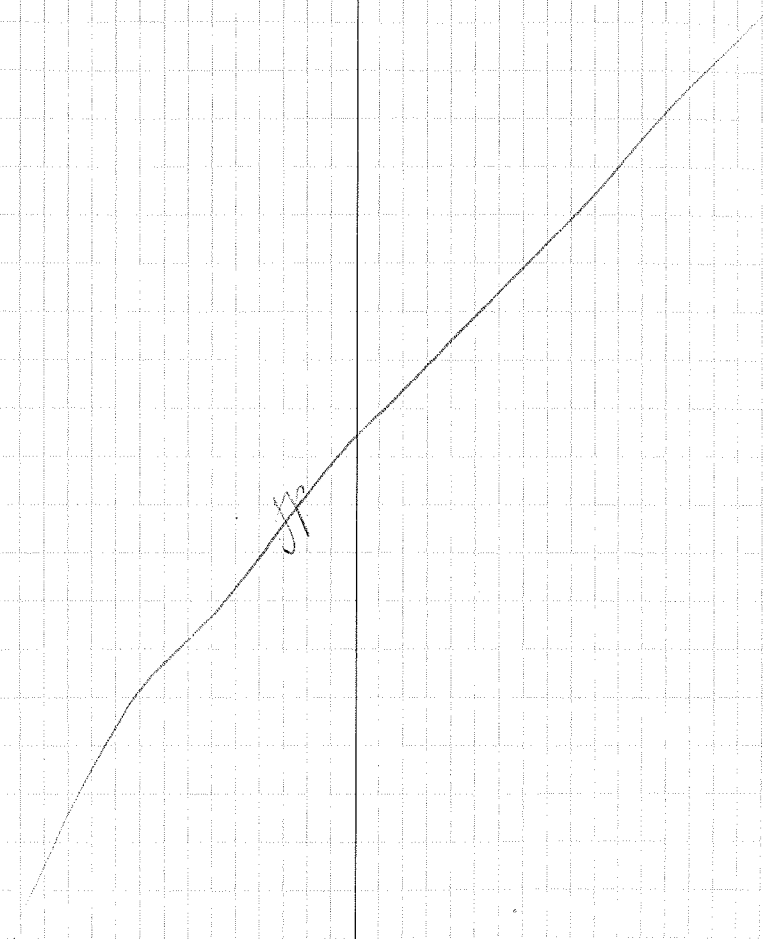
dm

Rite in the Rain

3/17/18	Whirlpool	70F	Cloudy/Rain
130	JP begins equipment demob.		



11/18/18	Whirlpool		27°F
3-4TT			
1530	Arrive on site. Brief H&S		
	tailgate. Pass out site maps		
1600	Begin popping caps off wells		
1920	End pupping caps. Leave site.		



3/18 Whirlpool 27°F Cloudy

0650 Morning HSS Tailgate. pass out labels, forms, log sheets, etc.

0705 Arrive on-site. Pop cap on MW-6.

0715 Pass out monitoring equipment, coolers, equipment.

0740 Begin calibrating YSI Serial # - 12L101300
Sp Con - 1.919 mS/cm
ORP - 240.0 mV
pH7 - 7.0
pH4 - 4.03
pH10 - 10.02
DO - 99.7 %
Atmospheric Pressure - 30.46 inHg
x 25.4 = 773.684 - 15.169 =
= 758.515 mm Hg

0820 Finish calibration.

0840 Test water level meter/ calibrate.

0850 Begin gauging wells (see well gauge sheet)

1000 End gauging wells.

1005 Purchase ice from gas station.

11/13/18 Whirlpool 32°F Sunny

1215 meet at boiler room to pick up equipment. Lunch.

1300 Mob to MW-195

1305 Begin setting up MW-195

1320 Begin purging MW-195

1325 Begin monitoring MW-195.

1423 Parameters Stabilized.

1430 Sample MW-195 for VOCs
Ferrous Iron - 0.0 mg/L
Total purge V - 2 gal
TD - 17.13'

1445 Demob @ MW-195

1450 Arrive to set up @ MW-196
DTW - 5.0'
TD - 15' tubing @ 12.50'

1455 Begin purging & monitoring 195.

1550 Parameters Stabilized

1555 Sample MW-196 for VOC
Ferrous Iron - 0.0 mg/L
Total purge V - gal

1605 Demob @ MW-196

1610 Mob to MW-20

1615 Set up at MW-20

1620 Begin monitoring YSI parameters
Parameters Stable

32°F
11/13/18

Whirlpool

Sunny

1700 Sample TMW-20 @ 1700 for VOCs + DUP-01
Iron- 0.0 mg/L
total ∀ purged ~1.75
1715 Depart at TMW-20
1730 Arrive at base train.
1735 Prepare chain of custody and pack sample coolers.
1830 Relinquish chain & mail to lab.
1845 Ship samples to lab via FedEx
1845 End day.

32°F
cloudy

Whirlpool

11/14/18

0715 Meet onsite. Conduct H&S mtg.
0730 Calibrate YSI
Serial # - 15J102106
DO - 112%
ORP - 240.2
pH7 - 6.96
pH4 - 4.00
pH10 - 10.09
Sp Con - 1520 µs/cm
0915 End calibration.
0820 Prepare equipment.
0830 Mobilize to MW-18S
0835 Set up at MW-18S
0840 Begin monitoring YSI parameters.
0915 Parameters Stabilize.
0920 Sample MW-18S @ 0920 for VOCs
Ferrous Iron - 0.0 mg/L
∀ purged - ~1.2 gal
0925 Mob to TMW-19.
0930 Begin setting up equipment
0935 Begin purging well & monitoring YSI parameters.
1015 Parameters stabilized

32°F
Cloudy

Whirlpool 11/14/18

1020 Sampled TMW-19-20181101 @ 1020
Iron-0.25 mg/L
TMW-19-20181101-MS
TMW-19-20181101-MSD
1030 Demob @ TMW-19
1035 Begin setting up at well
1045 Begin purging well
1053 Began monitoring YSI parameters
1128 Parameters Stable
1130 Sampled TMW-27 @ 1130 for VOCs.
Iron - 0.0 mg/l
V purged - 15 gal
1140 Demob at TMW-27
1145 Swap out equipment at boiler room.
1200 Break for lunch
1250 mob to MW-167
Begin setting up equipment
1305 Begin monitoring YSI parameters
1350 Parameters stabilized
Sampled MW-167 @ 1345 for VOCs
Iron - 0.0 mg/L ~1.5 gal purged
pp

36°F
Cloudy

Whirlpool 11/14/18

1400 Mob to MW-192
1405 Set up equipment.
1410 Begin purging MW-192
1415 Begin monitoring YSI parameters
1455 Parameters stabilized.
Sampled MW-192 @ 1505 for VOCs
1500 Sampled DUP-07-20181101 @ 1500 for VOCs
Iron - 0.10 mg/L
TOTAL V purged - ~1.75 gal
1510 De mob @ MW-192.
1520 Dump IDW/purge water
1530 Pick up persulfate kit & drop off extra set in boiler room.
1535 Begin set up at ITMW-18. No dedicated tubing. Drop well tubing.
Begin purging ITMW-18
Begin monitoring YSI parameters
Parameters Stable
Sample ITMW-18 @ 1700
for VOCs.
Iron - 0.0 mg/L
Purge V - 2 gal

Cloudy 32°F | Whirlpool | 11-14-18

~~Demob~~ @ ITMW-18.
1630 Begin drafting Chain of Custody.
1705 Demob at ITMW-18.
1715 Meet at boiler room.
1720 Complete Chain of custody while team packs sample coolers
1800 Relinquish samples to courier.
1815 Leave site for day

Sunny 32°F | Whirlpool | 11-15-18

0630 Meet at hotel to reorganize well schedule.
0650 Leave to site
710 Arrive on-site. Begin calibrating YSI.
Serial # - 12L101300
Sp Con - 1.413 mS/cm
ORP - 240.0
pH7 - 6.98
pH10 - 10.00
pH4 - 4.15
DO - 96.41.
Turbidity meter # - 4416-2019.
0800 Conduct H&S mtg.
0815 Redistribute wells, gather supplies, prep equipment.
0850 Mob to MW-38.
0855 Set up @ MW-38
0900 Begin purging & monitoring MW-38 for YSI parameters.
0950 Parameters stabilized.
0955 Sampled MW-38-20181116@0955 for VOCs, total metal/IRON, ethane, sulfate, nitrate, MEEA, sulfide, TOC, DHC, VC Reductase, H

Sunny 36° Whirlpool 11/15/18

1015 continue @ MW-38
1020 measured persulfate @ ~20ppm.
1030 sampled DHC/VC Reductase @ 100 mL/min for 10 min = 1 L.
1045 sampled iron - 2.53 mg/L
1053 Begin Hydrogen stripping @ 240 mL/min
1108 End hydrogen sampling.
1115 Demob @ MW-38.
1125 Break for lunch
1155 mob to MW-87
1200 Set up at MW-87
1205 Begin purging MW-87.
1220 Begin monitoring YSI parameters
1305 Parameters Stabilized.
1330 Sampled MW-87 @ 1330 for MNA parameters & VOCs
1335 DHC/VC Reductase sample V = 1L
1339 Hydrogen bubble stripping @ 200 mL/min for 20 min.
1359 End bubble stripping. 15 mL V sampled. Ferrous iron - 0.0 mg/L
1400 Demob
1410 Arrive @ ITMW-9. Set up equipment.

JP

Sunny 50°F Whirlpool 11-15-18

1415 Purge ITMW-9
1420 Begin monitoring YSI parameters
1500 Parameters Stabilized
1520 Sampled ITMW-9 @ 1520 for VOCs & MNA. bacteria - filtered 1L for 10 min @ 100 mL/min
bubble stripping began @ 15:00 end @ 45:00 for 100 mL/min
Ferrous iron - 0.02 mg/L
V purged - 3.5 gal
1550 Demob
1600 mob to IW-77
1605 Set up @ IW-77
1610 Begin purging
1615 Begin monitoring YSI parameters
1710 Parameters Stable.
1710 sample IW-77-20811 @ 1710 for VOCs.
persulfate - 0 ppm
Ferrous Fe - 0.12 mg/L
V purged - 2 gal
1720 Demob.
1730 Complete COC. Pack & ship samples.
1830 Leave site / End day

JP

Cloudy 32°F — Whirlpool — 11-16-18

0715 Arrive onsite. Begin calibrating YSI.
0800 End YSI calibration.
0815 Pass out remaining sampling equipment prepare for sampling.
0820 Construct H2S Tailgate.
0821 Mob to MW-86 & set up
0826 Begin Monitoring YSI parameters
0923 Parameters Stabilized.
Sample MW-86 @ 0940 for VOCs & MNA
0938 DNA filtered @ 100 mL/min for 10 min → 1 L of sample
0946 Ferrous Iron - 0.03 mg/L
1002 Begin bubble stripping at 100 mL/min.
1032 End Bubble Stripping.
1035 Sampled 15 mL of air into bottle. Total Purge = 4.5 gal
1040 Demob at MW-86.
Sample EB-08-20181116 @ 1030
1100 Begin equipment demob
1115 Mob to MW-89 & set up

Cloudy 34°F — Whirlpool — 11-16-18

1128 Begin monitoring YSI parameters.
1218 Parameters Stabilized
Sample MW-89 @ 1218 for MEE using sodium triphosphate (TSP) preservative bottles.
1225 Demob at MW-89.
1230 Begin drafting chain of custody.
1245 Reviewing hydrogen samples + packaging.
1315 ~~Rafe~~ Packing sample cooler
1330 Relinquishing COC
1345 Ship samples via courier to lab
1400 Demobilizing equipment + site.
1440 File police report w/ Fort Smith PD for stolen Pine equipment.
1500 Dump trash in on-site construction waste dumpster.
1510 Place master locks on MWs SB12 and TMW-12.
1535 Leave site. Pick up Alicia at Fort Smith Airport.
1550 Leave Fort Smith to office.

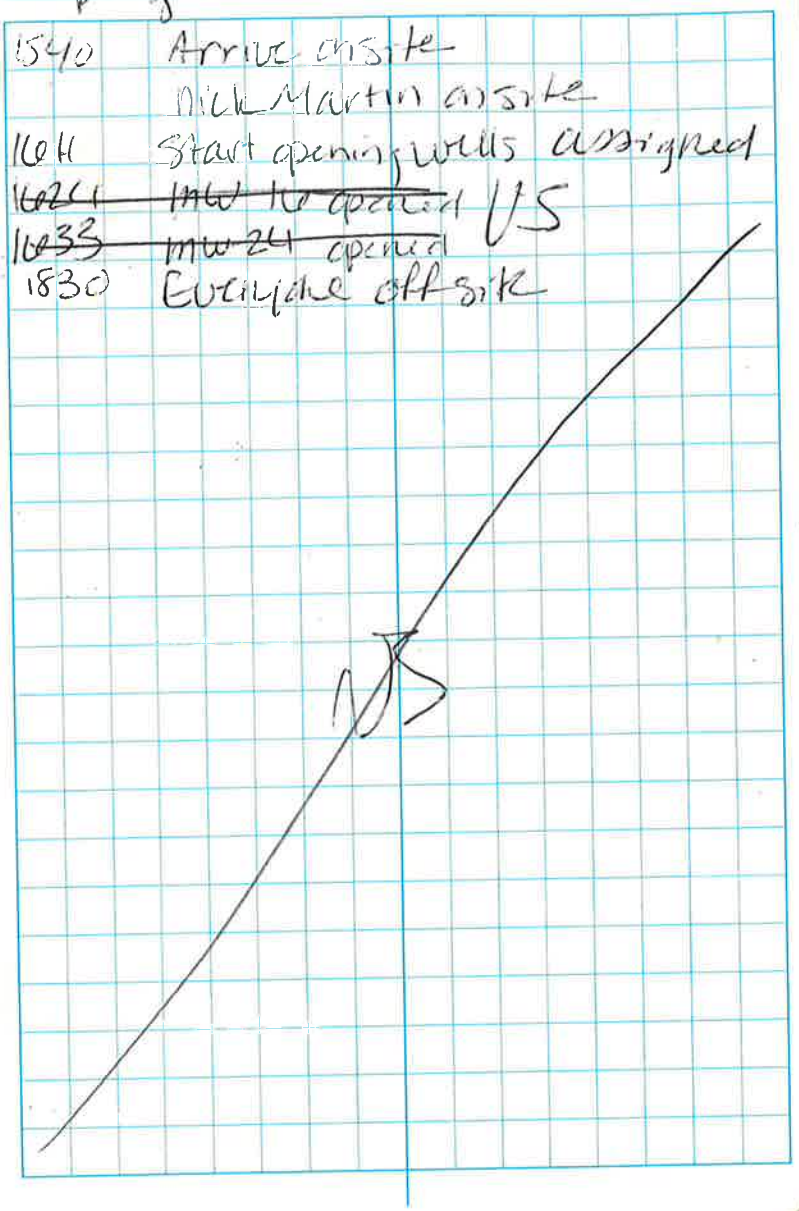
JP

Location 6400 Jenny Lind Rd Fort Smith Date 11/12/18

Project / Client Whirlpool vs Arkwood

Sampling event

1540 Arrive onsite
Nick Martin onsite
1614 Start opening wells assigned
~~1622 MW to open~~ VS
~~1633 MW 24 opened~~
1830 Evacuate offsite



Location Whirlpool 6400 Jenny Lind Fort Smith, AR Date 11/13/18

Project / Client Sear Annual Sampling Event

0700	Arrive onsite		Weather 30s, 9mph wind NNW Sunny
	Divide equipment		
	Calibrate YSI		
0830	HS meeting		
0855/05	Calibrate Water level meter		
0855	MW-17	DTW	14.91
0910	MW-99	DTW	10.02
0913	MW-158	DTW	9.61
0920	MW-98	DTW	10.67
0924	MW-96	DTW	10.82
0928	MW-97	DTW	8.51
0930	MW-1832	DTW	13.74
0945	TMW-34	DTW	12.69
0951	MW-192	DTW	16.22
0954	MW-185	DTW	14.95
1009	TMW-16	DTW	15.63
1013	MW-24	DTW	13.19
1015	MW-84	DTW	12.46
1017	MW-101	DTW	12.56
1024	MW-23	DTW	12.61
1026	MW-83	DTW	12.37
1028	MW-178	DTW	4.02
1031	MW-179	DTW	1.40
1035	MW-180	DTW	4.56
1041	MW-27	DTW	12.24

Location 6400 Jenny Lind Ft Smith, AR Date 11/13/18

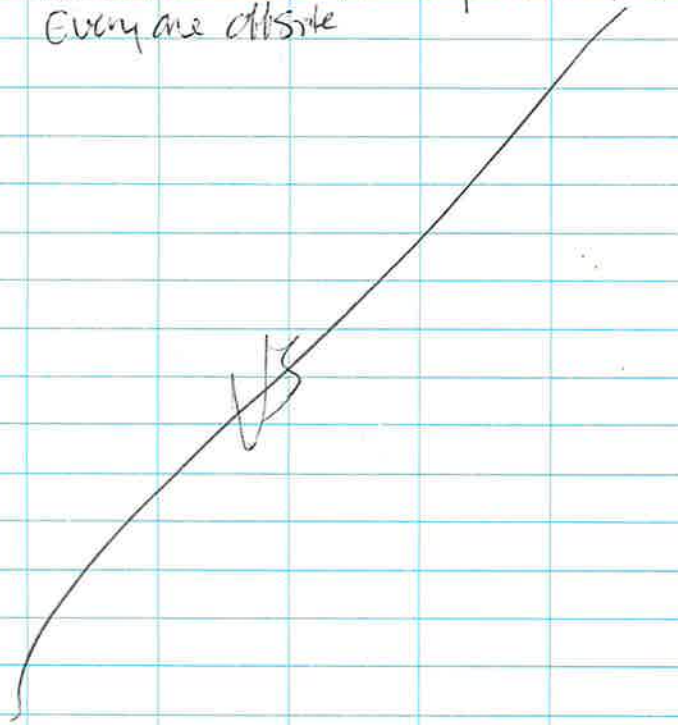
Project / Client Whirlpool Annual Sampling Event

1043	MW-28	DTW	7.67
1045	MW-90	DTW	5.81
1049	MW-88	DTW	9.21
1051	MW-89	DTW	10.38
1055	MW-87	DTW	13.18
1057	MW-91	DTW	11.59
1101	MW-22	DTW	13.06
1107	TMW-1	DTW	16.39
1112	TMW-2	DTW	12.58
1110	TMW-3	DTW	13.17
1117	VSI TMW-36	DTW	13.16
1120	TMW-20	DTW	14.34
1122	MW-26	DTW	14.24
1125	MW-29	DTW	11.83
1128	MW-30	DTW	16.60
1132	TMW-7	DTW	20.41
1145	off-site after lunch		
1215	Back on site		
1230	mob to MW-99		
1244	Pump start	MW-99	
1357	Sample MW-99		
	total purge ~20 gal		
1405	mob to MW-65 & recal ORP		
1422	Pump start	MW-65	

Location 6400 Jenny Lind Ft Smith AR Date 11/13/18

Project / Client Whirlpool Annual Sampling event

1511	Sample MW-68
	total purge ~ 1.25 gal
1530	mob to ITMW-2
	Pump Start
	Sample ITMW-2
	total purge ~ gal
	Head to trailer [illegible] to pack samples
1830	Everyone offsite



Location 6400 Jenny Lind Ft Smith AR Date 11/14/18

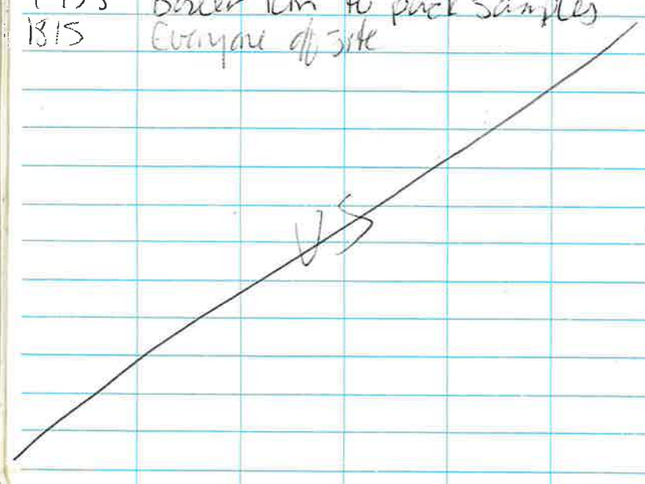
Project / Client Whirlpool Annual Sampling event

0700	Everyone on site
	HS meeting
	Calibrate equipment
0820	mob to MW-154
0832	Pump start
0857	ORP seems really negative
	put in calibration solution goes to 243.9 which is in range.
	Talk to Nate/Nick. It's ok keeping going
0947	Sample MW-154
	total purge ~ 2.0 gal
1010	mob to MW-153R
1023	Pump start
1123	Sample MW-153R
	MS/MSD
~~1200~~ 1135	total purge ~ 1.75 gal
1200	Lunch
1230	back on site
1248	Pump start MW-95
1351	Sample MW-98
	total purge ~ 1.0 gal
1400	Dump water
1420	mob to ITMW-14

Location 6400 Jenny Lind Ft Smith, AR Date 11/14/15

Project / Client Whirlpool Annual Sampling Event

1447	Pump Start TMW-14
1551	Sample TMW-14
	total purge ~1.0 gal
1615	mob to TMW-10
1625	Pump start
1737	Sample TMW-10
	total purge ~1.75 gal
1645	Pump died Nick & bring me his pump.
1650	Pumping again
1750	Dump purge H2O
1755	Back Rm to pack samples
1815	Everyone off site



Location 6400 Jenny Lind Ft Smith, AR Date 11/15/15

Project / Client Whirlpool Sampling Event Annual

700	Everyone on site
	HS meeting
	Calibrate 451
0820	mob to MW-96
0838	Pump start MW-96
0946	Sample MW-96
	total purge ~2.0 gal
1015	mob to MW-97
	Pump start
1142	Sample MW-97
	total purge ~1.0 gal
1230	mob to MW-24
1249	Pump start
1325	Sampling MW-24
	Dup-02
	total purge ~1.0 gal
	~~Ascorb~~ Ascorbic acid vials used.
	Persulfate reading 140ppm
1425	mob to MW-55R
1441	Pump start
1452	Pump dies
	locate spare pump
1519	Restart at well

Location 6400 Jenny Lind Ft Smith AR Date 11/5/18

Project / Client Whirlpool Annual Sampling Event

1556	Sample MW-55R Dup-05 total purge ~1.25gal
1611	Went to help JD so she can work on COCs while I taking readings + Sample
1732	Back to Boiler Rm
1830	Everyone offsite

Location 6400 Jenny Lind Ft Smith AR Date 11/6/18

Project / Client Whirlpool Annual Sampling Event

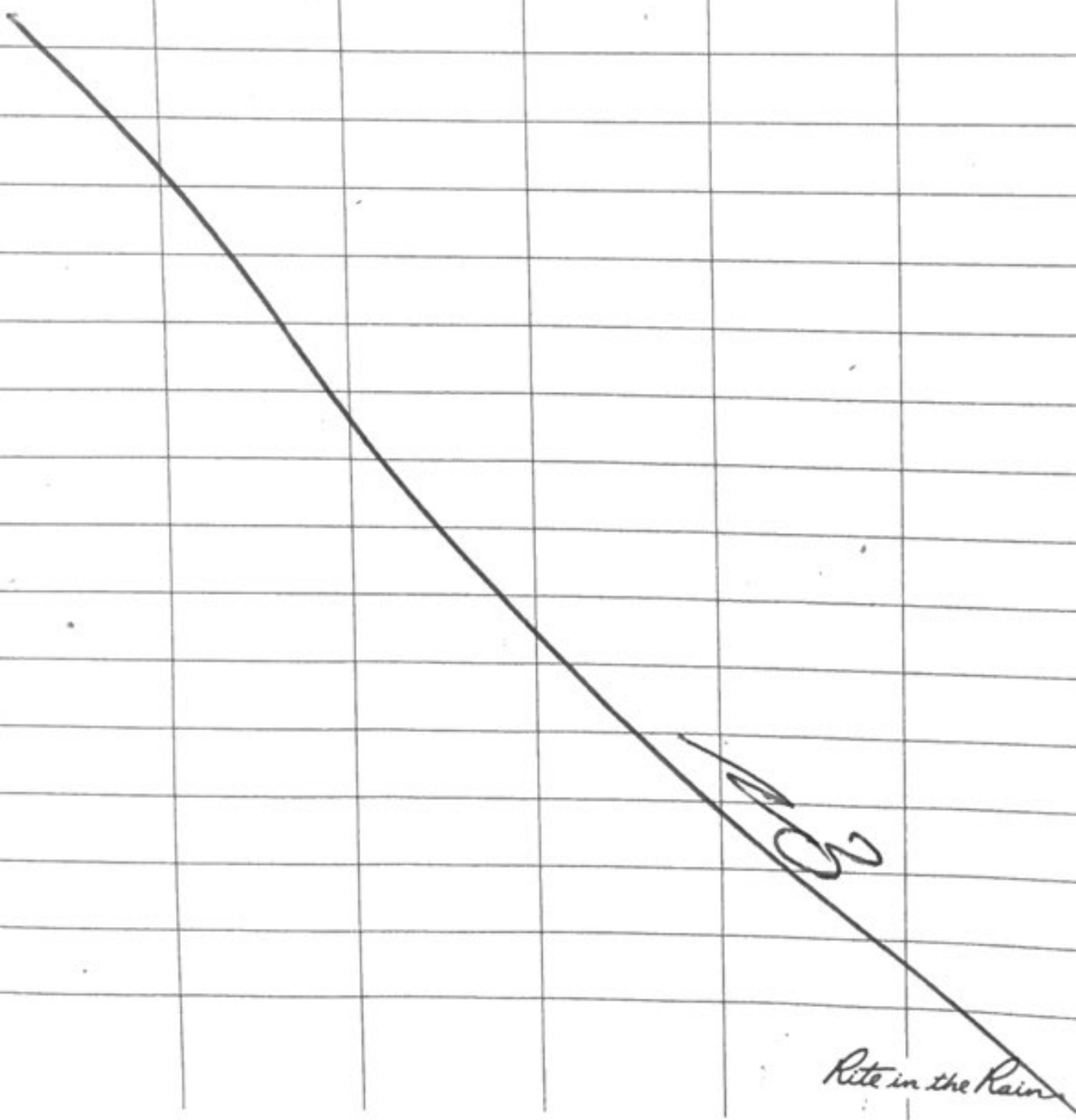
0700	Everyone onsite HS meeting Calibrate equipment
0820	mob to MW-25
0830	Pump start
0925	Sample MW-25 total purge ~2.0gal
1010	Inject 200cfm air into U. aisle for bubble stripping - 200mL/min
1030	Sample air ISCO
1053	Sample Rinsate EB-02
1130	start checking all wells closed
1215	told to resample MW-73
1232	Pump start
1320	~~total~~ Sample MW-73 total purge 1.5gal
1330	Back onsite to help back coolers Separate + pack equipment
1530	Victoria Stephens heads back to Kansas City

VS

11/12/18 Whirlpool 40°F Cloudy

1615 NZ + HA on-site (Ramboll).
Begin opening well covers & removing j-plugs.
Ramboll crew on-site: JP, AM NM + JK.
All well covers + j-plugs removed. Will allow to equilibrate for gauging on 11/13.

1830 All off-site



Rite in the Rain

11/13/18 Whirlpool 27°F Partly Cloudy

0650 N2 on-site (Ramboll).
Ramboll personel on-site for annual monitoring event: HA, IP, AM, JK, NM.
Prep for gauging work & gw sampling. Organize equipment & lab bottles

0800 Begin calibrating YSI 556

0900 Calibration complete. See cal log.
Begin minor well repair work (cover & bolt replacements, labeling).

1200 Work complete. Gauging complete. Lunch

1250 Arrive @ MW-50R for gw sampling.

1313 Begin purging MW-50R w/ peristaltic pump & associated tubing

1410 Sample MW-50R-20181113 @ 1410
See purge log, MNA & VOCs

1543 Begin purging TMW-10 w/ Peristaltic

11/13/18 Whirlpool 38°F Fair

1650 Stop purge. See purge log.
Sample TMW-10-20181113 @ 1655
MNA, ISCR monitoring & VOCs
ISCR odor, light brown/gray

1745 Prep samples for relinquishment

1830 All off-site

Rite in the Rain

11/14/18 Whirlpool 29°F Mostly cloudy

0700 NZ on-site. All sample crew on-site

0705 Begin calibrating YSI 556. SN: 13H100508 (same as previous) See cal log.

0800 Conduct HASP meeting Topic: Inclement weather

0830 Calibration complete. Prep for sampling @ MW-89 Arrive @ MW-89.

0850 Begin purging w/ peristaltic pump + associated tubing. See purge log.

Stop purge

Sample MW-89-201811 @ 1010

MNA + VOCs, clear

1137 Begin purging RW-64 See purge log

1227 Stop purge

Sample RW-64-201811 @ 1230 + MS/MSD

VOCs, MNA, clear

1431 Begin purging TW-73 See purge log

11/14/18 Whirlpool 40°F Cloudy

Sample TW-73-201811 @ 1510

MNA + VOCs, clear

Assist w/ sampling @ TMW-30

~~AA~~ NZ ISCR test.

Very dark gray turbid

Sample TMW-30 @ 1608

ISCR + VOCs

1630 Prep samples for relinquishment

Sample EB-05-201811 @ 1710

VOCs only, sampled off water level meter.

1810 Off-site to relinquish samples ~~to~~ NZ

1820 Samples relinquished (Microbial via Fedex, All other samples via courier)

Rite in the Rain

11/15/18 Whirlpool 25°F Fair

0535 Begin calibrating 451 556
See cal log.

0620 Calibration complete. Calibrate indoors @ hotel due to cold weather possibly leading to incorrect calibration

0650 NZ on-site. Same Ramboll crew on-site. Prep for vapor point sampling.

0930 Begin VP-9 sampling (6L). See Air sampling log.

1000 Hoffman Surveyor on-site to shoot-in new wells & existing wells w/ modification to TOC during well repairs MW-183R, TMW-22R, TMW-34 new wells. TMW-24, TMW-23 & TMW-12 new TOC elevations. Prep for vapor point GW sampling.

1100 Begin purging VP-10 w/ peristaltic. Water immediately present

100 ml/min

11/15/18 Whirlpool 40°F Fair

Sample VP-10-201811 @ 1105

VOCs only, clear water initially then light gray brn during sampling

1129 Begin purging VP-7 @ 100 ml/min w/ peristaltic pump. Water immediately present.

Sample VP-7-201811 @ 1135 intermittent flow

VOCs only, slt white cloudy

1137 Begin purging VP-8 @ 100 ml/min. Water Immed present

Sample VP-8-201811 @ 1142

VOCs only, clear, intermittent flow

1204 Begin purging VP-12 @ 100 ml/min

Water immediately present

Sample VP-12-201811 @ 1209

VOCs only, clear, intermittent flow

1228 Begin purging VP-14 @ 100 ml/min.

Sample VP-14 @ 1230

VOCs only, increasing lgt brn turbidity w/ purge intermittent flow

11/15/18 Whirlpool 50° Fair

1258 Begin Purging MW-58R
See purge log
Stop Purge
Sample MW-58R-20811 @ 1400 + DUP-05
MNA & VOCs, Clear sample

1450 Begin purging MW-95
see purge log

1550 Stop purge
Sample MW-95-20811 @ 1555
MNA & VOC, Clear
c 70 ppm persulfate

1650 Prep samples for relinquishment

1744 Stop VE-9 sumng @ -6.5" Hg.

1805 Samples relinquished to courier

1820 Samples relinquished to Fedex (Microbial)

11/16/18 Whirlpool 32° Fair

0535 Begin calibrating YSI 556

0610 Calibration complete. See Cal' log.

0705 NL on-site. Remaining Ramboll crew on-site: HA, JP, AM & VS.

0750 Conduct H&S meeting
Topic: Taking time while working
Prep for gw sampling

0849 Begin purging TMW-16

0915 David Gillespie (ADEQ) on-site
Sample TMW-16-20811 @ 1025
ISCR & VOCs, light brn gray
Drum count:
6 soil
4 water

1145 David G. off-site

1140 ERS on-site

1230 Remove drums from TMW-34 area w/ track fork lift.

1330 ERS off-site
Continue sample relinquishment

Rite in the Rain.

65°F
Fair

11/16/18 Whirlpool

1345 Samples relinquished to courier.

1355 Begin demobilization

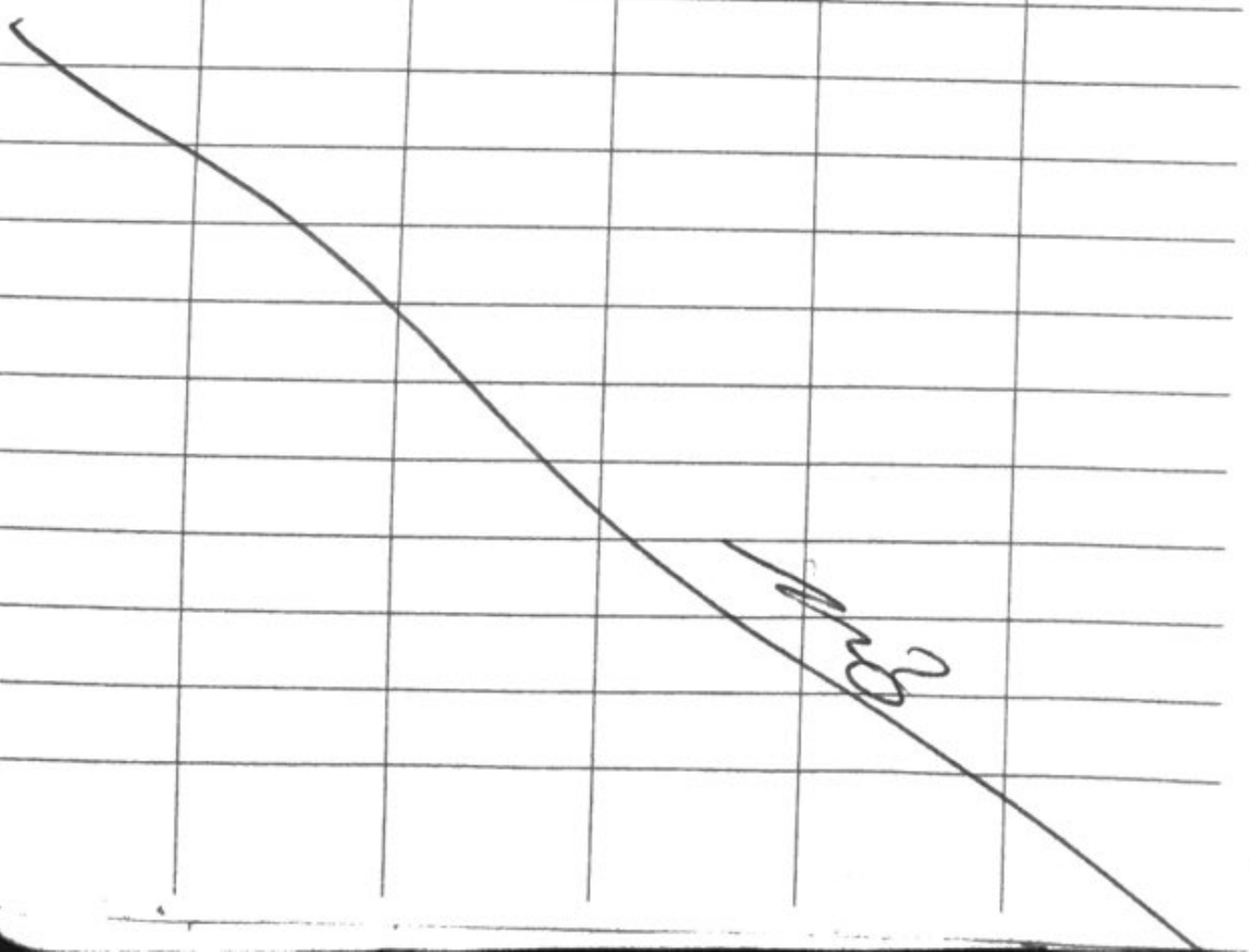
Demobilization complete.

During equipment count there was missing equipment (1 YSI, turbidimeter & colorimeter) due to possible theft.

1520 All off site.

1530 Microbial samples rolling wished to Fedex + pumps shipped back to Field Environmental.

1545 Begin travel back to St. Louis.



Appendix C
Risk Calculations and Input Parameters

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C.33 Cancer Risk and Hazard Index Calculations for VI into a Residential Building (Slab-on-Grade) from Groundwater at MW-179 (Parcel 5)

Attachment C.1: Toxicity Values
Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	Cancer Classification		ADAF			URF ($mg/m^3)^{-1}$			RfC (mg/m^3)			
			Group	Ref	Y/N	f_{oral}	f_{inh}	Value	Ref	Notes	Value	UF	Ref	Notes
VOC	Acetone	67-64-1	ID	1	N						3.1E+01	100	129	111
VOC	Benzene	71-43-2	A	1	N			7.8E-03	1	60	3.0E-02	300	1	
VOC	Bromodichloromethane	75-27-4	B2	1	N								126	90
VOC	Bromoform	75-25-2	B2	1	N			1.1E-03	1				126	90
VOC	Bromomethane	74-83-9	ID	126	N						5.0E-03	100	1	
VOC	2-Butanone	78-93-3	ID	1	N						5.0E+00	300	1	
VOC	Carbon Disulfide	75-15-0			N						7.0E-01	30	1	
VOC	Chloroform	67-66-3	B2	1	N			2.3E-02	1		5.0E-02	100	117	
VOC	Chloromethane	74-87-3	D	1	N						9.0E-02	1,000	1	
VOC	1,1-Dichloroethane	75-34-3	SC	126	N				126	90	5.0E-01	1,000	2	3
VOC	1,2-Dichloroethane	107-06-2	B2	1	N			2.6E-02	1		7.0E-03	3,000	126	
VOC	1,1-Dichloroethene	75-35-4	C	1	N						2.0E-01	30	1	
VOC	cis-1,2-Dichloroethene	156-59-2	ID	1	N								1	90
VOC	trans-1,2-Dichloroethene	156-60-5	ID	1	N								1	90
VOC	2-Hexanone	591-78-6	ID	1	N						3.0E-02	3,000	1	
VOC	4-Methyl-2-pentanone	108-10-1	ID	1	N						3.0E+00	300	1	
VOC	Methylene Chloride	75-09-2	LC	1	Y	1	1	1.0E-05	1	159	6.0E-01	30	1	
VOC	Tetrachloroethene	127-18-4	LC	1	N			2.6E-04	1		4.0E-02	1,000	1	
VOC	Toluene	108-88-3	ID	1	N						5.0E+00	10	1	
VOC	Trichloroethene	79-01-6	HC	1	Y	0.202	0.244	4.1E-03	1	159	2.0E-03	100	1	
VOC	Vinyl Chloride	75-01-4	A	1	N			4.4E-03	1	79	1.0E-01	30	1	

Toxicity values were selected following the hierarchy of sources defined by USEPA (Human Health Toxicity Values in Superfund Risk Assessment, 2003), as discussed in Appendix A, Section 4 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision. Values are current as of September 4, 2015.

References

1 USEPA. Integrated Risk Information System (IRIS). On-line database.

117 USEPA. NCEA. 2003. Risk Assessment Issue Paper for: Derivation of Provisional Subchronic and Chronic RfCs for Chloroform [CASRN 67-66-3]. January 23.

126 Provisional Peer Reviewed Toxicity Values for Superfund (PPRTV) Database.

129 ATSDR. 2013. Minimal Risk Levels. March.

Notes:

60 IRIS provides a range of 2.2E-6 to 7.8E-6 (ug/m3)-1 as the inhalation URF for Benzene.

79 For evaluating partial lifetime exposures that include early-life exposure, the unit risk factor is also used in risk calculations that do not prorate the early-life exposure, per USEPA's May 2000 Toxicological Review.

90 Inadequate data exist to derive a toxicity value, according to the indicated reference.

111 Value as published is an MRL in the indicated reference.

159 Because the chemical has a mutagenic mode of action according to USEPA, the SF and URF are adjusted by the following age-dependent adjustment factors (ADAFs) before use: 10 for ages 0 to 2; 3 for ages 2 to 16; and 1 for ages 16 and older (USEPA 2005).

Attachment C.2: Physical and Chemical Properties
Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	H (unitless)				D_{air} (m^2/d)		D_{water} (m^2/d)		HENRY Ref Temp (°C)
			Value	Adjusted	Ref	Notes	Value	Ref	Value	Ref	Value
VOC	Acetone	67-64-1	1.6E-03	1.1E-03	44		1.1E+00	44	9.8E-05	44	2.5E+01
VOC	Benzene	71-43-2	2.3E-01	1.6E-01	44		7.6E-01	44	8.5E-05	44	2.5E+01
VOC	Bromodichloromethane	75-27-4	6.6E-02	4.5E-02	44		2.6E-01	44	9.2E-05	44	2.5E+01
VOC	Bromoform	75-25-2	2.2E-02	1.3E-02	44		1.3E-01	44	8.9E-05	44	2.5E+01
VOC	Bromomethane	74-83-9	2.6E-01	2.0E-01	44		6.3E-01	44	1.0E-04	44	2.5E+01
VOC	2-Butanone	78-93-3	2.3E-03	2.0E-03	50.3	123	7.0E-01	69	8.5E-05	69	2.0E+01
VOC	Carbon Disulfide	75-15-0	1.2E+00	9.3E-01	44		9.0E-01	44	8.6E-05	44	2.5E+01
VOC	Chloroform	67-66-3	1.5E-01	1.1E-01	44		9.0E-01	44	8.6E-05	44	2.5E+01
VOC	Chloromethane	74-87-3	3.6E-01	3.3E-01	50.1	92, 123	1.1E+00	69	5.6E-05	69	2.0E+01
VOC	1,1-Dichloroethane	75-34-3	2.3E-01	1.7E-01	44		6.4E-01	44	9.1E-05	44	2.5E+01
VOC	1,2-Dichloroethane	107-06-2	4.0E-02	2.7E-02	44		9.0E-01	44	8.6E-05	44	2.5E+01
VOC	1,1-Dichloroethene	75-35-4	1.1E+00	8.1E-01	44		7.8E-01	44	9.0E-05	44	2.5E+01
VOC	cis-1,2-Dichloroethene	156-59-2	1.7E-01	1.2E-01	44		6.4E-01	44	9.8E-05	44	2.5E+01
VOC	trans-1,2-Dichloroethene	156-60-5	3.9E-01	2.8E-01	44		6.1E-01	44	1.0E-04	44	2.5E+01
VOC	2-Hexanone	591-78-6	3.8E-03	3.2E-03	68		7.4E-01	52	7.6E-05	52	2.5E+01
VOC	4-Methyl-2-pentanone	108-10-1	5.6E-03	4.7E-03	50.3	123	6.5E-01	40	6.7E-05	40	2.0E+01
VOC	Methylene Chloride	75-09-2	9.0E-02	6.6E-02	44		8.7E-01	44	1.0E-04	44	2.5E+01
VOC	Tetrachloroethene	127-18-4	7.5E-01	4.9E-01	44		6.2E-01	44	7.1E-05	44	2.5E+01
VOC	Toluene	108-88-3	2.7E-01	1.8E-01	44		7.5E-01	44	7.4E-05	44	2.5E+01
VOC	Trichloroethene	79-01-6	4.2E-01	2.9E-01	44		6.8E-01	44	7.9E-05	44	2.5E+01
VOC	Vinyl Chloride	75-01-4	1.1E+00	9.0E-01	44		9.2E-01	44	1.1E-04	71	2.5E+01

Physical and chemical parameters were selected following the hierarchy of sources used by USEPA (Soil Screening Guidance: Technical Background Document, 1996), as discussed in Appendix A, Section 54 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

References:

40 Research Triangle Institute, Center for Environmental Analysis. 1995. Supplemental Technical Support Document for Hazardous Waste Identification Rule: Risk Assessment for Human and Ecological Receptors--Volume 1, TABLE A-1. November 1995.

44 USEPA. 1996. Soil Screening Guidance: Technical Background Document and User Guide. Office of Emergency and Remedial Response. EPA/540/R-95/128. May.

50.1 USEPA. 1997. Superfund Chemical Data Matrix (SCDM). Office of Emergency and Remedial Response. September 12.

50.3 USEPA. 20014. Superfund Chemical Data Matrix (SCDM). Office of Superfund Remediation and Technology Innovation. June 20, 2014.

52 USEPA. 1997. CHEM9 Compound Properties Estimation and Data. Version 1.00. Office of Air Quality Planning and Standards. July.

68 PHYSPROP data base. Syracuse Research Corporation.

69 USEPA. 2004. WATER9. Version 2.0.0. Office of Air Quality Planning and Standards. July.

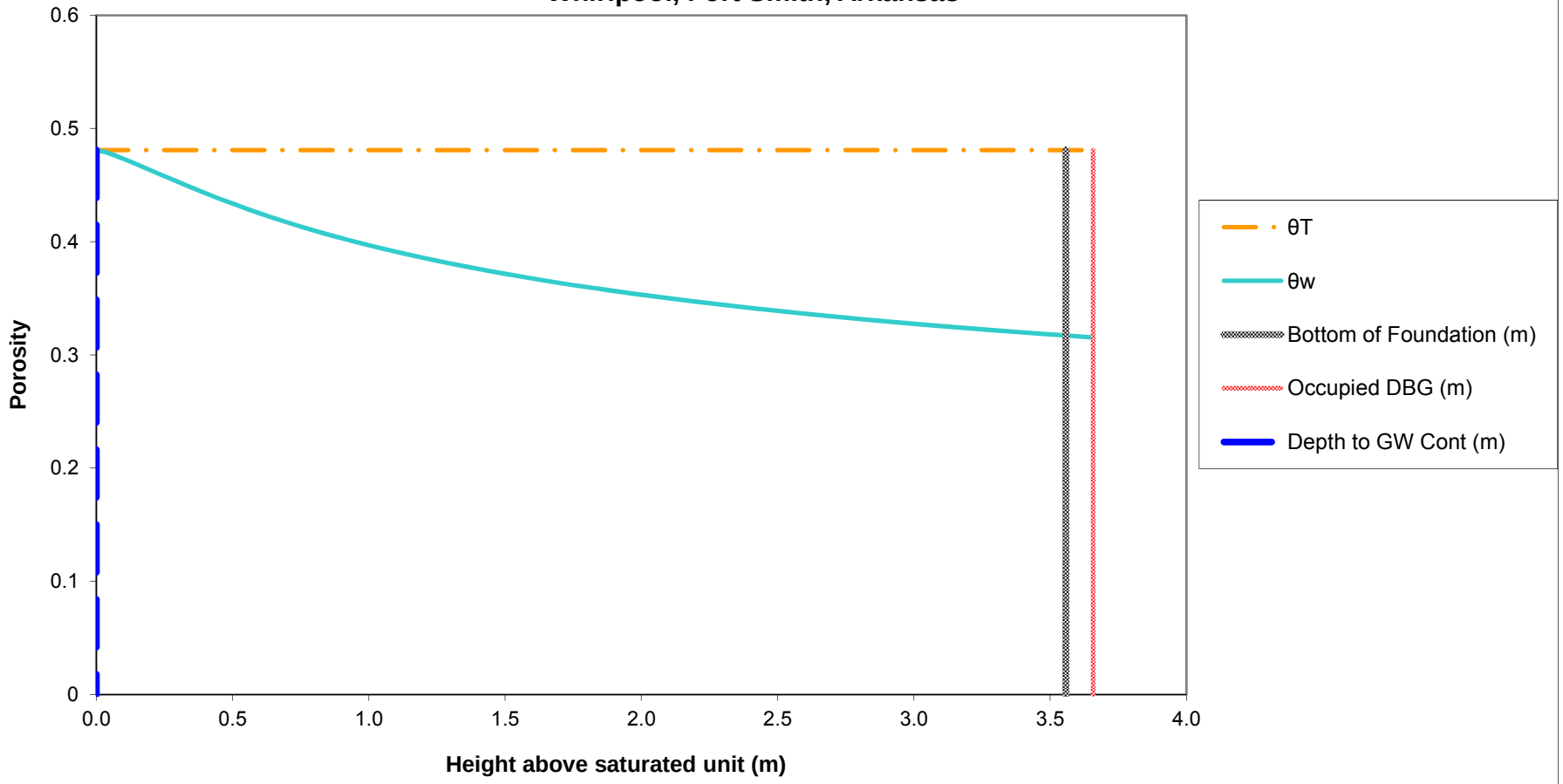
71 USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response. OSWER 9355.4-24. December.

Notes:

92 Indicated source cites CHEMFATE.

123 Value has been assigned a default reference temperature.

Attachment C.3: Soil Moisture Profile for Residential Building (Slab-on-Grade) for Risk Calculations from Groundwater at Monitoring Wells
Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Ramboll

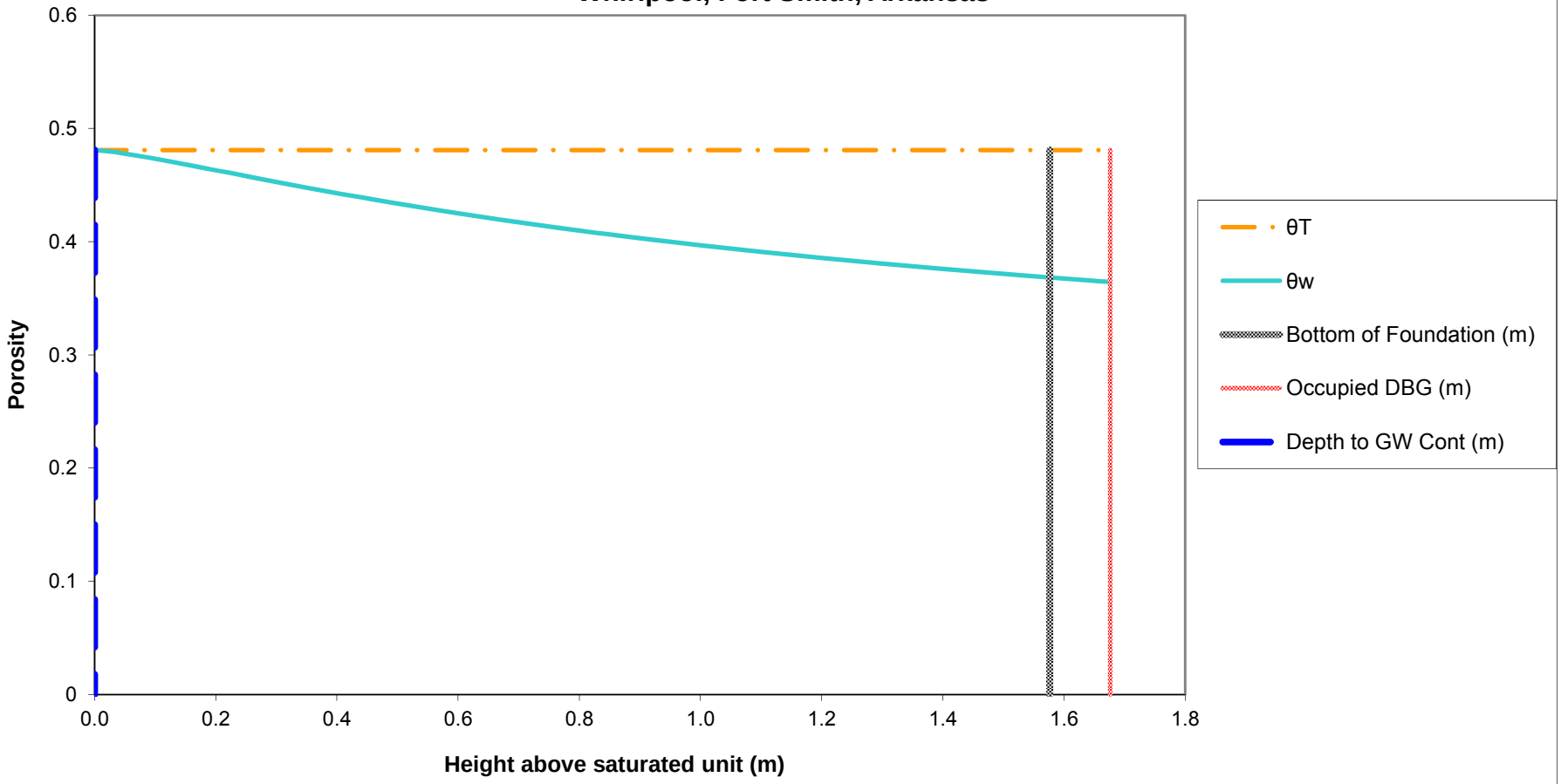
Attachment C.4: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Groundwater at Monitoring Wells Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Acetone	67-64-1	1.07E+00	9.85E-05	1.14E-03	1.72E-01	1.87E-02	6.80E-02	2.73E-03	1.86E-04	2.12E-04
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.22E-01	8.15E-04	3.17E-03	2.73E-03	8.67E-06	1.38E-03
VOC	Chloromethane	74-87-3	1.09E+00	5.62E-05	3.33E-01	1.75E-01	4.61E-04	1.80E-03	2.73E-03	4.90E-06	1.63E-03
VOC	1,2-Dichloroethane	107-06-2	8.99E-01	8.55E-05	2.74E-02	1.44E-01	2.37E-03	9.19E-03	2.73E-03	2.51E-05	6.88E-04
VOC	1,1-Dichloroethene	75-35-4	7.78E-01	8.99E-05	8.10E-01	1.25E-01	3.12E-04	1.22E-03	2.73E-03	3.32E-06	2.69E-03
VOC	cis-1,2-Dichloroethene	156-59-2	6.36E-01	9.76E-05	1.19E-01	1.02E-01	9.72E-04	3.78E-03	2.73E-03	1.03E-05	1.22E-03
VOC	trans-1,2-Dichloroethene	156-60-5	6.11E-01	1.03E-04	2.81E-01	9.81E-02	5.96E-04	2.32E-03	2.73E-03	6.35E-06	1.79E-03
VOC	Tetrachloroethene	127-18-4	6.22E-01	7.08E-05	4.90E-01	9.99E-02	3.40E-04	1.33E-03	2.73E-03	3.63E-06	1.78E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.10E-01	5.23E-04	2.04E-03	2.73E-03	5.57E-06	1.60E-03
VOC	Vinyl Chloride	75-01-4	9.16E-01	1.06E-04	9.00E-01	1.47E-01	3.44E-04	1.34E-03	2.73E-03	3.66E-06	3.30E-03
Notes:	**Crack Soil and Building Characteristics**			**Crack Soil**							
	SCS Soil texture class			Sand							
	Bulk density	kg/L	ρ_b	1.66							
	Total porosity	L/L-soil	θ_T	0.375							
	Water-filled porosity	L/L-soil	θ_w	0.054							
	Air-filled porosity	L/L-soil	θ_a	0.321							
	Residual saturation	L/L-soil	θ_r	0.053							
	Hydraulic conductivity	cm/s	K	7.4E-03							
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307							
	Density of water	g/cm^3	ρ_w	1.0							
	Gravitational acceleration	cm/s^2	g	980.7							
	Intrinsic permeability	cm^2	k	9.9E-08							
	Relative saturation	unitless	S_e	0.004							
	van Genuchten N	unitless	N	3.177							
	van Genuchten M	unitless	M	0.685							
	Relative air permeability	unitless	k_{rg}	0.998							
	Permeability to vapor	cm^2	k_v	9.89E-08							
	Distance from building foundation to source	m	L_{T-gw}	3.56							
	Bldg foundation thickness	m	L_{crack}	0.1							
	Bldg foundation length	m		10.00							
	Bldg foundation width	m		10.00							
	Bldg occupied height	m		2.44							
	Bldg occupied volume	m^3		244.00							
	Occupied depth below ground	m		0.0							
	Bldg area for vapor intrusion	m^2	A_B	100.0							
	Ratio of A_{crack} to A_B		η	4E-04							
	Area of cracks	m^2	A_{crack}	4E-02							
	Air exchange rate	$hour^{-1}$	ach	0.45							
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03							
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0							
	Viscosity of air	kg/m-s	μ_a	1.8E-05							
	Crack length (bldg perimeter)	m	X_{crack}	40							
	Crack depth below ground	m	Z_{crack}	0.10							
	Crack radius	m	r_{crack}	1E-03							
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20							
	Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.										
	The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.										

Attachment C.5: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Groundwater Monitoring Wells in the Neighborhood Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Acetone	67-64-1	ID	N	2.88E-02	6.10E-06					3.1E+01	1.9E-07
VOC	Benzene	71-43-2	A	N	2.10E-04	2.89E-07	7.8E-03		9.3E-10		3.0E-02	9.2E-06
VOC	Chloromethane	74-87-3	D	N	3.00E-04	4.90E-07					9.0E-02	5.2E-06
VOC	1,2-Dichloroethane	107-06-2	B2	N	2.10E-04	1.45E-07	2.6E-02		1.5E-09		7.0E-03	2.0E-05
VOC	1,1-Dichloroethene	75-35-4	C	N	3.00E-03	8.07E-06					2.0E-01	3.9E-05
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	1.27E-01	1.56E-04						
VOC	trans-1,2-Dichloroethene	156-60-5	ID	N	2.10E-03	3.75E-06						
VOC	Tetrachloroethene	127-18-4	LC	N	1.30E-04	2.31E-07	2.6E-04		2.5E-11		4.0E-02	5.5E-06
VOC	Trichloroethene	79-01-6	HC	Y	9.02E-01	1.45E-03	4.1E-03	0.2439	3.3E-06		2.0E-03	6.9E-01
VOC	Vinyl Chloride	75-01-4	A	N	2.10E-03	6.93E-06	4.4E-03		4.3E-08		1.0E-01	6.6E-05
							Cumulative Risk:		3E-06		**HI:**	7E-01
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 groundwater samples from wells in the neighborhood are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.6: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Soil Vapor Monitoring Point VP-7 (Parcel 2) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

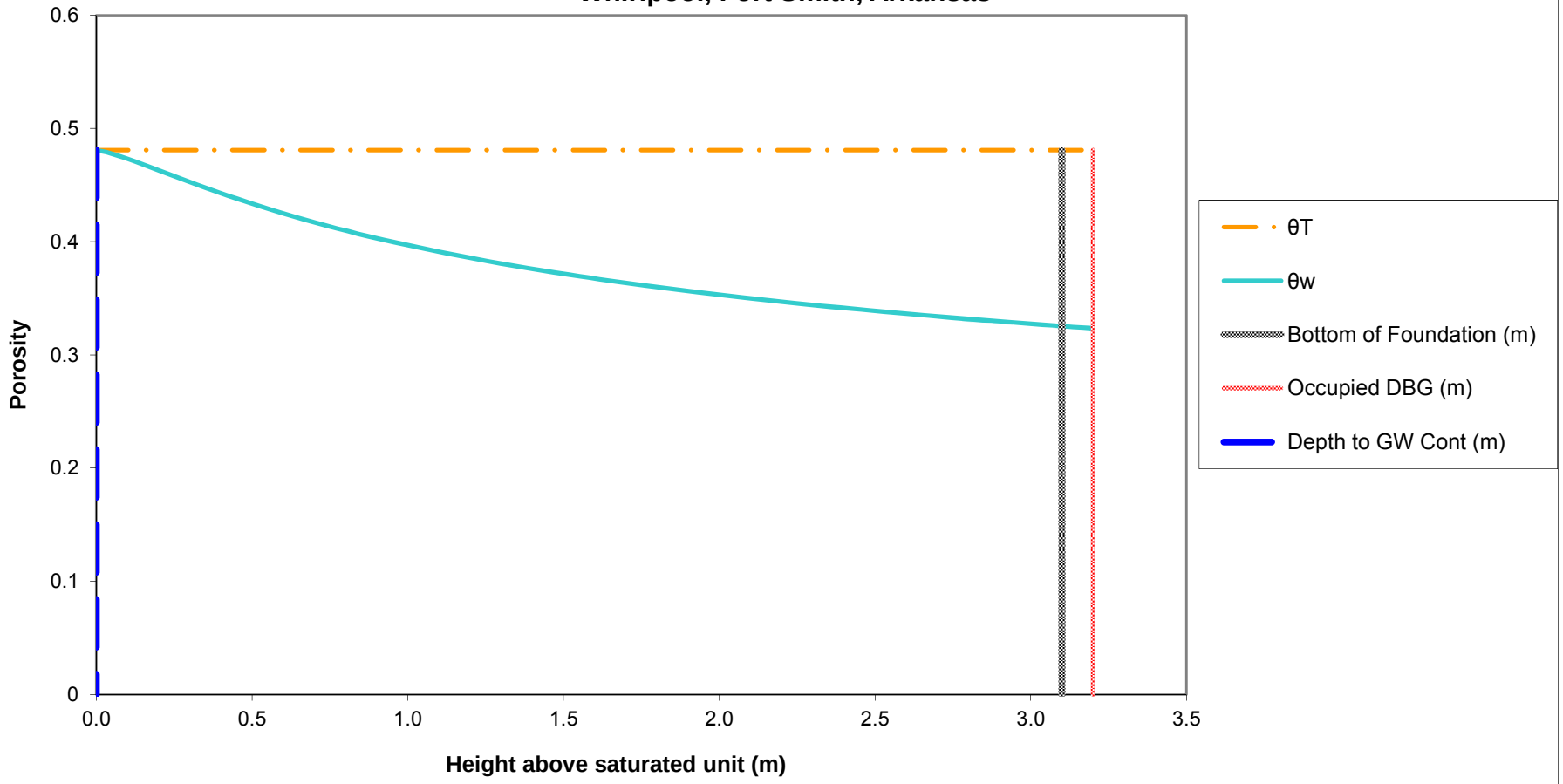
Attachment C.7: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Perched Water at VP-7 (Parcel 2) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Acetone	67-64-1	1.07E+00	9.85E-05	1.14E-03	1.61E-01	2.07E-02	1.54E-01	2.73E-03	4.21E-04	4.80E-04
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.14E-01	4.01E-04	3.52E-03	2.73E-03	9.63E-06	1.53E-03
VOC	Chloromethane	74-87-3	1.09E+00	5.62E-05	3.33E-01	1.64E-01	2.12E-04	1.87E-03	2.73E-03	5.10E-06	1.70E-03
VOC	4-Methyl-2-pentanone	108-10-1	6.48E-01	6.74E-05	4.71E-03	9.74E-02	3.96E-03	3.37E-02	2.73E-03	9.21E-05	4.34E-04
VOC	Toluene	108-88-3	7.52E-01	7.43E-05	1.80E-01	1.13E-01	3.38E-04	2.97E-03	2.73E-03	8.11E-06	1.46E-03
Notes:	**Crack Soil and Building Characteristics**			**Crack Soil**							
	SCS Soil texture class			Sand							
	Bulk density	kg/L	ρ_b	1.66							
	Total porosity	L/L-soil	θ_T	0.375							
	Water-filled porosity	L/L-soil	θ_w	0.061							
	Air-filled porosity	L/L-soil	θ_a	0.314							
	Residual saturation	L/L-soil	θ_r	0.053							
	Hydraulic conductivity	cm/s	K	7.4E-03							
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307							
	Density of water	g/cm^3	ρ_w	1.0							
	Gravitational acceleration	cm/s^2	g	980.7							
	Intrinsic permeability	cm^2	k	9.9E-08							
	Relative saturation	unitless	S_e	0.023							
	van Genuchten N	unitless	N	3.177							
	van Genuchten M	unitless	M	0.685							
	Relative air permeability	unitless	k_{rg}	0.983							
	Permeability to vapor	cm^2	k_v	9.74E-08							
	Distance from building foundation to source	m	L_{T-gw}	1.58							
	Bldg foundation thickness	m	L_{crack}	0.1							
	Bldg foundation length	m		10.00							
	Bldg foundation width	m		10.00							
	Bldg occupied height	m		2.44							
	Bldg occupied volume	m^3		244.00							
	Occupied depth below ground	m		0.0							
	Bldg area for vapor intrusion	m^2	A_B	100.0							
	Ratio of A_{crack} to A_B		η	4E-04							
	Area of cracks	m^2	A_{crack}	4E-02							
	Air exchange rate	$hour^{-1}$	ach	0.45							
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03							
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0							
	Viscosity of air	kg/m-s	μ_a	1.8E-05							
	Crack length (bldg perimeter)	m	X_{crack}	40							
	Crack depth below ground	m	Z_{crack}	0.10							
	Crack radius	m	r_{crack}	1E-03							
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20							
	Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.										
	The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.										

Attachment C.8: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Perched Water at VP-7 (Parcel 2) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Acetone	67-64-1	ID	N	2.33E-02	1.12E-05					3.1E+01	3.5E-07
VOC	Benzene	71-43-2	A	N	9.70E-04	1.48E-06	7.8E-03		4.8E-09		3.0E-02	4.7E-05
VOC	Chloromethane	74-87-3	D	N	1.20E-04	2.04E-07					9.0E-02	2.2E-06
VOC	4-Methyl-2-pentanone	108-10-1	ID	N	6.60E-04	2.86E-07					3.0E+00	9.2E-08
VOC	Toluene	108-88-3	ID	N	2.10E-04	3.07E-07					5.0E+00	5.9E-08
							Cumulative Risk:		5E-09		**HI:**	5E-05
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 water sample at VP-7 (Parcel 2) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.9: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Soil Vapor Monitoring Point VP-8 (Parcel 2) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.10: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Perched Water at VP-8 (Parcel 2) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Acetone	67-64-1	1.07E+00	9.85E-05	1.14E-03	1.71E-01	1.87E-02	7.73E-02	2.73E-03	2.11E-04	2.41E-04
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.21E-01	7.17E-04	3.20E-03	2.73E-03	8.74E-06	1.39E-03
VOC	2-Butanone	78-93-3	6.98E-01	8.47E-05	2.00E-03	1.12E-01	9.82E-03	4.21E-02	2.73E-03	1.15E-04	2.30E-04
VOC	Chloromethane	74-87-3	1.09E+00	5.62E-05	3.33E-01	1.74E-01	4.01E-04	1.79E-03	2.73E-03	4.90E-06	1.63E-03
VOC	4-Methyl-2-pentanone	108-10-1	6.48E-01	6.74E-05	4.71E-03	1.04E-01	4.55E-03	2.00E-02	2.73E-03	5.46E-05	2.57E-04
VOC	Toluene	108-88-3	7.52E-01	7.43E-05	1.80E-01	1.20E-01	6.11E-04	2.73E-03	2.73E-03	7.46E-06	1.35E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.09E-01	4.58E-04	2.05E-03	2.73E-03	5.59E-06	1.61E-03
VOC	Vinyl Chloride	75-01-4	9.16E-01	1.06E-04	9.00E-01	1.46E-01	2.99E-04	1.34E-03	2.73E-03	3.66E-06	3.29E-03

Notes:	Crack Soil and Building Characteristics			Crack Soil
	SCS Soil texture class			Sand
	Bulk density	kg/L	ρ_b	1.66
	Total porosity	L/L-soil	θ_T	0.375
	Water-filled porosity	L/L-soil	θ_w	0.055
	Air-filled porosity	L/L-soil	θ_a	0.320
	Residual saturation	L/L-soil	θ_r	0.053
	Hydraulic conductivity	cm/s	K	7.4E-03
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307
	Density of water	g/cm^3	ρ_w	1.0
	Gravitational acceleration	cm/s^2	g	980.7
	Intrinsic permeability	cm^2	k	9.9E-08
	Relative saturation	unitless	S_e	0.005
	van Genuchten N	unitless	N	3.177
	van Genuchten M	unitless	M	0.685
	Relative air permeability	unitless	k_{rg}	0.997
	Permeability to vapor	cm^2	k_v	9.88E-08
	Distance from building foundation to source	m	L_{T-gw}	3.10
	Bldg foundation thickness	m	L_{crack}	0.1
	Bldg foundation length	m		10.00
	Bldg foundation width	m		10.00
	Bldg occupied height	m		2.44
	Bldg occupied volume	m^3		244.00
	Occupied depth below ground	m		0.0
	Bldg area for vapor intrusion	m^2	A_B	100.0
	Ratio of A_{crack} to A_B		η	4E-04
	Area of cracks	m^2	A_{crack}	4E-02
	Air exchange rate	$hour^{-1}$	ach	0.45
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03
	Pressure difference between outdoors-indoors	kg/m-s^2	ΔP	1.0
	Viscosity of air	kg/m-s	μ_a	1.8E-05
	Crack length (bldg perimeter)	m	X_{crack}	40
	Crack depth below ground	m	Z_{crack}	0.10
	Crack radius	m	r_{crack}	1E-03
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20

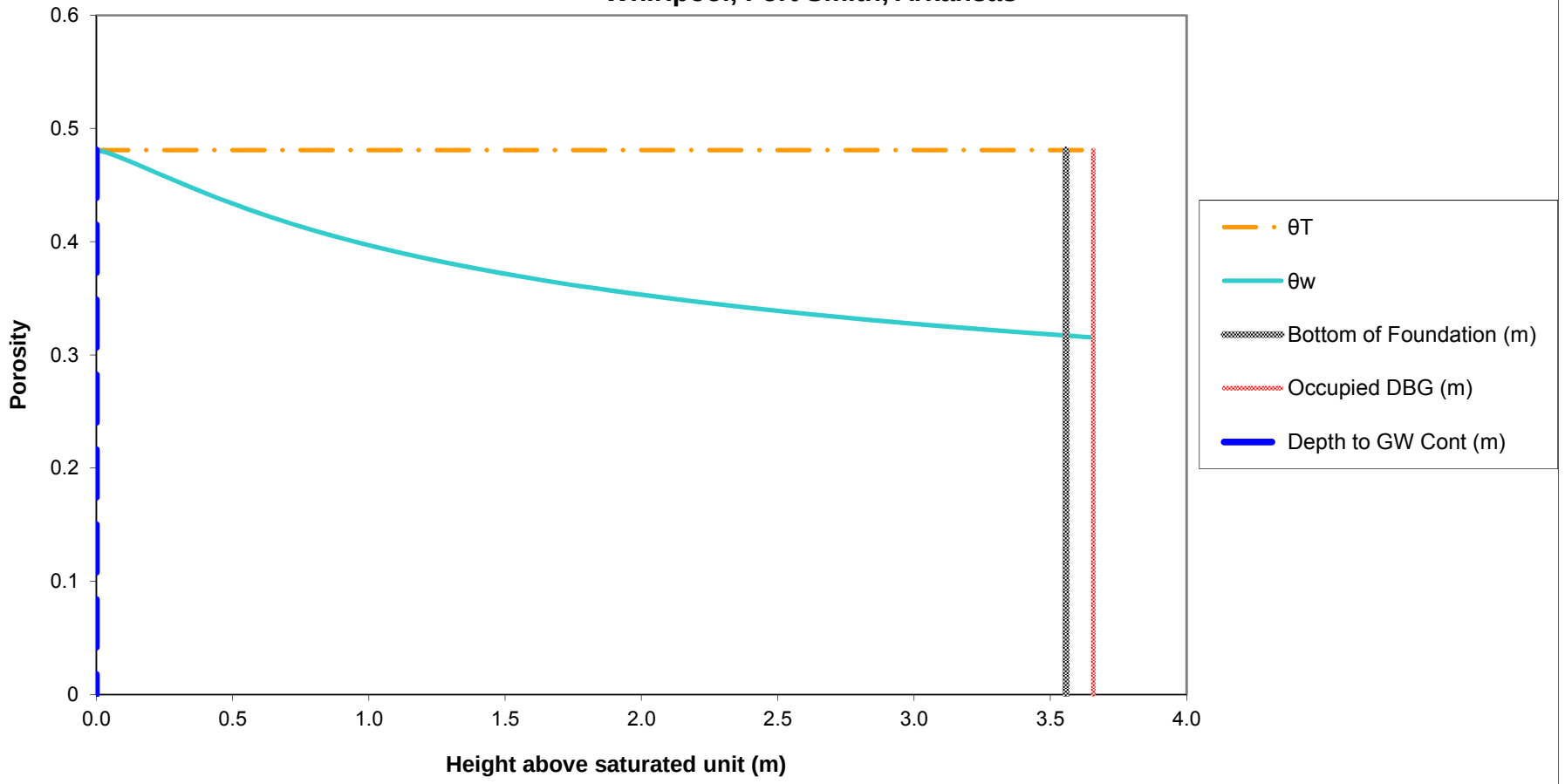
Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.

Attachment C.11: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Perched Water at VP-8 (Parcel 2) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Acetone	67-64-1	ID	N	6.91E-02	1.66E-05					3.1E+01	5.2E-07
VOC	Benzene	71-43-2	A	N	8.90E-04	1.24E-06	7.8E-03		4.0E-09		3.0E-02	4.0E-05
VOC	2-Butanone	78-93-3	ID	N	1.27E-02	2.92E-06					5.0E+00	5.6E-07
VOC	Chloromethane	74-87-3	D	N	3.90E-04	6.36E-07					9.0E-02	6.8E-06
VOC	4-Methyl-2-pentanone	108-10-1	ID	N	9.20E-04	2.37E-07					3.0E+00	7.6E-08
VOC	Toluene	108-88-3	ID	N	3.30E-04	4.44E-07					5.0E+00	8.5E-08
VOC	Trichloroethene	79-01-6	HC	Y	4.50E-03	7.25E-06	4.1E-03	0.2439	1.7E-08		2.0E-03	3.5E-03
VOC	Vinyl Chloride	75-01-4	A	N	1.70E-04	5.60E-07	4.4E-03		3.5E-09		1.0E-01	5.4E-06
							Cumulative Risk:		2E-08		**HI:**	4E-03
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 water sample at VP-8 (Parcel 2) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.12: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Groundwater Monitoring Well MW-175 (Parcel 2) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.13: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Groundwater at MW-175 (Parcel 2) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	1,1-Dichloroethene	75-35-4	7.78E-01	8.99E-05	8.10E-01	1.25E-01	3.12E-04	1.22E-03	2.73E-03	3.32E-06	2.69E-03
VOC	cis-1,2-Dichloroethene	156-59-2	6.36E-01	9.76E-05	1.19E-01	1.02E-01	9.72E-04	3.78E-03	2.73E-03	1.03E-05	1.22E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.10E-01	5.23E-04	2.04E-03	2.73E-03	5.57E-06	1.60E-03
VOC	Vinyl Chloride	75-01-4	9.16E-01	1.06E-04	9.00E-01	1.47E-01	3.44E-04	1.34E-03	2.73E-03	3.66E-06	3.30E-03
Notes:	**Crack Soil and Building Characteristics**			**Crack Soil**							
	SCS Soil texture class			Sand							
	Bulk density	kg/L	ρ_b	1.66							
	Total porosity	L/L-soil	θ_T	0.375							
	Water-filled porosity	L/L-soil	θ_w	0.054							
	Air-filled porosity	L/L-soil	θ_a	0.321							
	Residual saturation	L/L-soil	θ_r	0.053							
	Hydraulic conductivity	cm/s	K	7.4E-03							
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307							
	Density of water	g/cm^3	ρ_w	1.0							
	Gravitational acceleration	cm/s^2	g	980.7							
	Intrinsic permeability	cm^2	k	9.9E-08							
	Relative saturation	unitless	S_e	0.004							
	van Genuchten N	unitless	N	3.177							
	van Genuchten M	unitless	M	0.685							
	Relative air permeability	unitless	k_{rg}	0.998							
	Permeability to vapor	cm^2	k_v	9.89E-08							
	Distance from building foundation to source	m	L_{T-gw}	3.56							
	Bldg foundation thickness	m	L_{crack}	0.1							
	Bldg foundation length	m		10.00							
	Bldg foundation width	m		10.00							
	Bldg occupied height	m		2.44							
	Bldg occupied volume	m^3		244.00							
	Occupied depth below ground	m		0.0							
	Bldg area for vapor intrusion	m^2	A_B	100.0							
	Ratio of A_{crack} to A_B		η	4E-04							
	Area of cracks	m^2	A_{crack}	4E-02							
	Air exchange rate	$hour^{-1}$	ach	0.45							
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03							
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0							
	Viscosity of air	kg/m-s	μ_a	1.8E-05							
	Crack length (bldg perimeter)	m	X_{crack}	40							
	Crack depth below ground	m	Z_{crack}	0.10							
	Crack radius	m	r_{crack}	1E-03							
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20							
	Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.										
	The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.										

Attachment C.14: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Groundwater at MW-175 (Parcel 2) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	1,1-Dichloroethene	75-35-4	C	N	2.80E-04	7.53E-07					2.0E-01	3.6E-06
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	1.50E-03	1.84E-06						
VOC	Trichloroethene	79-01-6	HC	Y	7.07E-02	1.13E-04	4.1E-03	0.2439	2.6E-07		2.0E-03	5.4E-02
VOC	Vinyl Chloride	75-01-4	A	N	1.70E-04	5.61E-07	4.4E-03		3.5E-09		1.0E-01	5.4E-06
							Cumulative Risk:		3E-07		**HI:**	5E-02
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 groundwater sample at MW-175 (Parcel 2) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.15 Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Soil Vapor at VP-9 (Parcel 3) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{sv} (mg/m^3)**	**$C_{building}$ (mg/m^3)**	**URF (m^3/mg)**	**f_{inh}**	**Risk**		**RfC (mg/m^3)**	**HQ**
VOC	1,2-Dichloroethane	107-06-2	B2	N	1.70E-04	5.10E-06	2.6E-02		5.4E-08		7.0E-03	7.0E-04
VOC	1,1-Dichloroethene	75-35-4	C	N	5.70E-04	1.71E-05					2.0E-01	8.2E-05
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	4.60E-04	1.38E-05						
VOC	Tetrachloroethene	127-18-4	LC	N	3.10E-04	9.30E-06	2.6E-04		9.9E-10		4.0E-02	2.2E-04
VOC	Trichloroethene	79-01-6	HC	Y	2.30E-01	6.90E-03	4.1E-03	0.244	1.6E-05		2.0E-03	3.3E+00
							Cumulative Risk:		2E-05		**HI:**	**3E+00**

Note:

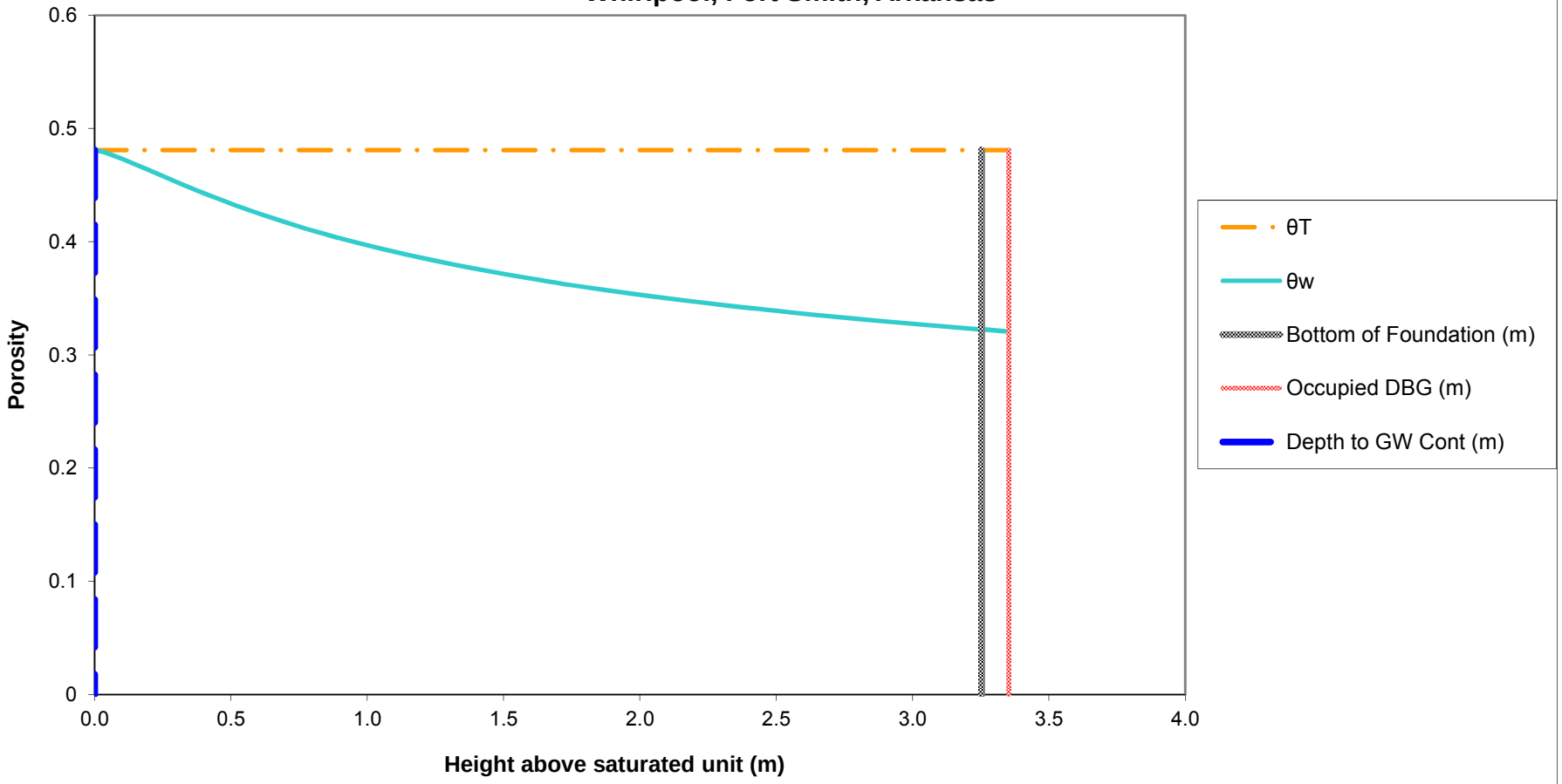
f_{inh} is the fraction of the inhalation toxicity value that USEPA identified as having a mutagenic mode of action.

Only VOCs detected in the Annual 2017 soil vapor sample at VP-9 (Parcel 3) are shown.

Residential risks were calculated assuming residents could be exposed to soil vapor intrusion into indoor air for 24 hours per day and 350 days per year for 30 years.

Indoor air concentrations due to intrusion of soil vapor were calculated using USEPA's 95th percentile subslab soil gas attenuaion factor of 0.03 (EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings, 2012), as discussed in Appendix A, Section 6.8.2 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.16: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Soil Vapor Monitoring Point VP-10 (Parcel 3) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.17: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Perched Water at VP-10 (Parcel 3) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Acetone	67-64-1	1.07E+00	9.85E-05	1.14E-03	1.72E-01	1.87E-02	7.39E-02	2.73E-03	2.02E-04	2.30E-04
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.22E-01	7.54E-04	3.21E-03	2.73E-03	8.77E-06	1.39E-03
VOC	Chloroform	67-66-3	8.99E-01	8.64E-05	1.07E-01	1.44E-01	1.03E-03	4.38E-03	2.73E-03	1.20E-05	1.28E-03
VOC	1,1-Dichloroethene	75-35-4	7.78E-01	8.99E-05	8.10E-01	1.25E-01	2.87E-04	1.22E-03	2.73E-03	3.34E-06	2.71E-03
VOC	cis-1,2-Dichloroethene	156-59-2	6.36E-01	9.76E-05	1.19E-01	1.02E-01	9.03E-04	3.84E-03	2.73E-03	1.05E-05	1.24E-03
VOC	trans-1,2-Dichloroethene	156-60-5	6.11E-01	1.03E-04	2.81E-01	9.78E-02	5.51E-04	2.35E-03	2.73E-03	6.41E-06	1.81E-03
VOC	Methylene Chloride	75-09-2	8.73E-01	1.01E-04	6.60E-02	1.40E-01	1.47E-03	6.25E-03	2.73E-03	1.71E-05	1.13E-03
VOC	Toluene	108-88-3	7.52E-01	7.43E-05	1.80E-01	1.20E-01	6.43E-04	2.74E-03	2.73E-03	7.49E-06	1.35E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.09E-01	4.82E-04	2.06E-03	2.73E-03	5.62E-06	1.62E-03
VOC	Vinyl Chloride	75-01-4	9.16E-01	1.06E-04	9.00E-01	1.47E-01	3.16E-04	1.35E-03	2.73E-03	3.68E-06	3.31E-03

Notes:	Crack Soil and Building Characteristics			Crack Soil
	SCS Soil texture class			Sand
	Bulk density	kg/L	ρ_b	1.66
	Total porosity	L/L-soil	θ_T	0.375
	Water-filled porosity	L/L-soil	θ_w	0.055
	Air-filled porosity	L/L-soil	θ_a	0.320
	Residual saturation	L/L-soil	θ_r	0.053
	Hydraulic conductivity	cm/s	K	7.4E-03
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307
	Density of water	g/cm^3	ρ_w	1.0
	Gravitational acceleration	cm/s^2	g	980.7
	Intrinsic permeability	cm^2	k	9.9E-08
	Relative saturation	unitless	S_e	0.005
	van Genuchten N	unitless	N	3.177
	van Genuchten M	unitless	M	0.685
	Relative air permeability	unitless	k_{rg}	0.997
	Permeability to vapor	cm^2	k_v	9.89E-08
	Distance from building foundation to source	m	L_{T-gw}	3.25
	Bldg foundation thickness	m	L_{crack}	0.1
	Bldg foundation length	m		10.00
	Bldg foundation width	m		10.00
	Bldg occupied height	m		2.44
	Bldg occupied volume	m^3		244.00
	Occupied depth below ground	m		0.0
	Bldg area for vapor intrusion	m^2	A_B	100.0
	Ratio of A_{crack} to A_B		η	4E-04
	Area of cracks	m^2	A_{crack}	4E-02
	Air exchange rate	$hour^{-1}$	ach	0.45
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0
	Viscosity of air	kg/m-s	μ_a	1.8E-05
	Crack length (bldg perimeter)	m	X_{crack}	40
	Crack depth below ground	m	Z_{crack}	0.10
	Crack radius	m	r_{crack}	1E-03
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20

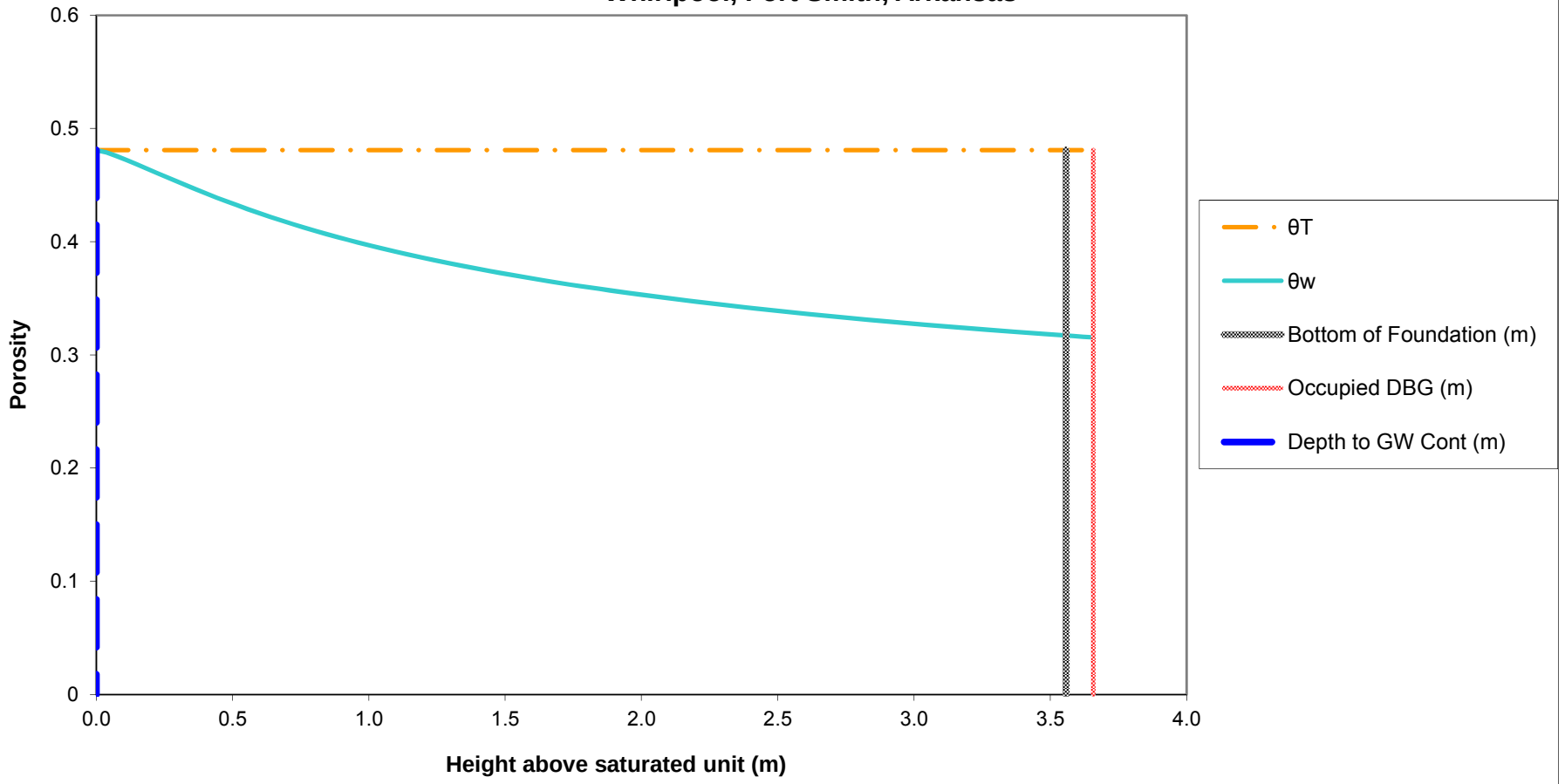
Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.

Attachment C.18: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Perched Water at VP-10 (Parcel 3) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Acetone	67-64-1	ID	N	3.10E-03	7.13E-07					3.1E+01	2.2E-08
VOC	Benzene	71-43-2	A	N	2.60E-04	3.62E-07	7.8E-03		1.2E-09		3.0E-02	1.2E-05
VOC	Chloroform	67-66-3	B2	N	8.30E-04	1.07E-06	2.3E-02		1.0E-08		5.0E-02	2.0E-05
VOC	1,1-Dichloroethene	75-35-4	C	N	1.60E-03	4.33E-06					2.0E-01	2.1E-05
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	1.44E-02	1.79E-05						
VOC	trans-1,2-Dichloroethene	156-60-5	ID	N	3.60E-04	6.50E-07						
VOC	Methylene Chloride	75-09-2	LC	Y	3.50E-04	3.95E-07	1.0E-05	1	4.1E-12		6.0E-01	6.3E-07
VOC	Toluene	108-88-3	ID	N	4.10E-04	5.54E-07					5.0E+00	1.1E-07
VOC	Trichloroethene	79-01-6	HC	Y	2.50E-01	4.05E-04	4.1E-03	0.2439	9.4E-07		2.0E-03	1.9E-01
VOC	Vinyl Chloride	75-01-4	A	N	5.50E-04	1.82E-06	4.4E-03		1.1E-08		1.0E-01	1.7E-05
							Cumulative Risk:		1E-06		**HI:**	2E-01
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 water sample at VP-10 (Parcel 3) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.19: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Groundwater Monitoring Well MW-176 (Parcel 3) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

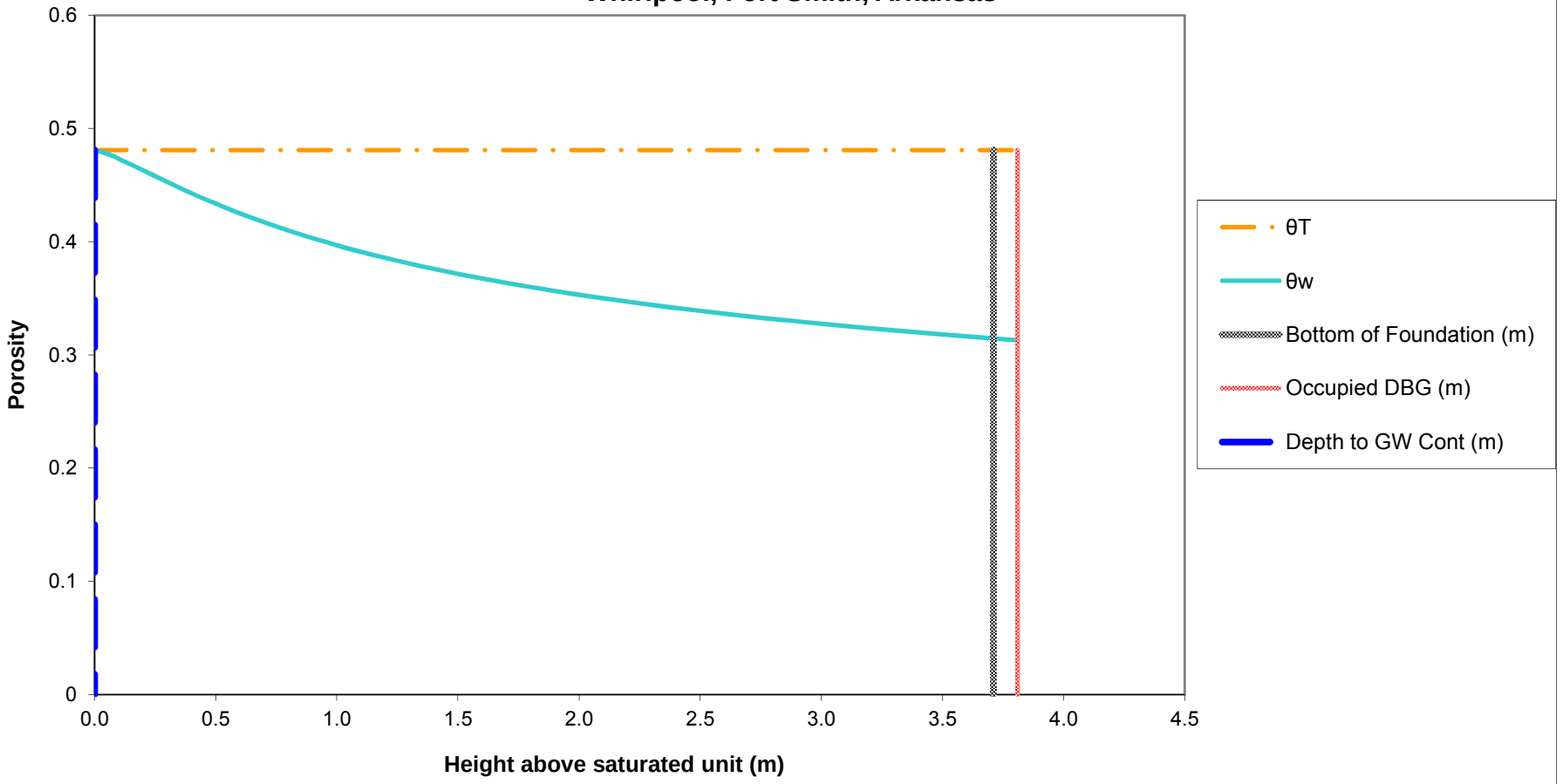
Attachment C.20: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Groundwater at MW-176 (Parcel 3) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.22E-01	8.15E-04	3.17E-03	2.73E-03	8.67E-06	1.38E-03
VOC	1,1-Dichloroethene	75-35-4	7.78E-01	8.99E-05	8.10E-01	1.25E-01	3.12E-04	1.22E-03	2.73E-03	3.32E-06	2.69E-03
VOC	cis-1,2-Dichloroethene	156-59-2	6.36E-01	9.76E-05	1.19E-01	1.02E-01	9.72E-04	3.78E-03	2.73E-03	1.03E-05	1.22E-03
VOC	trans-1,2-Dichloroethene	156-60-5	6.11E-01	1.03E-04	2.81E-01	9.81E-02	5.96E-04	2.32E-03	2.73E-03	6.35E-06	1.79E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.10E-01	5.23E-04	2.04E-03	2.73E-03	5.57E-06	1.60E-03
VOC	Vinyl Chloride	75-01-4	9.16E-01	1.06E-04	9.00E-01	1.47E-01	3.44E-04	1.34E-03	2.73E-03	3.66E-06	3.30E-03
Notes:	**Crack Soil and Building Characteristics**			**Crack Soil**							
	SCS Soil texture class			Sand							
	Bulk density	kg/L	ρ_b	1.66							
	Total porosity	L/L-soil	θ_T	0.375							
	Water-filled porosity	L/L-soil	θ_w	0.054							
	Air-filled porosity	L/L-soil	θ_a	0.321							
	Residual saturation	L/L-soil	θ_r	0.053							
	Hydraulic conductivity	cm/s	K	7.4E-03							
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307							
	Density of water	g/cm^3	ρ_w	1.0							
	Gravitational acceleration	cm/s^2	g	980.7							
	Intrinsic permeability	cm^2	k	9.9E-08							
	Relative saturation	unitless	S_e	0.004							
	van Genuchten N	unitless	N	3.177							
	van Genuchten M	unitless	M	0.685							
	Relative air permeability	unitless	k_{rg}	0.998							
	Permeability to vapor	cm^2	k_v	9.89E-08							
	Distance from building foundation to source	m	L_{T-gw}	3.56							
	Bldg foundation thickness	m	L_{crack}	0.1							
	Bldg foundation length	m		10.00							
	Bldg foundation width	m		10.00							
	Bldg occupied height	m		2.44							
	Bldg occupied volume	m^3		244.00							
	Occupied depth below ground	m		0.0							
	Bldg area for vapor intrusion	m^2	A_B	100.0							
	Ratio of A_{crack} to A_B		η	4E-04							
	Area of cracks	m^2	A_{crack}	4E-02							
	Air exchange rate	$hour^{-1}$	ach	0.45							
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03							
	Pressure difference between outdoors-indoors	$kg/m-s^2$	ΔP	1.0							
	Viscosity of air	kg/m-s	μ_a	1.8E-05							
	Crack length (bldg perimeter)	m	X_{crack}	40							
	Crack depth below ground	m	Z_{crack}	0.10							
	Crack radius	m	r_{crack}	1E-03							
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20							
	Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.										
	The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.										

Attachment C.21: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Groundwater at MW-176 (Parcel 3) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	C_{gw} (mg/L)	$C_{building}$ (mg/m^3)	**URF** (m^3/mg)	f_{inh}	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Benzene	71-43-2	A	N	2.10E-04	2.89E-07	7.8E-03		9.3E-10		3.0E-02	9.2E-06
VOC	1,1-Dichloroethene	75-35-4	C	N	3.00E-03	8.07E-06					2.0E-01	3.9E-05
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	1.27E-01	1.56E-04						
VOC	trans-1,2-Dichloroethene	156-60-5	ID	N	2.10E-03	3.75E-06						
VOC	Trichloroethene	79-01-6	HC	Y	3.97E-01	6.37E-04	4.1E-03	0.2439	1.5E-06		2.0E-03	3.1E-01
VOC	Vinyl Chloride	75-01-4	A	N	2.10E-03	6.93E-06	4.4E-03		4.3E-08		1.0E-01	6.6E-05
							Cumulative Risk:		2E-06		**HI:**	3E-01
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 groundwater sample at MW-176 (Parcel 3) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.22: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Soil Vapor Monitoring Point VP-12 (Parcel 4) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

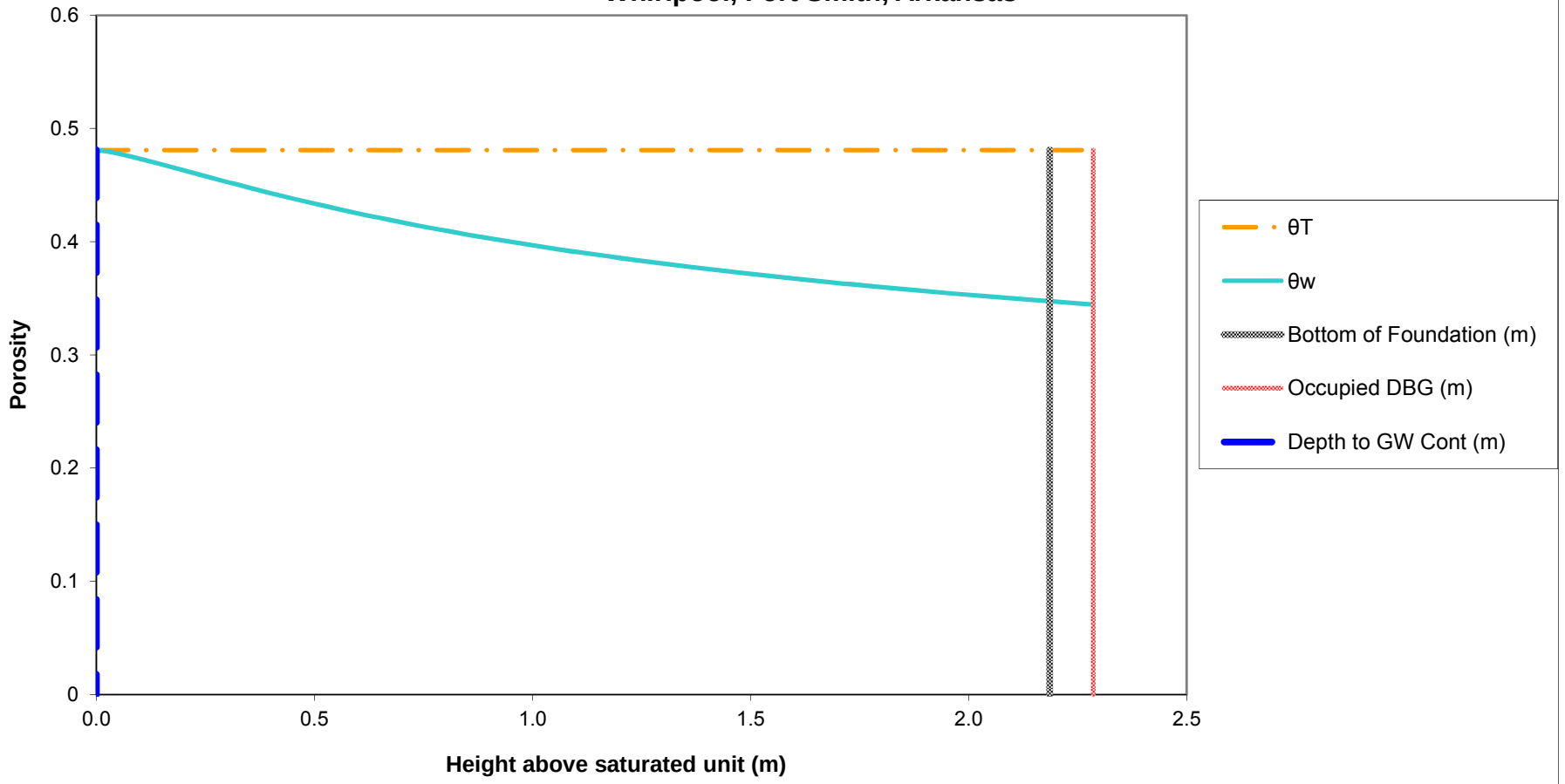
Attachment C.23: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Perched Water at VP-12 (Parcel 4) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Acetone	67-64-1	1.07E+00	9.85E-05	1.14E-03	1.72E-01	1.87E-02	6.55E-02	2.73E-03	1.79E-04	2.04E-04
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.22E-01	8.46E-04	3.16E-03	2.73E-03	8.62E-06	1.37E-03
Notes:	**Crack Soil and Building Characteristics**			**Crack Soil**							
	SCS Soil texture class			Sand							
	Bulk density	kg/L	ρ_b	1.66							
	Total porosity	L/L-soil	θ_T	0.375							
	Water-filled porosity	L/L-soil	θ_w	0.054							
	Air-filled porosity	L/L-soil	θ_a	0.321							
	Residual saturation	L/L-soil	θ_r	0.053							
	Hydraulic conductivity	cm/s	K	7.4E-03							
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307							
	Density of water	g/cm^3	ρ_w	1.0							
	Gravitational acceleration	cm/s^2	g	980.7							
	Intrinsic permeability	cm^2	k	9.9E-08							
	Relative saturation	unitless	S_e	0.004							
	van Genuchten N	unitless	N	3.177							
	van Genuchten M	unitless	M	0.685							
	Relative air permeability	unitless	k_{rg}	0.998							
	Permeability to vapor	cm^2	k_v	9.89E-08							
	Distance from building foundation to source	m	L_{T-gw}	3.71							
	Bldg foundation thickness	m	L_{crack}	0.1							
	Bldg foundation length	m		10.00							
	Bldg foundation width	m		10.00							
	Bldg occupied height	m		2.44							
	Bldg occupied volume	m^3		244.00							
	Occupied depth below ground	m		0.0							
	Bldg area for vapor intrusion	m^2	A_B	100.0							
	Ratio of A_{crack} to A_B		η	4E-04							
	Area of cracks	m^2	A_{crack}	4E-02							
	Air exchange rate	$hour^{-1}$	ach	0.45							
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03							
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0							
	Viscosity of air	kg/m-s	μ_a	1.8E-05							
	Crack length (bldg perimeter)	m	X_{crack}	40							
	Crack depth below ground	m	Z_{crack}	0.10							
	Crack radius	m	r_{crack}	1E-03							
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20							
	Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.										
	The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.										

Attachment C.24: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Perched Water at VP-12 (Parcel 4) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Acetone	67-64-1	ID	N	4.50E-03	9.18E-07					3.1E+01	2.9E-08
VOC	Benzene	71-43-2	A	N	1.70E-04	2.33E-07	7.8E-03		7.5E-10		3.0E-02	7.4E-06
							Cumulative Risk:		7E-10		**HI:**	7E-06
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 water sample at VP-12 (Parcel 4) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.25: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Groundwater Monitoring Well MW-178 (Parcel 5) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.26: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Perched Water at MW-178 (Parcel 5) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.19E-01	5.27E-04	3.34E-03	2.73E-03	9.13E-06	1.45E-03
VOC	cis-1,2-Dichloroethene	156-59-2	6.36E-01	9.76E-05	1.19E-01	9.95E-02	6.44E-04	4.08E-03	2.73E-03	1.11E-05	1.32E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.07E-01	3.33E-04	2.11E-03	2.73E-03	5.76E-06	1.66E-03

Notes:	Crack Soil and Building Characteristics			Crack Soil
	SCS Soil texture class			Sand
	Bulk density	kg/L	ρ_b	1.66
	Total porosity	L/L-soil	θ_T	0.375
	Water-filled porosity	L/L-soil	θ_w	0.057
	Air-filled porosity	L/L-soil	θ_a	0.318
	Residual saturation	L/L-soil	θ_r	0.053
	Hydraulic conductivity	cm/s	K	7.4E-03
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307
	Density of water	g/cm^3	ρ_w	1.0
	Gravitational acceleration	cm/s^2	g	980.7
	Intrinsic permeability	cm^2	k	9.9E-08
	Relative saturation	unitless	S_e	0.012
	van Genuchten N	unitless	N	3.177
	van Genuchten M	unitless	M	0.685
	Relative air permeability	unitless	k_{rg}	0.992
	Permeability to vapor	cm^2	k_v	9.84E-08
	Distance from building foundation to source	m	L_{T-gw}	2.19
	Bldg foundation thickness	m	L_{crack}	0.1
	Bldg foundation length	m		10.00
	Bldg foundation width	m		10.00
	Bldg occupied height	m		2.44
	Bldg occupied volume	m^3		244.00
	Occupied depth below ground	m		0.0
	Bldg area for vapor intrusion	m^2	A_B	100.0
	Ratio of A_{crack} to A_B		η	4E-04
	Area of cracks	m^2	A_{crack}	4E-02
	Air exchange rate	$hour^{-1}$	ach	0.45
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03
	Pressure difference between outdoors-indoors	kg/m-s^2	ΔP	1.0
	Viscosity of air	kg/m-s	μ_a	1.8E-05
	Crack length (bldg perimeter)	m	X_{crack}	40
	Crack depth below ground	m	Z_{crack}	0.10
	Crack radius	m	r_{crack}	1E-03
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20

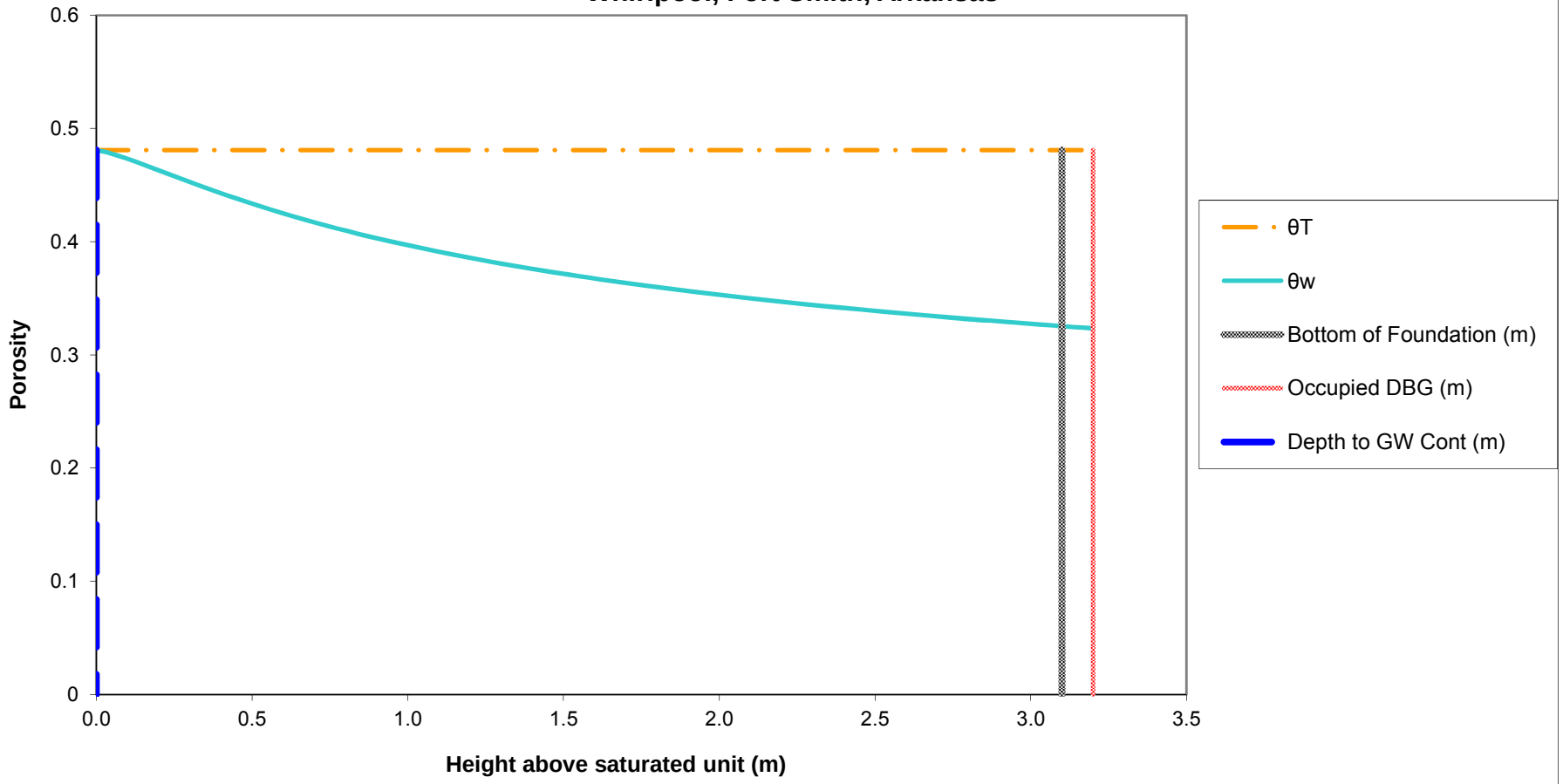
Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.

Attachment C.27: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Perched Water at MW-178 (Parcel 5) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Benzene	71-43-2	A	N	2.20E-04	3.19E-07	7.8E-03		1.0E-09		3.0E-02	1.0E-05
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	1.40E-03	1.85E-06						
VOC	Trichloroethene	79-01-6	HC	Y	4.50E-03	7.48E-06	4.1E-03	0.2439	1.7E-08		2.0E-03	3.6E-03
							Cumulative Risk:		2E-08		**HI:**	4E-03
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 groundwater sample at MW-178 (Parcel 5) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.28: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Soil Vapor Monitoring Point VP-14 (Parcel 5) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.29: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Perched Water at VP-14 (Parcel 5) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Benzene	71-43-2	7.60E-01	8.47E-05	1.59E-01	1.21E-01	7.17E-04	3.20E-03	2.73E-03	8.74E-06	1.39E-03
VOC	Chloroform	67-66-3	8.99E-01	8.64E-05	1.07E-01	1.44E-01	9.79E-04	4.37E-03	2.73E-03	1.19E-05	1.28E-03
VOC	1,1-Dichloroethene	75-35-4	7.78E-01	8.99E-05	8.10E-01	1.24E-01	2.71E-04	1.21E-03	2.73E-03	3.32E-06	2.69E-03
VOC	cis-1,2-Dichloroethene	156-59-2	6.36E-01	9.76E-05	1.19E-01	1.02E-01	8.60E-04	3.84E-03	2.73E-03	1.05E-05	1.24E-03
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.09E-01	4.58E-04	2.05E-03	2.73E-03	5.59E-06	1.61E-03

Notes:	Crack Soil and Building Characteristics			Crack Soil
	SCS Soil texture class			Sand
	Bulk density	kg/L	ρ_b	1.66
	Total porosity	L/L-soil	θ_T	0.375
	Water-filled porosity	L/L-soil	θ_w	0.055
	Air-filled porosity	L/L-soil	θ_a	0.320
	Residual saturation	L/L-soil	θ_r	0.053
	Hydraulic conductivity	cm/s	K	7.4E-03
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307
	Density of water	g/cm^3	ρ_w	1.0
	Gravitational acceleration	cm/s^2	g	980.7
	Intrinsic permeability	cm^2	k	9.9E-08
	Relative saturation	unitless	S_e	0.005
	van Genuchten N	unitless	N	3.177
	van Genuchten M	unitless	M	0.685
	Relative air permeability	unitless	k_{rg}	0.997
	Permeability to vapor	cm^2	k_v	9.88E-08
	Distance from building foundation to source	m	$L_{T\text{-}gw}$	3.10
	Bldg foundation thickness	m	L_{crack}	0.1
	Bldg foundation length	m		10.00
	Bldg foundation width	m		10.00
	Bldg occupied height	m		2.44
	Bldg occupied volume	m^3		244.00
	Occupied depth below ground	m		0.0
	Bldg area for vapor intrusion	m^2	A_B	100.0
	Ratio of A_{crack} to A_B		η	4E-04
	Area of cracks	m^2	A_{crack}	4E-02
	Air exchange rate	$hour^{-1}$	ach	0.45
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0
	Viscosity of air	kg/m-s	μ_a	1.8E-05
	Crack length (bldg perimeter)	m	X_{crack}	40
	Crack depth below ground	m	Z_{crack}	0.10
	Crack radius	m	r_{crack}	1E-03
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20

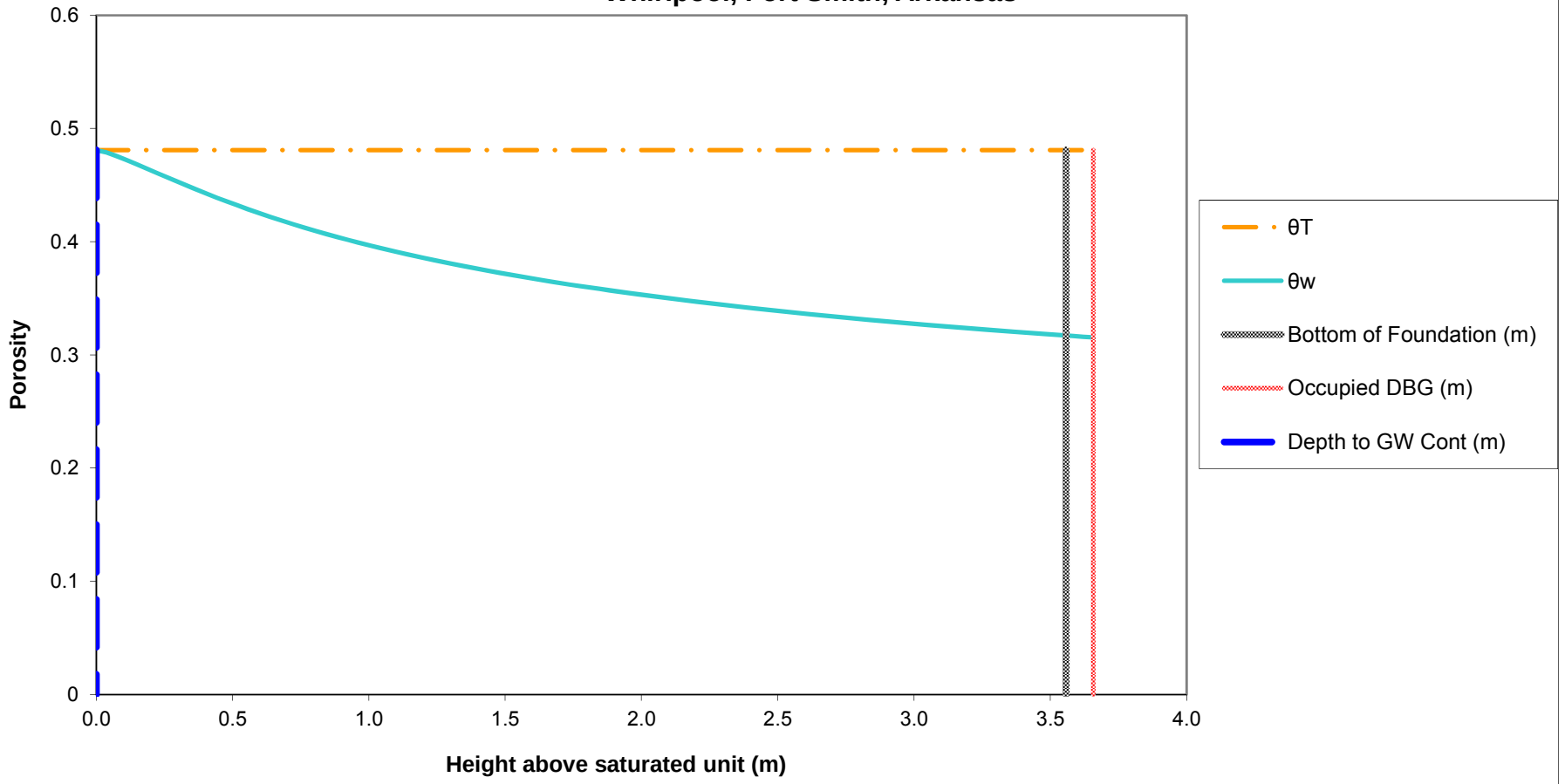
Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.

Attachment C.30: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Perched Water at VP-14 (Parcel 5) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Benzene	71-43-2	A	N	1.80E-04	2.50E-07	7.8E-03		8.0E-10		3.0E-02	8.0E-06
VOC	Chloroform	67-66-3	B2	N	3.20E-04	4.10E-07	2.3E-02		3.9E-09		5.0E-02	7.9E-06
VOC	1,1-Dichloroethene	75-35-4	C	N	8.00E-04	2.15E-06					2.0E-01	1.0E-05
VOC	cis-1,2-Dichloroethene	156-59-2	ID	N	2.60E-03	3.23E-06						
VOC	Trichloroethene	79-01-6	HC	Y	6.41E-02	1.03E-04	4.1E-03	0.2439	2.4E-07		2.0E-03	5.0E-02
							Cumulative Risk:		2E-07		**HI:**	5E-02
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 water sample at VP-14 (Parcel 5) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C.31: Soil Moisture Profile for Residential Building (Slab-on-Grade) at Groundwater Monitoring Well MW-179 (Parcel 5) Whirlpool, Fort Smith, Arkansas



Notes:
The soil-water profile in the vadose zone is estimated using the van Genuchten soil-water retention equation with default water retention parameters appropriate for silt clay, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

Attachment C.32: Normalized Indoor Air Concentration in a Residential Building (Slab-on-Grade) due to Vapor Intrusion from Groundwater at MW-179 (Parcel 5) Whirlpool, Fort Smith, Arkansas

Chem Group	Chemical	CASRN	D_{air} (m^2/day)	D_{water} (m^2/day)	H (unitless)	D_{crack} (m^2/day)	D_{eff}^T (m^2/day)	α_{soil}	α_{slab}	α_{∞}	C_{bldg} (L-water/m^3)
VOC	Trichloroethene	79-01-6	6.83E-01	7.86E-05	2.88E-01	1.10E-01	5.23E-04	2.04E-03	2.73E-03	5.57E-06	1.60E-03

Notes:	Crack Soil and Building Characteristics			Crack Soil
	SCS Soil texture class			Sand
	Bulk density	kg/L	ρ_b	1.66
	Total porosity	L/L-soil	θ_T	0.375
	Water-filled porosity	L/L-soil	θ_w	0.054
	Air-filled porosity	L/L-soil	θ_a	0.321
	Residual saturation	L/L-soil	θ_r	0.053
	Hydraulic conductivity	cm/s	K	7.4E-03
	Dynamic viscosity of water	g/cm-s	μ_w	0.01307
	Density of water	g/cm^3	ρ_w	1.0
	Gravitational acceleration	cm/s^2	g	980.7
	Intrinsic permeability	cm^2	k	9.9E-08
	Relative saturation	unitless	S_e	0.004
	van Genuchten N	unitless	N	3.177
	van Genuchten M	unitless	M	0.685
	Relative air permeability	unitless	k_{rg}	0.998
	Permeability to vapor	cm^2	k_v	9.89E-08
	Distance from building foundation to source	m	L_{T-gw}	3.56
	Bldg foundation thickness	m	L_{crack}	0.1
	Bldg foundation length	m		10.00
	Bldg foundation width	m		10.00
	Bldg occupied height	m		2.44
	Bldg occupied volume	m^3		244.00
	Occupied depth below ground	m		0.0
	Bldg area for vapor intrusion	m^2	A_B	100.0
	Ratio of A_{crack} to A_B		η	4E-04
	Area of cracks	m^2	A_{crack}	4E-02
	Air exchange rate	$hour^{-1}$	ach	0.45
	Building ventilation rate	m^3/day	Q_{bldg}	2.64E+03
	Pressure difference between outdoors-indoors	$kg/m\text{-}s^2$	ΔP	1.0
	Viscosity of air	kg/m-s	μ_a	1.8E-05
	Crack length (bldg perimeter)	m	X_{crack}	40
	Crack depth below ground	m	Z_{crack}	0.10
	Crack radius	m	r_{crack}	1E-03
	Soil gas flow rate into bldg	m^3/day	Q_{soil}	7.20

Indoor air concentrations resulting from groundwater vapor intrusion into a building are estimated using the relationships described by Johnson and Ettinger (Heuristic model for predicting the intrusion rate of contaminant vapors into buildings, 1991), which USEPA recommends for screening level calculations, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Plan, which was used as the basis for the ADEQ Remedial Action Decision.

The effective diffusion term DeffT is calculated based on a silty clay soil, as discussed in Appendix A, Section 3.3.1 of the ADEQ-approved Revised Risk Management Program.

Attachment C.33: Cancer Risk and Hazard Index Calculations for Vapor Intrusion into a Residential Building (Slab-on-Grade) from Shallow Groundwater at MW-179 (Parcel 5) Whirlpool, Fort Smith, Arkansas

							Cancer				Noncancer	
Chem Group	**Chemical**	**CASRN**	**Carc Class**	**ADAF**	**C_{gw}** (mg/L)	**$C_{building}$** (mg/m^3)	**URF** (m^3/mg)	**f_{inh}**	**Risk**		**RfC** (mg/m^3)	**HQ**
VOC	Trichloroethene	79-01-6	HC	Y	1.40E-03	2.25E-06	4.1E-03	0.2439	5.2E-09		2.0E-03	1.1E-03
							Cumulative Risk:		5E-09		**HI:**	1E-03
Note:												
f_{inh} is the fraction of the inhalation URF that USEPA identified as having a mutagenic mode of action.												
Only VOCs detected in the Annual 2017 groundwater sample at MW-179 (Parcel 5) are shown.												
Risks were calculated assuming residential exposure to groundwater-derived vapors in indoor air for 24 hours per day and 350 days per year for 30 years.												

Attachment C
Laboratory Analytical Data

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 30, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60286720001	**MW-175-201811**	Water	11/13/18 13:25	11/14/18 09:45
60286720002	**MW-61R-201811**	Water	11/13/18 14:20	11/14/18 09:45
60286720003	**TMW-29-201811**	Water	11/13/18 17:00	11/14/18 09:45
60286720004	**DUP-01-201811**	Water	11/13/18 17:00	11/14/18 09:45
60286720005	**MW-179-201811**	Water	11/13/18 16:45	11/14/18 09:45
60286720006	**DUP-06-201811**	Water	11/13/18 14:20	11/14/18 09:45
60286720007	**TMW-11-201811**	Water	11/13/18 16:45	11/14/18 09:45
60286720008	**TMW-10-201811**	Water	11/13/18 16:55	11/14/18 09:45
60286720009	**MW-50R-201811**	Water	11/13/18 14:10	11/14/18 09:45
60286720010	**TRIP BLANK**	Water	11/13/18 13:25	11/14/18 09:45
60286720011	**TMW-20-201811**	Water	11/13/18 17:00	11/14/18 09:45
60286720012	**MW-195-201811**	Water	11/13/18 14:30	11/14/18 09:45
60286720013	**MW-196-201811**	Water	11/13/18 15:55	11/14/18 09:45
60286720014	**MW-99-201811**	Water	11/13/18 13:57	11/14/18 09:45
60286720015	**MW-68-201811**	Water	11/13/18 15:11	11/14/18 09:45
60286720016	**ITMW-2-201811**	Water	11/13/18 17:03	11/14/18 09:45
60286720017	**MW-28-201811**	Water	11/13/18 13:10	11/14/18 09:45
60286720018	**MW-27-201811**	Water	11/13/18 14:45	11/14/18 09:45
60286720019	**ITMW-16-201811**	Water	11/13/18 15:40	11/14/18 09:45
60286720020	**MW-176-201811**	Water	11/13/18 15:00	11/14/18 09:45
60286720021	**TRIP BLANK**	Water	11/13/18 08:00	11/14/18 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286720001	**MW-175-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720002	**MW-61R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720003	**TMW-29-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720004	**DUP-01-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720005	**MW-179-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720006	**DUP-06-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720007	**TMW-11-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720008	**TMW-10-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720009	**MW-50R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720010	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60286720011	**TMW-20-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720012	**MW-195-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720013	**MW-196-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720014	**MW-99-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720015	**MW-68-201811**	EPA 5030B/8260	PGH	38	PASI-K

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286720016	**ITMW-2-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720017	**MW-28-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720018	**MW-27-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720019	**ITMW-16-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720020	**MW-176-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720021	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
21 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 555602

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555602 [MSV/9331 (Lab ID: 2279341)
  - 1,2-Dichloroethane

QC Batch: 556483

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556483 [MSV/9341 (Lab ID: 2283187)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555602

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 555908

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556483

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557066

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286720008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2285623)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555224

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286715001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2277762)
  - Nitrogen, NO2 plus NO3

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-175-201811 **Lab ID: 60286720001** Collected: 11/13/18 13:25 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**7.9J**	ug/L	10.0	1.9	1		11/19/18 06:49	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:49	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:49	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:49	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:49	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:49	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:49	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:49	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:49	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:49	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:49	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:49	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/19/18 06:49	107-06-2	B
1,1-Dichloroethene	**0.28J**	ug/L	1.0	0.20	1		11/19/18 06:49	75-35-4	
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0	0.080	1		11/19/18 06:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:49	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:49	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:49	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:49	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:49	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:49	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:49	79-00-5	
Trichloroethene	**70.7**	ug/L	1.0	0.17	1		11/19/18 06:49	79-01-6	
Vinyl chloride	**0.17J**	ug/L	1.0	0.13	1		11/19/18 06:49	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:49	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 06:49	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/19/18 06:49	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 06:49	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:49		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-61R-201811 **Lab ID: 60286720002** Collected: 11/13/18 14:20 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**10700**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.7J**	ug/L	10.0	1.9	1		11/19/18 03:18	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:18	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:18	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:18	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:18	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:18	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:18	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:18	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:18	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:18	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:18	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:18	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/19/18 03:18	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:18	75-35-4	
cis-1,2-Dichloroethene	**1.9**	ug/L	1.0	0.080	1		11/19/18 03:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:18	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:18	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:18	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 03:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:18	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:18	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:18	79-00-5	
Trichloroethene	**7.7**	ug/L	1.0	0.17	1		11/19/18 03:18	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:18	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:18	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 03:18	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 03:18	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 03:18	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:18		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**120**	mg/L	50.0	14.5	50		11/28/18 20:31	16887-00-6	
Sulfate	**8.0**	mg/L	1.0	0.24	1		11/28/18 20:15	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-61R-201811 **Lab ID: 60286720002** Collected: 11/13/18 14:20 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:10		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:10		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.71J**	mg/L	1.0	0.65	1		11/21/18 01:17	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.81J**	mg/L	1.0	0.65	1		11/27/18 11:11	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-29-201811 **Lab ID: 60286720003** Collected: 11/13/18 17:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 03:32	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:32	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:32	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:32	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:32	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:32	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:32	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:32	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:32	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:32	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:32	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:32	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 03:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 03:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:32	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:32	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:32	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 03:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:32	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:32	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:32	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 03:32	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:32	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:32	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/19/18 03:32	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 03:32	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/19/18 03:32	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:32		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: DUP-01-201811 **Lab ID: 60286720004** Collected: 11/13/18 17:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 06:21	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:21	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:21	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:21	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:21	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:21	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:21	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:21	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/19/18 06:21	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 06:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:21	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:21	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:21	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:21	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:21	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:21	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 06:21	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 06:21	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:21	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 06:21	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/19/18 06:21	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 06:21	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:21		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-179-201811 **Lab ID: 60286720005** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 03:46	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:46	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:46	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:46	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:46	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:46	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:46	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:46	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:46	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:46	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:46	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:46	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:46	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/19/18 03:46	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 03:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:46	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:46	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:46	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 03:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:46	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:46	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:46	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:46	79-00-5	
Trichloroethene	**1.4**	ug/L	1.0	0.17	1		11/19/18 03:46	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:46	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:46	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 03:46	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/19/18 03:46	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/19/18 03:46	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:46		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: DUP-06-201811 **Lab ID: 60286720006** Collected: 11/13/18 14:20 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.0J**	ug/L	10.0	1.9	1		11/19/18 06:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:35	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/19/18 06:35	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:35	75-35-4	
cis-1,2-Dichloroethene	**1.8**	ug/L	1.0	0.080	1		11/19/18 06:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:35	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:35	79-00-5	
Trichloroethene	**7.7**	ug/L	1.0	0.17	1		11/19/18 06:35	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 06:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 06:35	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 06:35	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 06:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:35		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-11-201811 **Lab ID: 60286720007** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**10800**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.9J**	ug/L	10.0	1.9	1		11/19/18 04:00	67-64-1	
Benzene	**0.11J**	ug/L	1.0	0.060	1		11/19/18 04:00	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:00	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:00	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:00	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:00	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:00	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:00	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:00	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:00	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/19/18 04:00	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:00	75-35-4	
cis-1,2-Dichloroethene	**0.73J**	ug/L	1.0	0.080	1		11/19/18 04:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:00	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:00	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:00	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:00	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:00	127-18-4	
Toluene	**1.1**	ug/L	1.0	0.17	1		11/19/18 04:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:00	79-00-5	
Trichloroethene	**0.40J**	ug/L	1.0	0.17	1		11/19/18 04:00	79-01-6	
Vinyl chloride	**0.46J**	ug/L	1.0	0.13	1		11/19/18 04:00	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 04:00	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 04:00	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/19/18 04:00	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:00		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	**0.096**	mg/L	0.050	0.023	1		11/17/18 14:15	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-11-201811 **Lab ID: 60286720007** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**161**	mg/L	50.0	14.5	50		11/28/18 21:04	16887-00-6	
Sulfate	ND	mg/L	1.0	0.24	1		11/28/18 20:48	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:11		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:11		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:11		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**13.2**	mg/L	2.0	1.3	2		11/21/18 12:12	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**9.2**	mg/L	1.0	0.65	1		11/27/18 11:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-10-201811 **Lab ID: 60286720008** Collected: 11/13/18 16:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**105000**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:40	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**128**	ug/L	10.0	1.9	1		11/19/18 07:03	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/19/18 07:03	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 07:03	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 07:03	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 07:03	74-83-9	
2-Butanone (MEK)	**307**	ug/L	10.0	0.59	1		11/19/18 07:03	78-93-3	
Carbon disulfide	**0.56J**	ug/L	5.0	0.12	1		11/19/18 07:03	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 07:03	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 07:03	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 07:03	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 07:03	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 07:03	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 07:03	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 07:03	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/19/18 07:03	107-06-2	B
1,1-Dichloroethene	**0.26J**	ug/L	1.0	0.20	1		11/19/18 07:03	75-35-4	
cis-1,2-Dichloroethene	**15.0**	ug/L	1.0	0.080	1		11/19/18 07:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 07:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 07:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 07:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 07:03	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 07:03	100-41-4	
2-Hexanone	**3.7J**	ug/L	10.0	1.2	1		11/19/18 07:03	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 07:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.1J**	ug/L	10.0	0.42	1		11/19/18 07:03	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 07:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 07:03	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 07:03	127-18-4	
Toluene	**0.25J**	ug/L	1.0	0.17	1		11/19/18 07:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 07:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 07:03	79-00-5	
Trichloroethene	**14.3**	ug/L	1.0	0.17	1		11/19/18 07:03	79-01-6	
Vinyl chloride	**6.2**	ug/L	1.0	0.13	1		11/19/18 07:03	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 07:03	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/19/18 07:03	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 07:03	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/19/18 07:03	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 07:03		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	**0.043J**	mg/L	0.050	0.023	1		11/17/18 14:15	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-10-201811 **Lab ID: 60286720008** Collected: 11/13/18 16:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**276**	mg/L	50.0	14.5	50		11/27/18 23:48	16887-00-6	M1
Sulfate	**10.4**	mg/L	10.0	2.4	10		11/27/18 23:19	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:12		
Nitrogen, Nitrite	**0.11**	mg/L	0.10	0.033	1		11/14/18 17:12		
Nitrogen, NO2 plus NO3	**0.12**	mg/L	0.10	0.060	1		11/14/18 17:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2240**	mg/L	300	196	300		11/21/18 12:38	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**2060**	mg/L	500	327	500		11/29/18 10:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-50R-201811 **Lab ID: 60286720009** Collected: 11/13/18 14:10 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**294**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:43	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.7J**	ug/L	10.0	1.9	1		11/19/18 04:14	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:14	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:14	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:14	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:14	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:14	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:14	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:14	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:14	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:14	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:14	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:14	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:14	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/19/18 04:14	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:14	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:14	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:14	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:14	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:14	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:14	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:14	79-00-5	
Trichloroethene	**0.73J**	ug/L	1.0	0.17	1		11/19/18 04:14	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:14	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:14	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		1		11/19/18 04:14	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 04:14	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 04:14	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:14		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:16	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-50R-201811 **Lab ID: 60286720009** Collected: 11/13/18 14:10 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**259**	mg/L	50.0	14.5	50		11/28/18 00:31	16887-00-6	
Sulfate	**14.0**	mg/L	10.0	2.4	10		11/28/18 00:16	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:08		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:08		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:08		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/21/18 01:56	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TRIP BLANK **Lab ID: 60286720010** Collected: 11/13/18 13:25 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.6J**	ug/L	10.0	1.9	1		11/19/18 03:04	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 03:04	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 03:04	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 03:04	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 03:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 03:04	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 03:04	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 03:04	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 03:04	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:04	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 03:04	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 03:04	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 03:04	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 03:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 03:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 03:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 03:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 03:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 03:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 03:04	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 03:04	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 03:04	591-78-6	
Methylene chloride	**0.45J**	ug/L	1.0	0.15	1		11/19/18 03:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 03:04	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 03:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 03:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 03:04	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 03:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 03:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 03:04	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 03:04	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 03:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 03:04	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 03:04	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/19/18 03:04	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 03:04	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 03:04		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-20-201811 **Lab ID: 60286720011** Collected: 11/13/18 17:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 04:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:28	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:28	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:28	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/19/18 04:28	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:28	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 04:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 04:28	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 04:28	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 04:28	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-195-201811 **Lab ID: 60286720012** Collected: 11/13/18 14:30 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		11/19/18 04:42	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 04:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 04:42	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/19/18 04:42	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 04:42	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 04:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:42		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-196-201811 **Lab ID: 60286720013** Collected: 11/13/18 15:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 04:56	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 04:56	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:56	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:56	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:56	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:56	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:56	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:56	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:56	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:56	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/19/18 04:56	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 04:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:56	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:56	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:56	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:56	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:56	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 04:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:56	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 04:56	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 04:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:56	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 04:56	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/19/18 04:56	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 04:56	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:56		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-99-201811 **Lab ID: 60286720014** Collected: 11/13/18 13:57 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/19/18 05:10	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:10	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:10	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:10	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:10	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:10	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:10	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:10	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:10	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:10	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:10	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:10	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/19/18 05:10	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:10	75-35-4	
cis-1,2-Dichloroethene	**0.64J**	ug/L	1.0	0.080	1		11/19/18 05:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:10	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:10	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:10	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 05:10	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:10	79-00-5	
Trichloroethene	**8.1**	ug/L	1.0	0.17	1		11/19/18 05:10	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:10	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/19/18 05:10	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 05:10	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 05:10	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:10		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-68-201811 **Lab ID: 60286720015** Collected: 11/13/18 15:11 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/19/18 05:25	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:25	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:25	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:25	75-34-3	
1,2-Dichloroethane	**0.19J**	ug/L	1.0	0.12	1		11/19/18 05:25	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 05:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:25	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:25	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:25	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 05:25	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 05:25	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:25	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 05:25	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 05:25	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/19/18 05:25	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:25		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: ITMW-2-201811 **Lab ID: 60286720016** Collected: 11/13/18 17:03 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.6J**	ug/L	10.0	1.9	1		11/19/18 05:39	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:39	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:39	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:39	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:39	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:39	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:39	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:39	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:39	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:39	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:39	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:39	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:39	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/19/18 05:39	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:39	75-35-4	
cis-1,2-Dichloroethene	**0.57J**	ug/L	1.0	0.080	1		11/19/18 05:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:39	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:39	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:39	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:39	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:39	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:39	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:39	79-34-5	
Tetrachloroethene	**0.37J**	ug/L	1.0	0.10	1		11/19/18 05:39	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:39	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:39	79-00-5	
Trichloroethene	**0.71J**	ug/L	1.0	0.17	1		11/19/18 05:39	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:39	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:39	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/19/18 05:39	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/19/18 05:39	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 05:39	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:39		

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(913)599-5665

ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-28-201811 **Lab ID: 60286720017** Collected: 11/13/18 13:10 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.1J**	ug/L	10.0	1.9	1		11/19/18 05:53	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 05:53	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 05:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 05:53	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 05:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 05:53	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 05:53	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 05:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 05:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:53	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 05:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 05:53	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 05:53	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 05:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 05:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 05:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 05:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 05:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 05:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 05:53	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 05:53	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 05:53	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 05:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 05:53	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 05:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 05:53	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 05:53	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 05:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 05:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 05:53	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 05:53	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 05:53	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 05:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 05:53	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/19/18 05:53	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 05:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 05:53		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-27-201811 **Lab ID: 60286720018** Collected: 11/13/18 14:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.3J**	ug/L	10.0	1.9	1		11/19/18 06:07	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 06:07	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 06:07	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 06:07	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 06:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 06:07	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 06:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 06:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 06:07	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:07	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 06:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 06:07	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 06:07	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 06:07	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/19/18 06:07	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:07	75-35-4	
cis-1,2-Dichloroethene	**0.27J**	ug/L	1.0	0.080	1		11/19/18 06:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 06:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 06:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 06:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 06:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 06:07	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 06:07	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 06:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 06:07	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 06:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 06:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 06:07	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 06:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 06:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 06:07	79-00-5	
Trichloroethene	**0.92J**	ug/L	1.0	0.17	1		11/19/18 06:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 06:07	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 06:07	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 06:07	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 06:07	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/19/18 06:07	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 06:07		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: ITMW-16-201811 **Lab ID: 60286720019** Collected: 11/13/18 15:40 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/19/18 15:31	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/19/18 15:31	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 15:31	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 15:31	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 15:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 15:31	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 15:31	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 15:31	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 15:31	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 15:31	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 15:31	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 15:31	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 15:31	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 15:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/19/18 15:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 15:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/19/18 15:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 15:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 15:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 15:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 15:31	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 15:31	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 15:31	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 15:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 15:31	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 15:31	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 15:31	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 15:31	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/19/18 15:31	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 15:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 15:31	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/19/18 15:31	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/19/18 15:31	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 15:31	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/19/18 15:31	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/19/18 15:31	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/19/18 15:31	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 15:31		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: MW-176-201811 **Lab ID: 60286720020** Collected: 11/13/18 15:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**7.6J**	ug/L	10.0	1.9	1		11/23/18 10:42	67-64-1	
Benzene	**0.21J**	ug/L	1.0	0.060	1		11/23/18 10:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/23/18 10:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/23/18 10:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/23/18 10:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/23/18 10:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/23/18 10:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/23/18 10:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/23/18 10:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/23/18 10:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/23/18 10:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/23/18 10:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/23/18 10:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/23/18 10:42	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/23/18 10:42	107-06-2	B
1,1-Dichloroethene	**3.0**	ug/L	1.0	0.20	1		11/23/18 10:42	75-35-4	
cis-1,2-Dichloroethene	**127**	ug/L	1.0	0.080	1		11/23/18 10:42	156-59-2	
trans-1,2-Dichloroethene	**2.1**	ug/L	1.0	0.20	1		11/23/18 10:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/23/18 10:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/23/18 10:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/23/18 10:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/23/18 10:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/23/18 10:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/23/18 10:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/23/18 10:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/23/18 10:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/23/18 10:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/23/18 10:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/23/18 10:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/23/18 10:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/23/18 10:42	79-00-5	
Trichloroethene	**397**	ug/L	10.0	1.7	10		11/19/18 15:45	79-01-6	
Vinyl chloride	**2.1**	ug/L	1.0	0.13	1		11/23/18 10:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/23/18 10:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		11/23/18 10:42	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/23/18 10:42	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/23/18 10:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	10		11/19/18 15:45		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TRIP BLANK **Lab ID: 60286720021** Collected: 11/13/18 08:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 13:55	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 13:55	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 13:55	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 13:55	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 13:55	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 13:55	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 13:55	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 13:55	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 13:55	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 13:55	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 13:55	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 13:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 13:55	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 13:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 13:55	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 13:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 13:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 13:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 13:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 13:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 13:55	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 13:55	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 13:55	591-78-6	
Methylene chloride	**0.46J**	ug/L	1.0	0.15	1		11/20/18 13:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 13:55	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 13:55	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 13:55	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 13:55	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 13:55	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 13:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 13:55	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 13:55	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 13:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 13:55	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 13:55	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/20/18 13:55	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 13:55	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 13:55		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557146 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

METHOD BLANK: 2285800 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	11/28/18 13:27	

LABORATORY CONTROL SAMPLE: 2285801

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10200	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2285802 2285803

Parameter	Units	60287185010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	2200	10000	10000	13900	13700	117	115	75-125	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555602 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720001, 60286720002, 60286720003, 60286720004, 60286720005, 60286720006, 60286720007, 60286720008, 60286720009, 60286720010, 60286720011, 60286720012, 60286720013, 60286720014, 60286720015, 60286720016, 60286720017, 60286720018

METHOD BLANK: 2279341 Matrix: Water
Associated Lab Samples: 60286720001, 60286720002, 60286720003, 60286720004, 60286720005, 60286720006, 60286720007, 60286720008, 60286720009, 60286720010, 60286720011, 60286720012, 60286720013, 60286720014, 60286720015, 60286720016, 60286720017, 60286720018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/19/18 02:50	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/19/18 02:50	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/19/18 02:50	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/19/18 02:50	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 02:50	
1,2-Dichloroethane	ug/L	0.15J	1.0	0.12	11/19/18 02:50	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/19/18 02:50	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/19/18 02:50	
2-Hexanone	ug/L	ND	10.0	1.2	11/19/18 02:50	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/19/18 02:50	
Acetone	ug/L	ND	10.0	1.9	11/19/18 02:50	
Benzene	ug/L	ND	1.0	0.060	11/19/18 02:50	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/19/18 02:50	
Bromoform	ug/L	ND	1.0	0.070	11/19/18 02:50	
Bromomethane	ug/L	ND	5.0	0.16	11/19/18 02:50	
Carbon disulfide	ug/L	ND	5.0	0.12	11/19/18 02:50	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/19/18 02:50	
Chlorobenzene	ug/L	ND	1.0	0.21	11/19/18 02:50	
Chloroethane	ug/L	ND	1.0	0.15	11/19/18 02:50	
Chloroform	ug/L	ND	1.0	0.14	11/19/18 02:50	
Chloromethane	ug/L	ND	1.0	0.080	11/19/18 02:50	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/19/18 02:50	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/19/18 02:50	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/19/18 02:50	
Ethylbenzene	ug/L	ND	1.0	0.18	11/19/18 02:50	
Methylene chloride	ug/L	ND	1.0	0.15	11/19/18 02:50	
Styrene	ug/L	ND	1.0	0.12	11/19/18 02:50	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/19/18 02:50	
Toluene	ug/L	ND	1.0	0.17	11/19/18 02:50	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 02:50	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/19/18 02:50	
Trichloroethene	ug/L	ND	1.0	0.17	11/19/18 02:50	
Vinyl chloride	ug/L	ND	1.0	0.13	11/19/18 02:50	
Xylene (Total)	ug/L	ND	3.0	0.42	11/19/18 02:50	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/19/18 02:50	
4-Bromofluorobenzene (S)	%	101	80-119		11/19/18 02:50	
Toluene-d8 (S)	%	98	80-115		11/19/18 02:50	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2279342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.1	105	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.4	97	74-121	
1,1,2-Trichloroethane	ug/L	20	21.3	106	83-119	
1,1-Dichloroethane	ug/L	20	20.9	104	85-128	
1,1-Dichloroethene	ug/L	20	20.5	103	85-123	
1,2-Dichloroethane	ug/L	20	19.7	98	77-120	
1,2-Dichloropropane	ug/L	20	20.9	104	81-126	
2-Butanone (MEK)	ug/L	100	103	103	65-134	
2-Hexanone	ug/L	100	101	101	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	66-139	
Acetone	ug/L	100	93.9	94	62-142	
Benzene	ug/L	20	20.1	101	81-118	
Bromodichloromethane	ug/L	20	21.5	107	85-123	
Bromoform	ug/L	20	19.2	96	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.7	98	85-124	
Carbon tetrachloride	ug/L	20	21.4	107	85-126	
Chlorobenzene	ug/L	20	20.2	101	87-118	
Chloroethane	ug/L	20	20.1	100	73-134	
Chloroform	ug/L	20	20.4	102	85-119	
Chloromethane	ug/L	20	18.9	94	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.3	97	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.4	102	80-124	
Dibromochloromethane	ug/L	20	20.7	103	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	21.0	105	81-126	
Styrene	ug/L	20	19.6	98	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	20.3	102	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.9	99	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.2	96	80-122	
Trichloroethene	ug/L	20	22.1	110	82-120	
Vinyl chloride	ug/L	20	23.0	115	74-147	
Xylene (Total)	ug/L	60	56.5	94	81-120	
1,2-Dichloroethane-d4 (S)	%			105	80-117	
4-Bromofluorobenzene (S)	%			105	80-119	
Toluene-d8 (S)	%			97	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555908 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720019, 60286720020

METHOD BLANK: 2281212 Matrix: Water
Associated Lab Samples: 60286720019, 60286720020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/19/18 14:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/19/18 14:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/19/18 14:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/19/18 14:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 14:06	
1,2-Dichloroethane	ug/L	0.17J	1.0	0.12	11/19/18 14:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/19/18 14:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/19/18 14:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/19/18 14:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/19/18 14:06	
Acetone	ug/L	ND	10.0	1.9	11/19/18 14:06	
Benzene	ug/L	ND	1.0	0.060	11/19/18 14:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/19/18 14:06	
Bromoform	ug/L	ND	1.0	0.070	11/19/18 14:06	
Bromomethane	ug/L	ND	5.0	0.16	11/19/18 14:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/19/18 14:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/19/18 14:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/19/18 14:06	
Chloroethane	ug/L	ND	1.0	0.15	11/19/18 14:06	
Chloroform	ug/L	ND	1.0	0.14	11/19/18 14:06	
Chloromethane	ug/L	ND	1.0	0.080	11/19/18 14:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/19/18 14:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/19/18 14:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/19/18 14:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/19/18 14:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/19/18 14:06	
Styrene	ug/L	ND	1.0	0.12	11/19/18 14:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/19/18 14:06	
Toluene	ug/L	ND	1.0	0.17	11/19/18 14:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 14:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/19/18 14:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/19/18 14:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/19/18 14:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/19/18 14:06	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/19/18 14:06	
4-Bromofluorobenzene (S)	%	99	80-119		11/19/18 14:06	
Toluene-d8 (S)	%	96	80-115		11/19/18 14:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2281213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.9	110	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	18.2	91	74-121	
1,1,2-Trichloroethane	ug/L	20	19.4	97	83-119	
1,1-Dichloroethane	ug/L	20	20.4	102	85-128	
1,1-Dichloroethene	ug/L	20	21.1	106	85-123	
1,2-Dichloroethane	ug/L	20	20.2	101	77-120	
1,2-Dichloropropane	ug/L	20	20.7	103	81-126	
2-Butanone (MEK)	ug/L	100	93.9	94	65-134	
2-Hexanone	ug/L	100	90.2	90	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	95.3	95	66-139	
Acetone	ug/L	100	91.7	92	62-142	
Benzene	ug/L	20	19.3	97	81-118	
Bromodichloromethane	ug/L	20	21.9	110	85-123	
Bromoform	ug/L	20	20.7	104	83-123	
Bromomethane	ug/L	20	21.0	105	39-149	
Carbon disulfide	ug/L	20	19.4	97	85-124	
Carbon tetrachloride	ug/L	20	22.3	111	85-126	
Chlorobenzene	ug/L	20	20.8	104	87-118	
Chloroethane	ug/L	20	20.6	103	73-134	
Chloroform	ug/L	20	20.9	104	85-119	
Chloromethane	ug/L	20	22.2	111	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	21.2	106	83-122	
Ethylbenzene	ug/L	20	20.4	102	80-118	
Methylene chloride	ug/L	20	20.4	102	81-126	
Styrene	ug/L	20	20.9	104	85-120	
Tetrachloroethene	ug/L	20	20.7	104	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.6	103	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.5	102	80-122	
Trichloroethene	ug/L	20	23.0	115	82-120	
Vinyl chloride	ug/L	20	22.6	113	74-147	
Xylene (Total)	ug/L	60	59.9	100	81-120	
1,2-Dichloroethane-d4 (S)	%			106	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555910
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720021

METHOD BLANK: 2281217
Matrix: Water
Associated Lab Samples: 60286720021

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/20/18 13:41	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/20/18 13:41	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/20/18 13:41	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/20/18 13:41	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 13:41	
1,2-Dichloroethane	ug/L	0.19J	1.0	0.12	11/20/18 13:41	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/20/18 13:41	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/20/18 13:41	
2-Hexanone	ug/L	ND	10.0	1.2	11/20/18 13:41	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/20/18 13:41	
Acetone	ug/L	ND	10.0	1.9	11/20/18 13:41	
Benzene	ug/L	ND	1.0	0.060	11/20/18 13:41	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/20/18 13:41	
Bromoform	ug/L	ND	1.0	0.070	11/20/18 13:41	
Bromomethane	ug/L	ND	5.0	0.16	11/20/18 13:41	
Carbon disulfide	ug/L	ND	5.0	0.12	11/20/18 13:41	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/20/18 13:41	
Chlorobenzene	ug/L	ND	1.0	0.21	11/20/18 13:41	
Chloroethane	ug/L	ND	1.0	0.15	11/20/18 13:41	
Chloroform	ug/L	ND	1.0	0.14	11/20/18 13:41	
Chloromethane	ug/L	ND	1.0	0.080	11/20/18 13:41	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/20/18 13:41	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/20/18 13:41	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/20/18 13:41	
Ethylbenzene	ug/L	ND	1.0	0.18	11/20/18 13:41	
Methylene chloride	ug/L	ND	1.0	0.15	11/20/18 13:41	
Styrene	ug/L	ND	1.0	0.12	11/20/18 13:41	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/20/18 13:41	
Toluene	ug/L	ND	1.0	0.17	11/20/18 13:41	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 13:41	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/20/18 13:41	
Trichloroethene	ug/L	ND	1.0	0.17	11/20/18 13:41	
Vinyl chloride	ug/L	ND	1.0	0.13	11/20/18 13:41	
Xylene (Total)	ug/L	ND	3.0	0.42	11/20/18 13:41	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/20/18 13:41	
4-Bromofluorobenzene (S)	%	103	80-119		11/20/18 13:41	
Toluene-d8 (S)	%	97	80-115		11/20/18 13:41	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2281218

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.9	105	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	17.5	87	74-121	
1,1,2-Trichloroethane	ug/L	20	18.9	94	83-119	
1,1-Dichloroethane	ug/L	20	20.5	103	85-128	
1,1-Dichloroethene	ug/L	20	20.6	103	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	20.4	102	81-126	
2-Butanone (MEK)	ug/L	100	93.8	94	65-134	
2-Hexanone	ug/L	100	91.0	91	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.5	97	66-139	
Acetone	ug/L	100	92.5	92	62-142	
Benzene	ug/L	20	19.7	98	81-118	
Bromodichloromethane	ug/L	20	20.9	105	85-123	
Bromoform	ug/L	20	18.3	91	83-123	
Bromomethane	ug/L	20	20.4	102	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.0	105	85-126	
Chlorobenzene	ug/L	20	20.0	100	87-118	
Chloroethane	ug/L	20	20.8	104	73-134	
Chloroform	ug/L	20	20.1	101	85-119	
Chloromethane	ug/L	20	26.6	133	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.5	103	80-124	
Dibromochloromethane	ug/L	20	18.7	94	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	21.4	107	81-126	
Styrene	ug/L	20	19.7	99	85-120	
Tetrachloroethene	ug/L	20	19.5	98	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.0	100	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.1	96	80-122	
Trichloroethene	ug/L	20	22.5	112	82-120	
Vinyl chloride	ug/L	20	24.6	123	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281219 2281220

Parameter	Units	60287184003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.9	21.1	109	106	79-135	3	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.8	18.2	89	91	49-144	2	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.7	19.7	94	99	71-124	5	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281219 2281220

Parameter	Units	60287184003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.8	19.9	104	100	77-135	4	12	
1,1-Dichloroethene	ug/L	ND	20	20	21.7	21.1	109	106	77-138	3	14	
1,2-Dichloroethane	ug/L	ND	20	20	17.7	18.3	89	92	47-152	3	27	
1,2-Dichloropropane	ug/L	ND	20	20	19.8	20.2	99	101	74-128	2	13	
2-Butanone (MEK)	ug/L	ND	100	100	83.5	85.1	83	85	60-125	2	17	
2-Hexanone	ug/L	ND	100	100	85.9	88.9	86	89	53-133	3	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	88.1	89.4	88	89	62-134	2	15	
Acetone	ug/L	ND	100	100	79.4	85.1	79	85	50-127	7	28	
Benzene	ug/L	ND	20	20	19.0	19.3	95	96	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	20.1	20.2	101	101	75-126	0	12	
Bromoform	ug/L	ND	20	20	17.2	17.5	86	87	70-122	2	14	
Bromomethane	ug/L	ND	20	20	17.5	20.8	87	104	41-155	17	42	
Carbon disulfide	ug/L	ND	20	20	20.4	20.4	102	102	70-148	0	14	
Carbon tetrachloride	ug/L	ND	20	20	22.2	22.4	111	112	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	19.6	19.5	98	98	74-130	0	10	
Chloroethane	ug/L	ND	20	20	21.7	21.3	109	106	67-153	2	27	
Chloroform	ug/L	ND	20	20	19.8	19.4	99	97	75-127	2	12	
Chloromethane	ug/L	ND	20	20	18.8	16.7	94	84	22-188	12	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.4	18.7	97	94	69-135	4	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	19.1	19.2	95	96	61-129	1	11	
Dibromochloromethane	ug/L	ND	20	20	19.4	19.0	97	95	60-133	2	14	
Ethylbenzene	ug/L	ND	20	20	19.1	19.5	96	97	60-140	2	32	
Methylene chloride	ug/L	ND	20	20	20.3	19.8	101	99	72-131	3	16	
Styrene	ug/L	ND	20	20	18.8	18.9	94	94	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	20.9	20.3	104	102	72-136	3	15	
Toluene	ug/L	ND	20	20	20.1	20.2	100	101	65-135	1	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.1	20.0	101	100	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.8	19.4	94	97	60-128	3	13	
Trichloroethene	ug/L	ND	20	20	22.1	22.8	111	114	66-136	3	15	
Vinyl chloride	ug/L	ND	20	20	24.5	23.9	123	120	65-164	2	16	
Xylene (Total)	ug/L	ND	60	60	55.8	56.6	93	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	103	80-117			
4-Bromofluorobenzene (S)	%						103	104	80-119			
Toluene-d8 (S)	%						97	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556483
QC Batch Method: EPA 5030B/8260
Associated Lab Samples: 60286720020

Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge

METHOD BLANK: 2283187
Matrix: Water
Associated Lab Samples: 60286720020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/23/18 09:17	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/23/18 09:17	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/23/18 09:17	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/23/18 09:17	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 09:17	
1,2-Dichloroethane	ug/L	0.14J	1.0	0.12	11/23/18 09:17	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/23/18 09:17	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/23/18 09:17	
2-Hexanone	ug/L	ND	10.0	1.2	11/23/18 09:17	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/23/18 09:17	
Acetone	ug/L	ND	10.0	1.9	11/23/18 09:17	
Benzene	ug/L	ND	1.0	0.060	11/23/18 09:17	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/23/18 09:17	
Bromoform	ug/L	ND	1.0	0.070	11/23/18 09:17	
Bromomethane	ug/L	ND	5.0	0.16	11/23/18 09:17	
Carbon disulfide	ug/L	ND	5.0	0.12	11/23/18 09:17	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/23/18 09:17	
Chlorobenzene	ug/L	ND	1.0	0.21	11/23/18 09:17	
Chloroethane	ug/L	ND	1.0	0.15	11/23/18 09:17	
Chloroform	ug/L	ND	1.0	0.14	11/23/18 09:17	
Chloromethane	ug/L	ND	1.0	0.080	11/23/18 09:17	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/23/18 09:17	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/23/18 09:17	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/23/18 09:17	
Ethylbenzene	ug/L	ND	1.0	0.18	11/23/18 09:17	
Methylene chloride	ug/L	ND	1.0	0.15	11/23/18 09:17	
Styrene	ug/L	ND	1.0	0.12	11/23/18 09:17	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/23/18 09:17	
Toluene	ug/L	ND	1.0	0.17	11/23/18 09:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 09:17	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/23/18 09:17	
Vinyl chloride	ug/L	ND	1.0	0.13	11/23/18 09:17	
Xylene (Total)	ug/L	ND	3.0	0.42	11/23/18 09:17	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/23/18 09:17	
4-Bromofluorobenzene (S)	%	102	80-119		11/23/18 09:17	
Toluene-d8 (S)	%	98	80-115		11/23/18 09:17	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2283188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	23.0	115	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	20.8	104	83-119	
1,1-Dichloroethane	ug/L	20	21.4	107	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.5	102	77-120	
1,2-Dichloropropane	ug/L	20	21.0	105	81-126	
2-Butanone (MEK)	ug/L	100	103	103	65-134	
2-Hexanone	ug/L	100	103	103	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	101	101	62-142	
Benzene	ug/L	20	20.2	101	81-118	
Bromodichloromethane	ug/L	20	23.2	116	85-123	
Bromoform	ug/L	20	23.2	116	83-123	
Bromomethane	ug/L	20	20.8	104	39-149	
Carbon disulfide	ug/L	20	20.2	101	85-124	
Carbon tetrachloride	ug/L	20	23.9	120	85-126	
Chlorobenzene	ug/L	20	21.8	109	87-118	
Chloroethane	ug/L	20	22.4	112	73-134	
Chloroform	ug/L	20	21.1	105	85-119	
Chloromethane	ug/L	20	16.2	81	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.4	112	80-124	
Dibromochloromethane	ug/L	20	23.1	116	83-122	
Ethylbenzene	ug/L	20	20.3	101	80-118	
Methylene chloride	ug/L	20	21.0	105	81-126	
Styrene	ug/L	20	21.1	106	85-120	
Tetrachloroethene	ug/L	20	22.4	112	87-120	
Toluene	ug/L	20	21.2	106	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.5	108	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.9	114	80-122	
Vinyl chloride	ug/L	20	23.6	118	74-147	
Xylene (Total)	ug/L	60	61.2	102	81-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555797 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60286720007, 60286720008, 60286720009

METHOD BLANK: 2280407 Matrix: Water
Associated Lab Samples: 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/17/18 14:09	

LABORATORY CONTROL SAMPLE: 2280408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.50	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280409 2280410

Parameter	Units	60286654001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.50	0.51	101	101	75-125	1	20	

SAMPLE DUPLICATE: 2280411

Parameter	Units	60286654001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2280412

Parameter	Units	60286654002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557066 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286720008, 60286720009

METHOD BLANK: 2285619 Matrix: Water
Associated Lab Samples: 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	11/27/18 18:49	
Sulfate	mg/L	ND	1.0	0.24	11/27/18 18:49	

LABORATORY CONTROL SAMPLE: 2285620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.8	108	90-110	
Sulfate	mg/L	10	10.7	107	90-110	

MATRIX SPIKE SAMPLE: 2285623

Parameter	Units	60286720008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	276	250	574	119	90-110	M1
Sulfate	mg/L	10.4	50	64.7	109	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557313 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286720002, 60286720007

METHOD BLANK: 2286381 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	11/28/18 11:45	
Sulfate	mg/L	ND	1.0	0.24	11/28/18 11:45	

LABORATORY CONTROL SAMPLE: 2286382

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

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REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555224 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

METHOD BLANK: 2277760 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/14/18 17:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/14/18 17:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/14/18 17:04	

LABORATORY CONTROL SAMPLE: 2277761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.93	93	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 2277762

Parameter	Units	60286715001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	28.6	10	36.0	73	70-130	
Nitrogen, Nitrite	mg/L	ND	10	10.1	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	28.7	20	46.0	86	90-110	M1

SAMPLE DUPLICATE: 2277763

Parameter	Units	60286720009 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556295 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286720002, 60286720009

METHOD BLANK: 2282498 Matrix: Water
Associated Lab Samples: 60286720002, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/20/18 21:26	

LABORATORY CONTROL SAMPLE: 2282499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	105	80-120	

MATRIX SPIKE SAMPLE: 2282500

Parameter	Units	60286400009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	8.9	5	13.4	90	80-120	

SAMPLE DUPLICATE: 2282501

Parameter	Units	60286699002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.6	3.5	4	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556502 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286720007, 60286720008

METHOD BLANK: 2283244 Matrix: Water
Associated Lab Samples: 60286720007, 60286720008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/21/18 11:47	

LABORATORY CONTROL SAMPLE: 2283245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.3	106	80-120	

MATRIX SPIKE SAMPLE: 2283246

Parameter	Units	60286720007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	13.2	10	22.3	92	80-120	

SAMPLE DUPLICATE: 2283247

Parameter	Units	60286720008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	2240	2220	1	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286720002, 60286720007

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557464 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286720008

METHOD BLANK: 2286984 Matrix: Water
Associated Lab Samples: 60286720008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 10:50	

LABORATORY CONTROL SAMPLE: 2286985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2286987

Parameter	Units	60286720008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	2060	2500	4510	98	80-120	

SAMPLE DUPLICATE: 2286986

Parameter	Units	60286720008 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	2060	2080	1	25	

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(913)599-5665

QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 555602

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 555908

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 556483

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286720002	**MW-61R-201811**	EPA 3010	557146	EPA 6010	557218
60286720007	**TMW-11-201811**	EPA 3010	557146	EPA 6010	557218
60286720008	**TMW-10-201811**	EPA 3010	557146	EPA 6010	557218
60286720009	**MW-50R-201811**	EPA 3010	557146	EPA 6010	557218
60286720001	**MW-175-201811**	EPA 5030B/8260	555602		
60286720002	**MW-61R-201811**	EPA 5030B/8260	555602		
60286720003	**TMW-29-201811**	EPA 5030B/8260	555602		
60286720004	**DUP-01-201811**	EPA 5030B/8260	555602		
60286720005	**MW-179-201811**	EPA 5030B/8260	555602		
60286720006	**DUP-06-201811**	EPA 5030B/8260	555602		
60286720007	**TMW-11-201811**	EPA 5030B/8260	555602		
60286720008	**TMW-10-201811**	EPA 5030B/8260	555602		
60286720009	**MW-50R-201811**	EPA 5030B/8260	555602		
60286720010	**TRIP BLANK**	EPA 5030B/8260	555602		
60286720011	**TMW-20-201811**	EPA 5030B/8260	555602		
60286720012	**MW-195-201811**	EPA 5030B/8260	555602		
60286720013	**MW-196-201811**	EPA 5030B/8260	555602		
60286720014	**MW-99-201811**	EPA 5030B/8260	555602		
60286720015	**MW-68-201811**	EPA 5030B/8260	555602		
60286720016	**ITMW-2-201811**	EPA 5030B/8260	555602		
60286720017	**MW-28-201811**	EPA 5030B/8260	555602		
60286720018	**MW-27-201811**	EPA 5030B/8260	555602		
60286720019	**ITMW-16-201811**	EPA 5030B/8260	555908		
60286720020	**MW-176-201811**	EPA 5030B/8260	555908		
60286720020	**MW-176-201811**	EPA 5030B/8260	556483		
60286720021	**TRIP BLANK**	EPA 5030B/8260	555910		
60286720007	**TMW-11-201811**	SM 4500-S-2 D	555797		
60286720008	**TMW-10-201811**	SM 4500-S-2 D	555797		
60286720009	**MW-50R-201811**	SM 4500-S-2 D	555797		
60286720002	**MW-61R-201811**	EPA 300.0	557313		
60286720007	**TMW-11-201811**	EPA 300.0	557313		
60286720008	**TMW-10-201811**	EPA 300.0	557066		
60286720009	**MW-50R-201811**	EPA 300.0	557066		
60286720002	**MW-61R-201811**	EPA 353.2	555224		
60286720007	**TMW-11-201811**	EPA 353.2	555224		
60286720008	**TMW-10-201811**	EPA 353.2	555224		
60286720009	**MW-50R-201811**	EPA 353.2	555224		
60286720002	**MW-61R-201811**	SM 5310C	556295		
60286720007	**TMW-11-201811**	SM 5310C	556502		
60286720008	**TMW-10-201811**	SM 5310C	556502		
60286720009	**MW-50R-201811**	SM 5310C	556295		
60286720002	**MW-61R-201811**	SM 5310C	556798		
60286720007	**TMW-11-201811**	SM 5310C	556798		

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286720008	**TMW-10-201811**	SM 5310C	557464		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix W

WO# : 60286720

60286720

ALL SH

JL Log

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com jpavlowsky@ramboll.com

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690001033

State: AR County/City: Fort Smith Time Zone Collected: PT MT CT ET

Phone: Email:

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print): Johanna Pavlowsky

Purchase Order #:

DW PWS ID #:

Collected by (signature):

Quote #:

DW Location Code #:

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

Turnaround Date Required: Standard

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Immediately Packed on Ice? [X] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (1) U U (5)(4) (2) U (D) U U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Total Metals - Ferrous Iron	Dissolved metals (same bottle as sulfide) or none	Sulfate/Nitrate/Chloride	Sulfide	Total organic Carbon	Dissolved organic carbon - lab filtered	Volatile Fatty Acids	Methane, E, EA	Methane, EE
MW-175-201811	GW	G	11-13-18	1325				3	X									3DG9H
MW-61R-201811	GW	G		1420				3		X		X		X	X	X	X	3DG9Q, APIN, 2DG9U
TMW-29-201811	GW	G		1700				3										
DUP-01-201811	GW	G		1700				3										
MW-179-201811	GW	G		1645				3										
DUP-06-201811	GW	G		1420				3										
TMW-11-201811	GW	G		1645						X		X	X	X	X	X	X	BP3Z
TMW-10-201811	GW	G		1655						X		X	X	X	X	X	X	3DG9Q, BP3N, 2DG9U
MW-50R-201811	GW	G		1410								X*	X	X			X	
Trip Blank	-	-		-				2										2DG9H

ACJU ACJS, BP3U

Customer Remarks/ Special Conditions/ Possible Hazards:

* NO Chloride for MW-50R-201811

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

Packing Material Used: Bubble bags, 2pk

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

LAB Tracking #: 783762715060, 5071

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

SHORT HOLDS PRESENT (< 72 hours): Y (N) N/A

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: 8881-1			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 2.8 °C 0.9

Cooler Therm Corr. Factor: +0.2 °C

Cooler Temp Corrected: 3.0 °C 1.1

Comments: _____

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky / REM	11/13/18 1830	NZ for PGS	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Page 60 of 76

F-ALL-C-010-rev 00, 05Jul2018

CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **: (3)

Lab Project Manager:

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com; jpavlowsky@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller

Site Collection Info/Address: Whirlpool Annual

Analyses

LAB Profile/Line: 7444 Line 1

Customer Project Name/Number: 1690010033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

Phone: Email: nzurweller@ramboll.com

Site/Facility ID #

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): Johanna Pavlowsky

Purchase Order #

DW PWS ID #:

Collected by (signature):

Quote #

DW Location Code #:

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
TMW-20-201811	GW	G	11-13-18	1700				3	X	30694
MW-195-201811	GW	G		1430				3		
MW-196-201811	GW	G		1555				3		
MW-99-201811	GW	G		1357				3		
MW-68-201811	GW	G		1511				3		
ITMW-2-201811	GW	G		1703				3		
MW-28-201811	GW	G		1310				3		
MW-27-201811	GW	G		1445				3		
ITMW-16-201811	GW	G		1540				3		
MW-176-201811	GW	G		1500				3		

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): Y N N/A

Packing Material Used: Bubble bags

LAB Tracking #: 1837,6271,5060, 5071

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky/REM	11/13/18 1830	UPS Fed Ex	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 2.8 oC 0.9

Cooler Therm Corr. Factor: +0.2 oC

Cooler Temp Corrected: 3.0 oC 1.1

Comments:

Trip Blank Received: Y (N) N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight — see other pages

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected: PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive
[ ] Hold

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
Trip Blank	-	-	11/13/18	-				

Container Preservative Type **: (3)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses: Full List VOC 8260

Lab Project Manager:

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

X 20694

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): Y N N/A

Packing Material Used: Bubble Bags

LAB Tracking #: 783762715060, 5071

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:
ACCT #:
Template:
Prelogin:
PM:
PB:

LAB Sample Temperature Info:
Temp Blank received: Y N NA
Therm ID #: T100
Cooler Temp Upon Receipt: 2.8 oC 6.9
Cooler Therm Corr. Factor: +0.2 oC +0.2
Cooler Temp Corrected: 3.0 oC 7.1
Comments:

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page ____ of ____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[illegible] /RSH	11/13/18 1830	KZ : AS / Pace	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 28, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **FORT SMITH AR / 60286720**

Pace Workorder: 28734

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, November 16, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/28/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 14

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287340001	MW-61R-201811	Water	11/13/2018 14:20	11/16/2018 11:15
287340002	TMW-11-201811	Water	11/13/2018 16:45	11/16/2018 11:15
287340003	TMW-10-201811	Water	11/13/2018 16:55	11/16/2018 11:15

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PROJECT SUMMARY

Workorder: 28734 FORT SMITH AR / 60286720

Workorder Comments

The container pH for samples 28734 (0002-0003) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Batch Comments

Batch: EDON/3941 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340001** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **MW-61R-201811** Date Collected: 11/13/2018 14:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/20/2018 23:02	KB	d
Acetic Acid	**1.9**	mg/l	1.0	0.24	10	11/20/2018 23:02	KB	d,B
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/20/2018 23:02	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/20/2018 23:02	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/20/2018 23:02	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**6600**	ug/l	0.50	0.014	1	11/27/2018 11:35	BW	n
Ethane	**0.70**	ug/l	0.10	0.0070	1	11/27/2018 11:35	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/27/2018 11:35	BW	n

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ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340002** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **TMW-11-201811** Date Collected: 11/13/2018 16:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/20/2018 23:58	KB	d
Acetic Acid	**2.5**	mg/l	1.0	0.24	10	11/20/2018 23:58	KB	d,B
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/20/2018 23:58	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/20/2018 23:58	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/20/2018 23:58	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**16000**	ug/l	0.50	0.014	1	11/27/2018 11:47	BW	n
Ethane	**0.58**	ug/l	0.10	0.0070	1	11/27/2018 11:47	BW	n
Ethene	**0.90**	ug/l	0.10	0.0050	1	11/27/2018 11:47	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/27/2018 11:47	BW	n

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ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340003** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **TMW-10-201811** Date Collected: 11/13/2018 16:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**6.8**	mg/l	2.0	0.14	10	11/21/2018 00:54	KB	d
Acetic Acid	**130**	mg/l	10	2.4	100	11/21/2018 01:51	KB	d,B
Propionic Acid	**4100**	mg/l	100	4.4	1000	11/21/2018 02:47	KB	d,B
Butyric Acid	**54**	mg/l	10	0.47	100	11/21/2018 01:51	KB	d,B
Pyruvic Acid	**43**	mg/l	10	0.57	100	11/21/2018 01:51	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**11000**	ug/l	0.50	0.014	1	11/27/2018 12:00	BW	n
Ethane	**0.28**	ug/l	0.10	0.0070	1	11/27/2018 12:00	BW	n
Ethene	**1.8**	ug/l	0.10	0.0050	1	11/27/2018 12:00	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/27/2018 12:00	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28734 FORT SMITH AR / 60286720

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.

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QUALITY CONTROL DATA

Workorder: 28734 FORT SMITH AR / 60286720

QC Batch: EDON/3941 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287340001, 287340002, 287340003

METHOD BLANK: 58569

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.24	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.3	113	70-130	
Acetic Acid	mg/l	2	2.3	115	70-130	B
Propionic Acid	mg/l	2	2.2	108	70-130	B
Butyric Acid	mg/l	2	2.2	108	70-130	B
Pyruvic Acid	mg/l	2	2.1	103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58571 58572 Original: 287160001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.047	20	21	22	107	107	70-130	0.6	30	d
Acetic Acid	mg/l	2	20	22	22	100	102	70-130	1.7	30	d,B
Propionic Acid	mg/l	0.37	20	21	21	105	104	70-130	1.4	30	d,B
Butyric Acid	mg/l	0.18	20	21	21	106	105	70-130	1.1	30	d,B
Pyruvic Acid	mg/l	0	20	20	20	100	100	70-130	0.17	30	d

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QUALITY CONTROL DATA

Workorder: 28734 FORT SMITH AR / 60286720

QC Batch: DISG/7229 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287340001, 287340002, 287340003

METHOD BLANK: 58643

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58645 58647

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	96	96	80-120	0.058	20	n
Ethane	ug/l	38	40	41	107	108	80-120	0.85	20	n
Ethene	ug/l	35	38	38	108	108	80-120	0.13	20	n
Acetylene	ug/l	33	36	35	109	107	80-120	1.2	20	n

nelac

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28734 FORT SMITH AR / 60286720

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287340001	MW-61R-201811			AM23G	EDON/3941
287340002	TMW-11-201811			AM23G	EDON/3941
287340003	TMW-10-201811			AM23G	EDON/3941
287340001	MW-61R-201811			AM20GAX	DISG/7229
287340002	TMW-11-201811			AM20GAX	DISG/7229
287340003	TMW-10-201811			AM20GAX	DISG/7229

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Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 60286720 **Workorder Name:** FORT SMITH AR **Results Requested By:** 11/28/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9561 28734

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: TSP	Preserved Containers: Unpres	Requested Analysis: M,E,E,A and VFA	Requested Analysis: M,E,E and VFA	LAB USE ONLY
1	MW-61R-201811	11/13/2018 14:20	60286720002	Water	3	2		X	
2	TMW-11-201811	11/13/2018 16:45	60286720007	Water	3	2	X		
3	TMW-10-201811	11/13/2018 16:55	60286720008	Water	3	2	X		
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Receipt Pres.	11.15.18 1600	[illegible] PAS	11.16.18 1115
2				
3				

Comments: Methane, Ethane, Ethene, Acetylene
Volatile Fatty Acids

Cooler Temperature on Receipt 2 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: PAE **Project:** Fort Smith **Lab Work Order:** 28734

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227861794

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : LG **Date:** 11.16.18

Project Manager Review : JW **Date:** 11.16.18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 24, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 15, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

RV-1 Revised report - sub analysis report added for MW-194

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60286849001	MW-188-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849002	TMW-19-201811	Water	11/14/18 10:20	11/15/18 06:50
60286849003	TMW-27-201811	Water	11/14/18 11:30	11/15/18 06:50
60286849004	MW-178-201811	Water	11/14/18 11:20	11/15/18 06:50
60286849005	MW-84-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849006	MW-83-201811	Water	11/14/18 10:50	11/15/18 06:50
60286849007	MW-22-201811	Water	11/14/18 12:45	11/15/18 06:50
60286849008	MW-56R-201811	Water	11/14/18 14:25	11/15/18 06:50
60286849009	MW-57R-201811	Water	11/14/18 15:40	11/15/18 06:50
60286849010	MW-46R-201811	Water	11/14/18 17:10	11/15/18 06:50
60286849011	MW-60R-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849012	MW-40R-201811	Water	11/14/18 10:50	11/15/18 06:50
60286849013	MW-62R-201811	Water	11/14/18 12:10	11/15/18 06:50
60286849014	MW-63R-201811	Water	11/14/18 13:40	11/15/18 06:50
60286849015	MW-26-201811	Water	11/14/18 15:25	11/15/18 06:50
60286849016	DUP-09-201811	Water	11/14/18 15:25	11/15/18 06:50
60286849017	ITMW-20-201811	Water	11/14/18 16:25	11/15/18 06:50
60286849018	EB-03-201811	Water	11/14/18 17:00	11/15/18 06:50
60286849019	MW-191-201811	Water	11/14/18 14:55	11/15/18 06:50
60286849020	TMW-14-201811	Water	11/14/18 15:51	11/15/18 06:50
60286849021	ITMW-10-201811	Water	11/14/18 17:37	11/15/18 06:50
60286849022	MW-184-201811	Water	11/14/18 09:47	11/15/18 06:50
60286849023	MW-183R-201811	Water	11/14/18 11:23	11/15/18 06:50
60286849024	MW-98-201811	Water	11/14/18 13:51	11/15/18 06:50
60286849025	EB-04-201811	Water	11/14/18 17:40	11/15/18 06:50
60286849026	MW-186-201811	Water	11/14/18 10:05	11/15/18 06:50
60286849027	MW-185-201811	Water	11/14/18 11:40	11/15/18 06:50
60286849028	TMW-34-201811	Water	11/14/18 15:00	11/15/18 06:50
60286849029	MW-194-201811	Water	11/14/18 17:20	11/15/18 06:50
60286849030	MW-89-201811	Water	11/14/18 10:10	11/15/18 06:50
60286849031	IW-73-201811	Water	11/14/18 15:10	11/15/18 06:50
60286849032	RW-69-201811	Water	11/14/18 12:30	11/15/18 06:50
60286849033	TMW-30-201811	Water	11/14/18 12:30	11/15/18 06:50
60286849034	TRIP BLANK	Water	11/14/18 12:30	11/15/18 06:50
60286849035	TRIP BLANK 2	Water	11/14/18 12:30	11/15/18 06:50
60286849036	EB-05-201811	Water	11/14/18 17:10	11/15/18 06:50

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286849001	MW-188-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849002	TMW-19-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849003	TMW-27-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849004	MW-178-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849005	MW-84-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849006	MW-83-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849007	MW-22-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849008	MW-56R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849009	MW-57R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849010	MW-46R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849011	MW-60R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849012	MW-40R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849013	MW-62R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849014	MW-63R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849015	MW-26-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849016	DUP-09-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849017	ITMW-20-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849018	EB-03-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849019	MW-191-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849020	TMW-14-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849021	ITMW-10-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849022	MW-184-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849023	MW-183R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849024	MW-98-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849025	EB-04-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849026	MW-186-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849027	MW-185-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286849028	**TMW-34-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849029	**MW-194-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849030	**MW-89-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849031	**IW-73-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849032	**RW-69-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849033	**TMW-30-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849034	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60286849035	**TRIP BLANK 2**	EPA 5030B/8260	PGH	38	PASI-K
60286849036	**EB-05-201811**	EPA 5030B/8260	PGH	38	PASI-K

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
8 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
36 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- MW-186-201811 (Lab ID: 60286849026)
- TMW-30-201811 (Lab ID: 60286849033)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 555989

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555989 [MSV/9337 (Lab ID: 2281609)
  - 1,2-Dichloroethane

QC Batch: 555990

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555990 [MSV/9337 (Lab ID: 2281617)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 555990

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
- LCS (Lab ID: 2281618)
  - Trichloroethene

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 24, 2018

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556253

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286849032

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2282309)
  - Trichloroethene

QC Batch: 556701

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556702

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
7 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- MW-194-201811 (Lab ID: 60286849029)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557820

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287003004,60287011001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2288556)
  - Chloride

QC Batch: 559544

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287946003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2296211)
  - Chloride

Additional Comments:

Analyte Comments:

QC Batch: 559544

E: Analyte concentration exceeded the calibration range. The reported result is estimated.
- MS (Lab ID: 2296211)
  - Chloride

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
7 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- MW-186-201811 (Lab ID: 60286849026)
- MW-194-201811 (Lab ID: 60286849029)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555770

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2280238)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrate

QC Batch: 560129

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60289438003,60289469002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2298935)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 555770

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.
- DUP (Lab ID: 2280239)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
8 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-188-201811 **Lab ID: 60286849001** Collected: 11/14/18 09:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 20:01	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:01	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:01	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:01	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:01	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:01	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:01	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:01	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:01	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:01	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:01	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 20:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 20:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:01	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:01	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:01	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:01	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:01	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:01	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:01	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:01	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 20:01	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:01	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:01	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 20:01	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/20/18 20:01	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/20/18 20:01	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:01		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-19-201811 **Lab ID: 60286849002** Collected: 11/14/18 10:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**1.9J**	ug/L	10.0	1.9	1		11/20/18 20:15	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:15	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:15	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:15	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:15	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:15	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:15	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:15	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:15	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:15	75-00-3	
Chloroform	**0.19J**	ug/L	1.0	0.14	1		11/20/18 20:15	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:15	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:15	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 20:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:15	75-35-4	
cis-1,2-Dichloroethene	**0.69J**	ug/L	1.0	0.080	1		11/20/18 20:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:15	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:15	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:15	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:15	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:15	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:15	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:15	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:15	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:15	79-00-5	
Trichloroethene	**0.97J**	ug/L	1.0	0.17	1		11/20/18 20:15	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:15	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:15	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 20:15	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 20:15	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/20/18 20:15	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:15		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-27-201811 **Lab ID: 60286849003** Collected: 11/14/18 11:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.5J**	ug/L	10.0	1.9	1		11/20/18 20:29	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:29	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:29	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:29	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:29	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:29	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:29	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:29	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:29	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:29	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:29	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:29	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:29	75-34-3	
1,2-Dichloroethane	**0.13J**	ug/L	1.0	0.12	1		11/20/18 20:29	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 20:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:29	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:29	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:29	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:29	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:29	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:29	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:29	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 20:29	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:29	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:29	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/20/18 20:29	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/20/18 20:29	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 20:29	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:29		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-178-201811 **Lab ID: 60286849004** Collected: 11/14/18 11:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 20:43	67-64-1	
Benzene	**0.22J**	ug/L	1.0	0.060	1		11/20/18 20:43	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:43	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 20:43	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:43	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:43	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:43	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:43	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:43	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:43	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:43	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:43	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 20:43	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:43	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		11/20/18 20:43	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:43	75-35-4	
cis-1,2-Dichloroethene	**1.4**	ug/L	1.0	0.080	1		11/20/18 20:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:43	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:43	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:43	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:43	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:43	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:43	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:43	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:43	79-00-5	
Trichloroethene	**4.5**	ug/L	1.0	0.17	1		11/20/18 20:43	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:43	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:43	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 20:43	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/20/18 20:43	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 20:43	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 20:43		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-84-201811 **Lab ID: 60286849005** Collected: 11/14/18 09:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**15.4**	ug/L	10.0	1.9	1		11/20/18 20:57	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 20:57	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 20:57	75-27-4	
Bromoform	**5.4**	ug/L	1.0	0.070	1		11/20/18 20:57	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 20:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 20:57	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 20:57	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 20:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 20:57	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:57	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 20:57	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 20:57	74-87-3	
Dibromochloromethane	**0.27J**	ug/L	1.0	0.21	1		11/20/18 20:57	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 20:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 20:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 20:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 20:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 20:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 20:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 20:57	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 20:57	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 20:57	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 20:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 20:57	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 20:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 20:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 20:57	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 20:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 20:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 20:57	79-00-5	
Trichloroethene	**1.5**	ug/L	1.0	0.17	1		11/20/18 20:57	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 20:57	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 20:57	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/20/18 20:57	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/20/18 20:57	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 20:57	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	1		11/20/18 20:57		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-83-201811 **Lab ID: 60286849006** Collected: 11/14/18 10:50 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.4J**	ug/L	10.0	1.9	1		11/20/18 21:11	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:11	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:11	75-27-4	
Bromoform	**1.8**	ug/L	1.0	0.070	1		11/20/18 21:11	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:11	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:11	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:11	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:11	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:11	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:11	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:11	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:11	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:11	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:11	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/20/18 21:11	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:11	75-35-4	
cis-1,2-Dichloroethene	**0.63J**	ug/L	1.0	0.080	1		11/20/18 21:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:11	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:11	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:11	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:11	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:11	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:11	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:11	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:11	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:11	79-00-5	
Trichloroethene	**34.2**	ug/L	1.0	0.17	1		11/20/18 21:11	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:11	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:11	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 21:11	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/20/18 21:11	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 21:11	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	1		11/20/18 21:11		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-22-201811 **Lab ID: 60286849007** Collected: 11/14/18 12:45 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/20/18 21:25	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 21:25	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:25	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 21:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 21:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:25	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:25	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:25	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:25	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 21:25	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:25	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 21:25	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/20/18 21:25	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 21:25	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 21:25		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-56R-201811 **Lab ID: 60286849008** Collected: 11/14/18 14:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.8J**	ug/L	10.0	1.9	1		11/20/18 22:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 22:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 22:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 22:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 22:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 22:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 22:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 22:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 22:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 22:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 22:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 22:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 22:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 22:35	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/20/18 22:35	75-35-4	
cis-1,2-Dichloroethene	**21.1**	ug/L	1.0	0.080	1		11/20/18 22:35	156-59-2	
trans-1,2-Dichloroethene	**0.40J**	ug/L	1.0	0.20	1		11/20/18 22:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 22:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 22:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 22:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 22:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 22:35	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 22:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 22:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 22:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 22:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 22:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 22:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 22:35	79-00-5	
Trichloroethene	**902**	ug/L	10.0	1.7	10		11/20/18 22:50	79-01-6	
Vinyl chloride	**0.38J**	ug/L	1.0	0.13	1		11/20/18 22:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 22:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/20/18 22:35	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/20/18 22:35	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 22:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 22:35		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-57R-201811 **Lab ID: 60286849009** Collected: 11/14/18 15:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**8.2J**	ug/L	10.0	1.9	1		11/20/18 23:04	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 23:04	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 23:04	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 23:04	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 23:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 23:04	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 23:04	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 23:04	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 23:04	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:04	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 23:04	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 23:04	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 23:04	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 23:04	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/20/18 23:04	107-06-2	B
1,1-Dichloroethene	**0.76J**	ug/L	1.0	0.20	1		11/20/18 23:04	75-35-4	
cis-1,2-Dichloroethene	**7.7**	ug/L	1.0	0.080	1		11/20/18 23:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 23:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 23:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 23:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 23:04	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 23:04	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 23:04	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 23:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 23:04	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 23:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 23:04	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 23:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 23:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 23:04	79-00-5	
Trichloroethene	**286**	ug/L	10.0	1.7	10		11/20/18 23:18	79-01-6	
Vinyl chloride	**0.21J**	ug/L	1.0	0.13	1		11/20/18 23:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 23:04	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 23:04	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/20/18 23:04	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 23:04	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 23:04		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-46R-201811 **Lab ID: 60286849010** Collected: 11/14/18 17:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.6J**	ug/L	10.0	1.9	1		11/20/18 23:32	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 23:32	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 23:32	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 23:32	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 23:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 23:32	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 23:32	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 23:32	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 23:32	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:32	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 23:32	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 23:32	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 23:32	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 23:32	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		11/20/18 23:32	107-06-2	B
1,1-Dichloroethene	**1.5**	ug/L	1.0	0.20	1		11/20/18 23:32	75-35-4	
cis-1,2-Dichloroethene	**14.4**	ug/L	1.0	0.080	1		11/20/18 23:32	156-59-2	
trans-1,2-Dichloroethene	**0.50J**	ug/L	1.0	0.20	1		11/20/18 23:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 23:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 23:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 23:32	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 23:32	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 23:32	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 23:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 23:32	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 23:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 23:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 23:32	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 23:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 23:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 23:32	79-00-5	
Trichloroethene	**603**	ug/L	10.0	1.7	10		11/20/18 23:46	79-01-6	
Vinyl chloride	**1.2**	ug/L	1.0	0.13	1		11/20/18 23:32	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 23:32	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 23:32	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 23:32	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 23:32	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 23:32		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-60R-201811 **Lab ID: 60286849011** Collected: 11/14/18 09:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 21:39	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:39	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:39	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 21:39	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:39	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:39	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:39	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:39	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:39	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:39	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:39	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:39	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 21:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 21:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:39	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:39	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:39	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:39	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:39	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:39	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:39	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:39	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:39	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:39	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 21:39	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:39	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:39	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/20/18 21:39	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 21:39	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 21:39	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 21:39		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-40R-201811 **Lab ID: 60286849012** Collected: 11/14/18 10:50 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/20/18 21:53	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 21:53	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 21:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 21:53	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 21:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 21:53	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 21:53	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 21:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 21:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:53	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 21:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 21:53	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 21:53	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 21:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 21:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 21:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 21:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 21:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 21:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 21:53	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 21:53	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 21:53	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 21:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 21:53	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 21:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 21:53	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 21:53	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 21:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 21:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 21:53	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 21:53	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 21:53	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 21:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		1		11/20/18 21:53	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/20/18 21:53	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 21:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 21:53		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-62R-201811 **Lab ID: 60286849013** Collected: 11/14/18 12:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.7J**	ug/L	10.0	1.9	1		11/20/18 22:07	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 22:07	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 22:07	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 22:07	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 22:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 22:07	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 22:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 22:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 22:07	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:07	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 22:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 22:07	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 22:07	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 22:07	75-34-3	
1,2-Dichloroethane	**0.22J**	ug/L	1.0	0.12	1		11/20/18 22:07	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 22:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 22:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 22:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 22:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 22:07	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 22:07	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 22:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 22:07	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 22:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 22:07	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 22:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 22:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 22:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 22:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 22:07	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 22:07	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 22:07	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/20/18 22:07	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/20/18 22:07	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 22:07		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-63R-201811 **Lab ID: 60286849014** Collected: 11/14/18 13:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 22:21	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 22:21	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 22:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 22:21	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 22:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 22:21	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 22:21	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 22:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 22:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:21	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 22:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 22:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 22:21	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 22:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 22:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:21	75-35-4	
cis-1,2-Dichloroethene	**0.66J**	ug/L	1.0	0.080	1		11/20/18 22:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 22:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 22:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 22:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 22:21	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 22:21	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 22:21	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/20/18 22:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 22:21	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 22:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 22:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 22:21	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 22:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 22:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 22:21	79-00-5	
Trichloroethene	**4.5**	ug/L	1.0	0.17	1		11/20/18 22:21	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 22:21	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 22:21	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 22:21	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/20/18 22:21	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/20/18 22:21	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 22:21		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-26-201811 **Lab ID: 60286849015** Collected: 11/14/18 15:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.5J**	ug/L	10.0	1.9	1		11/21/18 20:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:28	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:28	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:28	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 20:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:28	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 20:28	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 20:28	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 20:28	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:28		

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(913)599-5665

ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: DUP-09-201811 **Lab ID: 60286849016** Collected: 11/14/18 15:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.1J**	ug/L	10.0	1.9	1		11/21/18 23:02	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 23:02	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 23:02	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 23:02	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 23:02	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 23:02	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 23:02	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 23:02	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 23:02	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:02	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 23:02	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 23:02	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 23:02	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 23:02	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/21/18 23:02	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 23:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 23:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 23:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 23:02	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 23:02	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 23:02	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 23:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 23:02	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 23:02	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:02	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 23:02	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 23:02	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 23:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 23:02	79-00-5	
Trichloroethene	**0.46J**	ug/L	1.0	0.17	1		11/21/18 23:02	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 23:02	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 23:02	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 23:02	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/21/18 23:02	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 23:02	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 23:02		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: ITMW-20-201811 **Lab ID: 60286849017** Collected: 11/14/18 16:25 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 20:42	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 20:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:42	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 20:42	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/21/18 20:42	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 20:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:42		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: EB-03-201811 **Lab ID: 60286849018** Collected: 11/14/18 17:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/21/18 20:00	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:00	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:00	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:00	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:00	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:00	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:00	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:00	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:00	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:00	75-34-3	
1,2-Dichloroethane	**0.12J**	ug/L	1.0	0.12	1		11/21/18 20:00	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:00	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:00	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:00	591-78-6	
Methylene chloride	**0.55J**	ug/L	1.0	0.15	1		11/21/18 20:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:00	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:00	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:00	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:00	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:00	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 20:00	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 20:00	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 20:00	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:00		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-191-201811 **Lab ID: 60286849019** Collected: 11/14/18 14:55 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.2J**	ug/L	10.0	1.9	1		11/21/18 20:56	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:56	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:56	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:56	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:56	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:56	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:56	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:56	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:56	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:56	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:56	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 20:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:56	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:56	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:56	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:56	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:56	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:56	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/21/18 20:56	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/21/18 20:56	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 20:56	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:56		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-14-201811 **Lab ID: 60286849020** Collected: 11/14/18 15:51 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.5J**	ug/L	10.0	1.9	1		11/21/18 23:58	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 23:58	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 23:58	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 23:58	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 23:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 23:58	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 23:58	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 23:58	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 23:58	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:58	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 23:58	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 23:58	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 23:58	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 23:58	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/21/18 23:58	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 23:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 23:58	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 23:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 23:58	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 23:58	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 23:58	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 23:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 23:58	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 23:58	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:58	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 23:58	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 23:58	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 23:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 23:58	79-00-5	
Trichloroethene	**0.24J**	ug/L	1.0	0.17	1		11/21/18 23:58	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 23:58	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 23:58	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/21/18 23:58	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 23:58	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/21/18 23:58	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 23:58		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: ITMW-10-201811 **Lab ID: 60286849021** Collected: 11/14/18 17:37 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 23:44	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 23:44	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 23:44	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 23:44	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 23:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 23:44	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 23:44	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 23:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 23:44	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:44	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 23:44	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 23:44	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 23:44	124-48-1	
1,1-Dichloroethane	**0.81J**	ug/L	1.0	0.050	1		11/21/18 23:44	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/21/18 23:44	107-06-2	B
1,1-Dichloroethene	**1.1**	ug/L	1.0	0.20	1		11/21/18 23:44	75-35-4	
cis-1,2-Dichloroethene	**10.9**	ug/L	1.0	0.080	1		11/21/18 23:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 23:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 23:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 23:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 23:44	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 23:44	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 23:44	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 23:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 23:44	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 23:44	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 23:44	79-34-5	
Tetrachloroethene	**0.26J**	ug/L	1.0	0.10	1		11/21/18 23:44	127-18-4	
Toluene	**0.22J**	ug/L	1.0	0.17	1		11/21/18 23:44	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 23:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 23:44	79-00-5	
Trichloroethene	**45.0**	ug/L	1.0	0.17	1		11/25/18 13:44	79-01-6	
Vinyl chloride	**0.77J**	ug/L	1.0	0.13	1		11/21/18 23:44	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 23:44	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 23:44	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/21/18 23:44	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 23:44	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 23:44		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-184-201811 **Lab ID: 60286849022** Collected: 11/14/18 09:47 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/21/18 21:09	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:09	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:09	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:09	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:09	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:09	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:09	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:09	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:09	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:09	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 21:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:09	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 21:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:09	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:09	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:09	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:09	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:09	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:09	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:09	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:09	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:09	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:09	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 21:09	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:09	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:09	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		11/21/18 21:09	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 21:09	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 21:09	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:09		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-183R-201811 **Lab ID: 60286849023** Collected: 11/14/18 11:23 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.6J**	ug/L	10.0	1.9	1		11/21/18 22:20	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:20	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:20	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/21/18 22:20	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 22:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:20	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:20	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:20	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:20	79-00-5	
Trichloroethene	**1.1**	ug/L	1.0	0.17	1		11/25/18 13:58	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/25/18 13:58	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 22:20	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 22:20	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 22:20	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:20		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-98-201811 **Lab ID: 60286849024** Collected: 11/14/18 13:51 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.8J**	ug/L	10.0	1.9	1		11/21/18 21:23	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:23	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:23	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:23	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:23	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:23	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:23	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:23	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:23	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:23	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:23	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/21/18 21:23	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 21:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:23	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:23	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:23	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:23	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:23	79-00-5	
Trichloroethene	**0.29J**	ug/L	1.0	0.17	1		11/21/18 21:23	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 21:23	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/21/18 21:23	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 21:23	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:23		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: EB-04-201811 **Lab ID: 60286849025** Collected: 11/14/18 17:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 20:14	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 20:14	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 20:14	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 20:14	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 20:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 20:14	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 20:14	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 20:14	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 20:14	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:14	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 20:14	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 20:14	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 20:14	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 20:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 20:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 20:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 20:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 20:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 20:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 20:14	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 20:14	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 20:14	591-78-6	
Methylene chloride	**0.35J**	ug/L	1.0	0.15	1		11/21/18 20:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 20:14	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 20:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 20:14	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 20:14	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 20:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 20:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 20:14	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 20:14	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 20:14	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 20:14	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/21/18 20:14	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/21/18 20:14	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/21/18 20:14	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 20:14		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-186-201811 **Lab ID: 60286849026** Collected: 11/14/18 10:05 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**588000**	ug/L	250	30.7	5	11/28/18 10:35	11/30/18 13:35	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**276**	ug/L	50.0	9.4	5		11/21/18 23:16	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/21/18 23:16	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/21/18 23:16	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/21/18 23:16	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/21/18 23:16	74-83-9	
2-Butanone (MEK)	**1250**	ug/L	50.0	3.0	5		11/21/18 23:16	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/21/18 23:16	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/21/18 23:16	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/21/18 23:16	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/21/18 23:16	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/21/18 23:16	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/21/18 23:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/21/18 23:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/21/18 23:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	75-35-4	
cis-1,2-Dichloroethene	**6.5**	ug/L	5.0	0.40	5		11/21/18 23:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/21/18 23:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/21/18 23:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/21/18 23:16	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/21/18 23:16	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/21/18 23:16	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/21/18 23:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/21/18 23:16	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/21/18 23:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/21/18 23:16	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/21/18 23:16	127-18-4	
Toluene	ND	ug/L	5.0	0.85	5		11/21/18 23:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/21/18 23:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/21/18 23:16	79-00-5	
Trichloroethene	**10.2**	ug/L	5.0	0.85	5		11/26/18 03:49	79-01-6	F1
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/21/18 23:16	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/21/18 23:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		5		11/21/18 23:16	460-00-4	F1
1,2-Dichloroethane-d4 (S)	107	%	80-117		5		11/21/18 23:16	17060-07-0	
Toluene-d8 (S)	98	%	80-115		5		11/21/18 23:16	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	5		11/21/18 23:16		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**260**	mg/L	20.0	5.8	20		12/01/18 03:29	16887-00-6	
Sulfate	**1.4**	mg/L	1.0	0.24	1		12/12/18 05:13	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-186-201811 **Lab ID: 60286849026** Collected: 11/14/18 10:05 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 10:12		H1
Nitrogen, Nitrite	**0.14**	mg/L	0.10	0.033	1		11/17/18 10:12		D6,H1
Nitrogen, NO2 plus NO3	**0.13**	mg/L	0.10	0.060	1		11/17/18 10:12		D6,H1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**9150**	mg/L	1000	654	1000		11/29/18 17:05	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**8980**	mg/L	1000	654	1000		11/27/18 13:20	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-185-201811 **Lab ID: 60286849027** Collected: 11/14/18 11:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**46.0J**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.3J**	ug/L	10.0	1.9	1		11/21/18 21:38	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:38	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:38	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:38	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:38	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:38	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:38	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:38	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:38	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:38	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:38	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:38	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:38	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 21:38	107-06-2	B
1,1-Dichloroethene	**0.25J**	ug/L	1.0	0.20	1		11/21/18 21:38	75-35-4	
cis-1,2-Dichloroethene	**2.6**	ug/L	1.0	0.080	1		11/21/18 21:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:38	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:38	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:38	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:38	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:38	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:38	79-00-5	
Trichloroethene	**11.7**	ug/L	1.0	0.17	1		11/26/18 04:03	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:38	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:38	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 21:38	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 21:38	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 21:38	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.8**	mg/L	1.0	0.29	1		12/12/18 05:31	16887-00-6	
Sulfate	**7.7**	mg/L	1.0	0.24	1		12/12/18 05:31	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-185-201811 **Lab ID: 60286849027** Collected: 11/14/18 11:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**5.0**	mg/L	0.50	0.30	5		11/15/18 18:37		
Nitrogen, Nitrite	ND	mg/L	0.50	0.16	5		11/15/18 18:37		
Nitrogen, NO2 plus NO3	**5.1**	mg/L	0.50	0.30	5		11/15/18 18:37		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/26/18 17:46	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 13:33	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-34-201811 **Lab ID: 60286849028** Collected: 11/14/18 15:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**109**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:43	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.4J**	ug/L	10.0	1.9	1		11/21/18 22:34	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:34	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:34	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:34	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:34	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:34	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:34	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:34	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:34	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:34	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:34	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:34	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:34	75-34-3	
1,2-Dichloroethane	**0.19J**	ug/L	1.0	0.12	1		11/21/18 22:34	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:34	75-35-4	
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0	0.080	1		11/21/18 22:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:34	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:34	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:34	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:34	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:34	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:34	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:34	79-00-5	
Trichloroethene	**7.4**	ug/L	1.0	0.17	1		11/26/18 04:17	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:34	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:34	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/21/18 22:34	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/21/18 22:34	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/21/18 22:34	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**22.4**	mg/L	5.0	1.4	5		12/12/18 06:25	16887-00-6	
Sulfate	**9.2**	mg/L	1.0	0.24	1		12/12/18 06:07	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-34-201811 **Lab ID: 60286849028** Collected: 11/14/18 15:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/15/18 18:33		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:33		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/15/18 18:33		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.72J**	mg/L	1.0	0.65	1		11/27/18 17:11	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.84J**	mg/L	1.0	0.65	1		11/27/18 13:46	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-194-201811 **Lab ID: 60286849029** Collected: 11/14/18 17:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**8260**	ug/L	50.0	6.1	1	11/28/18 10:35	11/28/18 22:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 21:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 21:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:51	75-35-4	
cis-1,2-Dichloroethene	**0.87J**	ug/L	1.0	0.080	1		11/21/18 21:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:51	79-00-5	
Trichloroethene	**10.7**	ug/L	1.0	0.17	1		11/26/18 04:31	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 21:51	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 21:51	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/21/18 21:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:51		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**150**	mg/L	20.0	5.8	20		12/14/18 16:49	16887-00-6	H1
Sulfate	**9.1**	mg/L	1.0	0.24	1		12/17/18 18:02	14808-79-8	H1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-194-201811 **Lab ID: 60286849029** Collected: 11/14/18 17:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		12/14/18 09:57		H1
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		12/14/18 09:57		H1
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		12/14/18 09:57		H1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 17:24	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 13:59	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-89-201811 **Lab ID: 60286849030** Collected: 11/14/18 10:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**11.0J**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:46	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/21/18 22:06	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:06	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:06	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:06	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:06	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:06	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:06	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:06	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:06	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:06	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:06	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 22:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:06	75-35-4	
cis-1,2-Dichloroethene	**0.53J**	ug/L	1.0	0.080	1		11/21/18 22:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:06	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:06	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:06	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:06	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:06	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:06	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:06	79-00-5	
Trichloroethene	**9.7**	ug/L	1.0	0.17	1		11/26/18 04:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:06	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:06	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/21/18 22:06	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/21/18 22:06	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/21/18 22:06	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:06		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:33	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-89-201811 **Lab ID: 60286849030** Collected: 11/14/18 10:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**4.3**	mg/L	1.0	0.24	1		12/12/18 07:54	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**91.4**	mg/L	5.0	3.0	50		11/15/18 18:35		
Nitrogen, Nitrite	ND	mg/L	5.0	1.6	50		11/15/18 18:35		
Nitrogen, NO2 plus NO3	**92.0**	mg/L	5.0	3.0	50		11/15/18 18:35		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.2**	mg/L	1.0	0.65	1		11/27/18 17:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: IW-73-201811 **Lab ID: 60286849031** Collected: 11/14/18 15:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**941**	ug/L	50.0	6.1	1	11/28/18 10:35	11/28/18 22:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 22:48	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:48	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:48	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:48	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:48	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:48	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:48	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:48	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:48	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:48	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:48	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:48	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/21/18 22:48	107-06-2	B
1,1-Dichloroethene	**0.63J**	ug/L	1.0	0.20	1		11/21/18 22:48	75-35-4	
cis-1,2-Dichloroethene	**7.3**	ug/L	1.0	0.080	1		11/21/18 22:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:48	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:48	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:48	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:48	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:48	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:48	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:48	79-00-5	
Trichloroethene	**208**	ug/L	5.0	0.85	5		11/26/18 04:59	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:48	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:48	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/21/18 22:48	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/21/18 22:48	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 22:48	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:48		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:33	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: IW-73-201811 **Lab ID: 60286849031** Collected: 11/14/18 15:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**3.9**	mg/L	1.0	0.24	1		12/12/18 08:47	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.070J**	mg/L	0.10	0.060	1		11/15/18 18:34		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:34		
Nitrogen, NO2 plus NO3	**0.083J**	mg/L	0.10	0.060	1		11/15/18 18:34		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 17:51	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: RW-69-201811 **Lab ID: 60286849032** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**505**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 17:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.0J**	ug/L	10.0	1.9	1		11/21/18 05:24	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 05:24	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 05:24	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 05:24	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 05:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 05:24	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 05:24	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 05:24	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 05:24	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:24	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 05:24	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 05:24	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 05:24	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 05:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 05:24	107-06-2	
1,1-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/21/18 05:24	75-35-4	
cis-1,2-Dichloroethene	**5.4**	ug/L	1.0	0.080	1		11/21/18 05:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 05:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 05:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 05:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 05:24	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 05:24	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 05:24	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 05:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 05:24	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 05:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 05:24	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 05:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 05:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 05:24	79-00-5	
Trichloroethene	**141**	ug/L	1.0	0.17	1		11/21/18 05:24	79-01-6	M1
Vinyl chloride	**0.53J**	ug/L	1.0	0.13	1		11/21/18 05:24	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 05:24	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/21/18 05:24	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 05:24	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/21/18 05:24	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 05:24		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/17/18 14:35	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: RW-69-201811 **Lab ID: 60286849032** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**1.3**	mg/L	1.0	0.24	1		12/12/18 09:05	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/15/18 18:31		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:31		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/15/18 18:31		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 18:04	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-30-201811 **Lab ID: 60286849033** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1560000**	ug/L	500	61.5	10	11/28/18 10:35	11/28/18 22:49	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**299**	ug/L	250	47.0	25		11/21/18 23:30	67-64-1	
Benzene	ND	ug/L	25.0	1.5	25		11/21/18 23:30	71-43-2	
Bromodichloromethane	ND	ug/L	25.0	4.8	25		11/21/18 23:30	75-27-4	
Bromoform	ND	ug/L	25.0	1.8	25		11/21/18 23:30	75-25-2	
Bromomethane	ND	ug/L	125	4.0	25		11/21/18 23:30	74-83-9	
2-Butanone (MEK)	**875**	ug/L	250	14.8	25		11/21/18 23:30	78-93-3	
Carbon disulfide	ND	ug/L	125	3.0	25		11/21/18 23:30	75-15-0	
Carbon tetrachloride	ND	ug/L	25.0	4.5	25		11/21/18 23:30	56-23-5	
Chlorobenzene	ND	ug/L	25.0	5.2	25		11/21/18 23:30	108-90-7	
Chloroethane	ND	ug/L	25.0	3.8	25		11/21/18 23:30	75-00-3	
Chloroform	ND	ug/L	25.0	3.5	25		11/21/18 23:30	67-66-3	
Chloromethane	ND	ug/L	25.0	2.0	25		11/21/18 23:30	74-87-3	
Dibromochloromethane	ND	ug/L	25.0	5.2	25		11/21/18 23:30	124-48-1	
1,1-Dichloroethane	ND	ug/L	25.0	1.2	25		11/21/18 23:30	75-34-3	
1,2-Dichloroethane	**4.7J**	ug/L	25.0	3.0	25		11/21/18 23:30	107-06-2	B
1,1-Dichloroethene	ND	ug/L	25.0	5.0	25		11/21/18 23:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	25.0	2.0	25		11/21/18 23:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	25.0	5.0	25		11/21/18 23:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	25.0	4.0	25		11/21/18 23:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	25.0	3.5	25		11/21/18 23:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	25.0	3.0	25		11/21/18 23:30	10061-02-6	
Ethylbenzene	ND	ug/L	25.0	4.5	25		11/21/18 23:30	100-41-4	
2-Hexanone	ND	ug/L	250	29.8	25		11/21/18 23:30	591-78-6	
Methylene chloride	ND	ug/L	25.0	3.8	25		11/21/18 23:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	250	10.5	25		11/21/18 23:30	108-10-1	
Styrene	ND	ug/L	25.0	3.0	25		11/21/18 23:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	25.0	3.8	25		11/21/18 23:30	79-34-5	
Tetrachloroethene	ND	ug/L	25.0	2.5	25		11/21/18 23:30	127-18-4	
Toluene	ND	ug/L	25.0	4.2	25		11/21/18 23:30	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	25.0	2.8	25		11/21/18 23:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	25.0	5.0	25		11/21/18 23:30	79-00-5	
Trichloroethene	ND	ug/L	25.0	4.2	25		11/21/18 23:30	79-01-6	L1
Vinyl chloride	ND	ug/L	25.0	3.2	25		11/21/18 23:30	75-01-4	
Xylene (Total)	ND	ug/L	75.0	10.5	25		11/21/18 23:30	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		25		11/21/18 23:30	460-00-4	F1
1,2-Dichloroethane-d4 (S)	107	%	80-117		25		11/21/18 23:30	17060-07-0	
Toluene-d8 (S)	100	%	80-115		25		11/21/18 23:30	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	25		11/21/18 23:30		pH
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**23900**	mg/L	2000	1310	2000		11/29/18 17:17	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-30-201811 **Lab ID: 60286849033** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**21700**	mg/L	2000	1310	2000		11/27/18 23:39	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TRIP BLANK **Lab ID: 60286849034** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 02:21	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 02:21	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 02:21	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 02:21	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 02:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 02:21	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 02:21	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 02:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 02:21	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:21	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 02:21	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 02:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 02:21	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 02:21	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 02:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 02:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 02:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 02:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 02:21	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 02:21	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 02:21	591-78-6	
Methylene chloride	**0.47J**	ug/L	1.0	0.15	1		11/21/18 02:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 02:21	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 02:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 02:21	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 02:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 02:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 02:21	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 02:21	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 02:21	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 02:21	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 02:21	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/21/18 02:21	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 02:21	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 02:21		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TRIP BLANK 2 **Lab ID: 60286849035** Collected: 11/14/18 12:30 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		11/21/18 02:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 02:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 02:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 02:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 02:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 02:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 02:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 02:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 02:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 02:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 02:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 02:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 02:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 02:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 02:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 02:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 02:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 02:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 02:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 02:35	591-78-6	
Methylene chloride	**0.42J**	ug/L	1.0	0.15	1		11/21/18 02:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 02:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 02:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 02:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 02:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 02:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 02:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 02:35	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 02:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 02:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/21/18 02:35	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/21/18 02:35	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/21/18 02:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 02:35		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: EB-05-201811 **Lab ID: 60286849036** Collected: 11/14/18 17:10 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.1J**	ug/L	10.0	1.9	1		11/21/18 02:49	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 02:49	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 02:49	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 02:49	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 02:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 02:49	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 02:49	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 02:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 02:49	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:49	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 02:49	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 02:49	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 02:49	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 02:49	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/21/18 02:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 02:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 02:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 02:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 02:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 02:49	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 02:49	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 02:49	591-78-6	
Methylene chloride	**0.29J**	ug/L	1.0	0.15	1		11/21/18 02:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 02:49	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 02:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 02:49	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 02:49	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 02:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 02:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 02:49	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 02:49	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 02:49	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 02:49	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 02:49	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/21/18 02:49	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 02:49	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 02:49		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557239 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849032, 60286849033

METHOD BLANK: 2286099 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849032, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	11/28/18 21:45	

LABORATORY CONTROL SAMPLE: 2286100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9960	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2286101 2286102

Parameter	Units	60286654010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	13400	10000	10000	22800	23400	94	100	75-125	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2286103 2286104

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	505	10000	10000	10300	10400	98	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555989 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849001, 60286849002, 60286849003, 60286849004, 60286849005, 60286849006, 60286849007, 60286849008, 60286849009, 60286849010, 60286849011, 60286849012, 60286849013, 60286849014

METHOD BLANK: 2281609 Matrix: Water
Associated Lab Samples: 60286849001, 60286849002, 60286849003, 60286849004, 60286849005, 60286849006, 60286849007, 60286849008, 60286849009, 60286849010, 60286849011, 60286849012, 60286849013, 60286849014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/20/18 19:47	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/20/18 19:47	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/20/18 19:47	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/20/18 19:47	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 19:47	
1,2-Dichloroethane	ug/L	0.16J	1.0	0.12	11/20/18 19:47	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/20/18 19:47	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/20/18 19:47	
2-Hexanone	ug/L	ND	10.0	1.2	11/20/18 19:47	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/20/18 19:47	
Acetone	ug/L	ND	10.0	1.9	11/20/18 19:47	
Benzene	ug/L	ND	1.0	0.060	11/20/18 19:47	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/20/18 19:47	
Bromoform	ug/L	ND	1.0	0.070	11/20/18 19:47	
Bromomethane	ug/L	ND	5.0	0.16	11/20/18 19:47	
Carbon disulfide	ug/L	ND	5.0	0.12	11/20/18 19:47	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/20/18 19:47	
Chlorobenzene	ug/L	ND	1.0	0.21	11/20/18 19:47	
Chloroethane	ug/L	ND	1.0	0.15	11/20/18 19:47	
Chloroform	ug/L	ND	1.0	0.14	11/20/18 19:47	
Chloromethane	ug/L	ND	1.0	0.080	11/20/18 19:47	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/20/18 19:47	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/20/18 19:47	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/20/18 19:47	
Ethylbenzene	ug/L	ND	1.0	0.18	11/20/18 19:47	
Methylene chloride	ug/L	ND	1.0	0.15	11/20/18 19:47	
Styrene	ug/L	ND	1.0	0.12	11/20/18 19:47	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/20/18 19:47	
Toluene	ug/L	ND	1.0	0.17	11/20/18 19:47	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 19:47	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/20/18 19:47	
Trichloroethene	ug/L	ND	1.0	0.17	11/20/18 19:47	
Vinyl chloride	ug/L	ND	1.0	0.13	11/20/18 19:47	
Xylene (Total)	ug/L	ND	3.0	0.42	11/20/18 19:47	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/20/18 19:47	
4-Bromofluorobenzene (S)	%	99	80-119		11/20/18 19:47	
Toluene-d8 (S)	%	97	80-115		11/20/18 19:47	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2281610

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.5	107	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.9	99	74-121	
1,1,2-Trichloroethane	ug/L	20	20.7	103	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.2	101	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	21.5	107	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	105	105	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	66-139	
Acetone	ug/L	100	105	105	62-142	
Benzene	ug/L	20	19.8	99	81-118	
Bromodichloromethane	ug/L	20	22.0	110	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	20.8	104	39-149	
Carbon disulfide	ug/L	20	19.5	98	85-124	
Carbon tetrachloride	ug/L	20	21.5	108	85-126	
Chlorobenzene	ug/L	20	20.2	101	87-118	
Chloroethane	ug/L	20	21.9	110	73-134	
Chloroform	ug/L	20	20.6	103	85-119	
Chloromethane	ug/L	20	15.6	78	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	84-121	
cis-1,3-Dichloropropene	ug/L	20	21.2	106	80-124	
Dibromochloromethane	ug/L	20	21.6	108	83-122	
Ethylbenzene	ug/L	20	19.1	95	80-118	
Methylene chloride	ug/L	20	21.4	107	81-126	
Styrene	ug/L	20	20.2	101	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	20.5	102	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.0	100	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.9	104	80-122	
Trichloroethene	ug/L	20	22.5	113	82-120	
Vinyl chloride	ug/L	20	23.2	116	74-147	
Xylene (Total)	ug/L	60	57.9	96	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281611 2281612

Parameter	Units	60286849002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.0	21.9	110	110	79-135	0	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.8	17.1	89	86	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.1	20.0	95	100	71-124	5	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281611			2281612							
Parameter	Units	60286849002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.2	20.7	106	104	77-135	2	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.1	21.8	110	109	77-138	1	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.0	18.2	95	91	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.5	19.7	102	99	74-128	4	13	
2-Butanone (MEK)	ug/L	ND	100	100	86.8	83.3	87	83	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	83.3	86.2	83	86	53-133	3	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	90.0	86.9	90	87	62-134	3	15	
Acetone	ug/L	1.9J	100	100	84.9	86.0	83	84	50-127	1	28	
Benzene	ug/L	ND	20	20	20.1	19.6	101	98	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.7	20.8	108	104	75-126	4	12	
Bromoform	ug/L	ND	20	20	17.6	18.7	88	93	70-122	6	14	
Bromomethane	ug/L	ND	20	20	18.2	20.6	91	103	41-155	12	42	
Carbon disulfide	ug/L	ND	20	20	21.0	20.3	105	102	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.0	22.3	115	112	78-139	3	23	
Chlorobenzene	ug/L	ND	20	20	19.9	19.7	100	99	74-130	1	10	
Chloroethane	ug/L	ND	20	20	22.7	21.4	114	107	67-153	6	27	
Chloroform	ug/L	0.19J	20	20	20.5	20.1	102	99	75-127	2	12	
Chloromethane	ug/L	ND	20	20	19.9	18.2	100	91	22-188	9	68	
cis-1,2-Dichloroethene	ug/L	0.69J	20	20	20.1	19.5	97	94	69-135	3	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.7	18.2	93	91	61-129	3	11	
Dibromochloromethane	ug/L	ND	20	20	19.3	19.8	97	99	60-133	3	14	
Ethylbenzene	ug/L	ND	20	20	19.2	19.5	96	98	60-140	1	32	
Methylene chloride	ug/L	ND	20	20	20.5	20.6	102	103	72-131	1	16	
Styrene	ug/L	ND	20	20	19.5	19.3	97	97	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	20.1	20.1	100	100	72-136	0	15	
Toluene	ug/L	ND	20	20	20.3	20.3	101	102	65-135	0	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.3	20.5	106	102	75-137	4	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.1	18.1	91	90	60-128	0	13	
Trichloroethene	ug/L	0.97J	20	20	24.5	23.8	117	114	66-136	3	15	
Vinyl chloride	ug/L	ND	20	20	24.6	24.5	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	55.8	56.6	93	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	102	80-117			
4-Bromofluorobenzene (S)	%						104	103	80-119			
Toluene-d8 (S)	%						95	99	80-115			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281613			2281614							
Parameter	Units	60286849004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.9	21.7	109	109	79-135	1	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.6	17.9	88	90	49-144	2	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.2	18.8	91	94	71-124	3	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281613			2281614							
Parameter	Units	60286849004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.6	20.6	103	103	77-135	0	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.2	20.9	111	104	77-138	6	14	
1,2-Dichloroethane	ug/L	0.14J	20	20	19.0	18.7	94	93	47-152	2	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.3	20.1	102	100	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	87.7	91.7	88	92	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	86.5	91.9	87	92	53-133	6	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	91.4	96.4	91	96	62-134	5	15	
Acetone	ug/L	ND	100	100	91.9	94.3	92	94	50-127	3	28	
Benzene	ug/L	0.22J	20	20	19.4	19.5	96	96	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	20.4	20.7	102	103	75-126	1	12	
Bromoform	ug/L	ND	20	20	18.4	19.1	92	96	70-122	4	14	
Bromomethane	ug/L	ND	20	20	20.8	21.8	104	109	41-155	5	42	
Carbon disulfide	ug/L	ND	20	20	20.3	20.7	102	103	70-148	2	14	
Carbon tetrachloride	ug/L	ND	20	20	21.9	22.6	109	113	78-139	3	23	
Chlorobenzene	ug/L	ND	20	20	19.9	19.4	100	97	74-130	3	10	
Chloroethane	ug/L	ND	20	20	22.0	22.4	110	112	67-153	2	27	
Chloroform	ug/L	ND	20	20	19.9	20.3	100	101	75-127	2	12	
Chloromethane	ug/L	ND	20	20	25.8	23.0	129	115	22-188	11	68	
cis-1,2-Dichloroethene	ug/L	1.4	20	20	20.3	20.9	94	98	69-135	3	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.5	18.6	93	93	61-129	0	11	
Dibromochloromethane	ug/L	ND	20	20	18.7	18.9	94	95	60-133	1	14	
Ethylbenzene	ug/L	ND	20	20	19.1	19.1	96	96	60-140	0	32	
Methylene chloride	ug/L	ND	20	20	20.7	21.3	104	107	72-131	3	16	
Styrene	ug/L	ND	20	20	19.1	19.0	95	95	59-142	0	12	
Tetrachloroethene	ug/L	ND	20	20	19.1	18.9	95	95	72-136	1	15	
Toluene	ug/L	ND	20	20	19.8	19.6	99	98	65-135	1	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.0	20.9	100	105	75-137	5	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.6	17.8	88	89	60-128	1	13	
Trichloroethene	ug/L	4.5	20	20	26.5	26.6	110	111	66-136	0	15	
Vinyl chloride	ug/L	ND	20	20	25.2	25.1	126	126	65-164	0	16	
Xylene (Total)	ug/L	ND	60	60	57.5	56.4	96	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	107	80-117			
4-Bromofluorobenzene (S)	%						102	101	80-119			
Toluene-d8 (S)	%						94	94	80-115			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281615			2281616							
Parameter	Units	60286849012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.2	22.2	106	111	79-135	5	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	18.1	87	91	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.5	20.0	93	100	71-124	8	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281615 2281616

Parameter	Units	60286849012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.7	21.5	103	107	77-135	4	12	
1,1-Dichloroethene	ug/L	ND	20	20	19.4	18.7	97	93	77-138	4	14	
1,2-Dichloroethane	ug/L	ND	20	20	18.5	19.5	92	97	47-152	5	27	
1,2-Dichloropropane	ug/L	ND	20	20	19.7	21.4	99	107	74-128	8	13	
2-Butanone (MEK)	ug/L	ND	100	100	88.9	93.1	89	93	60-125	5	17	
2-Hexanone	ug/L	ND	100	100	91.0	96.0	91	96	53-133	5	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	94.8	98.1	95	98	62-134	3	15	
Acetone	ug/L	2.0J	100	100	91.1	86.2	89	84	50-127	5	28	
Benzene	ug/L	ND	20	20	19.1	20.0	96	100	62-138	5	34	
Bromodichloromethane	ug/L	ND	20	20	20.6	21.7	103	108	75-126	5	12	
Bromoform	ug/L	ND	20	20	18.2	18.8	91	94	70-122	3	14	
Bromomethane	ug/L	ND	20	20	22.0	22.2	110	111	41-155	1	42	
Carbon disulfide	ug/L	ND	20	20	20.0	20.9	100	105	70-148	5	14	
Carbon tetrachloride	ug/L	ND	20	20	21.5	23.1	108	116	78-139	7	23	
Chlorobenzene	ug/L	ND	20	20	19.3	19.7	97	98	74-130	2	10	
Chloroethane	ug/L	ND	20	20	22.3	22.2	112	111	67-153	1	27	
Chloroform	ug/L	ND	20	20	19.7	20.6	99	103	75-127	4	12	
Chloromethane	ug/L	ND	20	20	25.5	18.8	128	94	22-188	31	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.2	19.3	96	96	69-135	0	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.3	19.4	92	97	61-129	6	11	
Dibromochloromethane	ug/L	ND	20	20	18.7	20.1	93	101	60-133	8	14	
Ethylbenzene	ug/L	ND	20	20	18.9	19.5	94	97	60-140	3	32	
Methylene chloride	ug/L	ND	20	20	21.3	21.5	106	108	72-131	1	16	
Styrene	ug/L	ND	20	20	19.2	19.4	96	97	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	18.9	19.7	95	99	72-136	4	15	
Toluene	ug/L	ND	20	20	19.4	19.9	97	99	65-135	3	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.5	20.8	103	104	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.2	18.6	86	93	60-128	8	13	
Trichloroethene	ug/L	ND	20	20	22.0	22.9	110	114	66-136	4	15	
Vinyl chloride	ug/L	ND	20	20	24.9	24.8	125	124	65-164	0	16	
Xylene (Total)	ug/L	ND	60	60	55.9	55.7	93	93	69-133	0	31	
1,2-Dichloroethane-d4 (S)	%						103	108	80-117			
4-Bromofluorobenzene (S)	%						101	104	80-119			
Toluene-d8 (S)	%						93	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555990 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849015, 60286849016, 60286849017, 60286849018, 60286849019, 60286849020, 60286849021, 60286849022, 60286849023, 60286849024, 60286849025, 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849033

METHOD BLANK: 2281617 Matrix: Water
Associated Lab Samples: 60286849015, 60286849016, 60286849017, 60286849018, 60286849019, 60286849020, 60286849021, 60286849022, 60286849023, 60286849024, 60286849025, 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 19:46	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 19:46	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 19:46	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 19:46	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 19:46	
1,2-Dichloroethane	ug/L	0.18J	1.0	0.12	11/21/18 19:46	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 19:46	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 19:46	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 19:46	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 19:46	
Acetone	ug/L	ND	10.0	1.9	11/21/18 19:46	
Benzene	ug/L	ND	1.0	0.060	11/21/18 19:46	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 19:46	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 19:46	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 19:46	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 19:46	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 19:46	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 19:46	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 19:46	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 19:46	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 19:46	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 19:46	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 19:46	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 19:46	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 19:46	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 19:46	
Styrene	ug/L	ND	1.0	0.12	11/21/18 19:46	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 19:46	
Toluene	ug/L	ND	1.0	0.17	11/21/18 19:46	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 19:46	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 19:46	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 19:46	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 19:46	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 19:46	
1,2-Dichloroethane-d4 (S)	%	103	80-117		11/21/18 19:46	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 19:46	
Toluene-d8 (S)	%	98	80-115		11/21/18 19:46	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2281618

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.8	114	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	21.1	106	74-121	
1,1,2-Trichloroethane	ug/L	20	22.0	110	83-119	
1,1-Dichloroethane	ug/L	20	21.5	108	85-128	
1,1-Dichloroethene	ug/L	20	21.8	109	85-123	
1,2-Dichloroethane	ug/L	20	20.6	103	77-120	
1,2-Dichloropropane	ug/L	20	21.2	106	81-126	
2-Butanone (MEK)	ug/L	100	99.4	99	65-134	
2-Hexanone	ug/L	100	99.3	99	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	98.6	99	62-142	
Benzene	ug/L	20	20.7	103	81-118	
Bromodichloromethane	ug/L	20	22.9	114	85-123	
Bromoform	ug/L	20	21.5	108	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.9	104	85-124	
Carbon tetrachloride	ug/L	20	23.3	117	85-126	
Chlorobenzene	ug/L	20	21.9	109	87-118	
Chloroethane	ug/L	20	21.7	108	73-134	
Chloroform	ug/L	20	21.7	108	85-119	
Chloromethane	ug/L	20	18.3	91	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.1	106	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.2	111	80-124	
Dibromochloromethane	ug/L	20	22.0	110	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	21.9	109	81-126	
Styrene	ug/L	20	21.4	107	85-120	
Tetrachloroethene	ug/L	20	22.7	114	87-120	
Toluene	ug/L	20	22.0	110	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.9	104	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.3	111	80-122	
Trichloroethene	ug/L	20	24.2	121	82-120	L1
Vinyl chloride	ug/L	20	24.3	122	74-147	
Xylene (Total)	ug/L	60	62.0	103	81-120	
1,2-Dichloroethane-d4 (S)	%			103	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			97	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281619 2281620

Parameter	Units	60286849023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.6	23.7	113	119	79-135	5	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.0	18.9	85	94	49-144	11	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.8	20.6	99	103	71-124	4	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281619 2281620

Parameter	Units	60286849023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.7	22.2	108	111	77-135	2	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.3	23.6	112	118	77-138	6	14	
1,2-Dichloroethane	ug/L	0.18J	20	20	19.2	19.6	95	97	47-152	2	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.8	20.7	104	103	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	88.5	91.5	89	92	60-125	3	17	
2-Hexanone	ug/L	ND	100	100	91.5	96.6	91	97	53-133	5	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	92.8	96.0	93	96	62-134	3	15	
Acetone	ug/L	6.6J	100	100	88.8	92.5	82	86	50-127	4	28	
Benzene	ug/L	ND	20	20	20.2	20.3	101	101	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	22.0	22.3	110	111	75-126	1	12	
Bromoform	ug/L	ND	20	20	20.6	21.8	103	109	70-122	6	14	
Bromomethane	ug/L	ND	20	20	19.4	22.9	97	114	41-155	16	42	
Carbon disulfide	ug/L	ND	20	20	21.8	22.1	109	110	70-148	1	14	
Carbon tetrachloride	ug/L	ND	20	20	24.4	24.0	122	120	78-139	2	23	
Chlorobenzene	ug/L	ND	20	20	20.9	22.2	104	111	74-130	6	10	
Chloroethane	ug/L	ND	20	20	23.6	22.8	118	114	67-153	4	27	
Chloroform	ug/L	ND	20	20	21.3	21.3	106	107	75-127	0	12	
Chloromethane	ug/L	ND	20	20	26.9	21.5	134	108	22-188	22	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	20.5	20.6	103	103	69-135	0	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.1	94	95	61-129	1	11	
Dibromochloromethane	ug/L	ND	20	20	20.6	22.8	103	114	60-133	10	14	
Ethylbenzene	ug/L	ND	20	20	21.3	21.5	106	107	60-140	1	32	
Methylene chloride	ug/L	ND	20	20	22.4	21.6	112	108	72-131	4	16	
Styrene	ug/L	ND	20	20	20.7	20.9	104	105	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	22.4	23.5	112	118	72-136	5	15	
Toluene	ug/L	ND	20	20	21.8	22.6	109	113	65-135	4	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.9	107	109	75-137	2	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.9	94	100	60-128	5	13	
Trichloroethene	ug/L	1.1	20	20	24.5	25.0	117	120	66-136	2	15	
Vinyl chloride	ug/L	ND	20	20	26.4	26.3	132	132	65-164	0	16	
Xylene (Total)	ug/L	ND			62.5	63.6				2	31	
1,2-Dichloroethane-d4 (S)	%						105	104	80-117			
4-Bromofluorobenzene (S)	%						97	101	80-119			
Toluene-d8 (S)	%						100	103	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556253 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849032, 60286849034, 60286849035, 60286849036

METHOD BLANK: 2282307 Matrix: Water
Associated Lab Samples: 60286849032, 60286849034, 60286849035, 60286849036

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 02:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 02:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/21/18 02:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 02:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 02:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 02:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 02:06	
Acetone	ug/L	ND	10.0	1.9	11/21/18 02:06	
Benzene	ug/L	ND	1.0	0.060	11/21/18 02:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 02:06	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 02:06	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 02:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 02:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 02:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 02:06	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 02:06	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 02:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 02:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 02:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 02:06	
Styrene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 02:06	
Toluene	ug/L	ND	1.0	0.17	11/21/18 02:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 02:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 02:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 02:06	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/21/18 02:06	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 02:06	
Toluene-d8 (S)	%	98	80-115		11/21/18 02:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2282308

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.7	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.3	102	77-120	
1,2-Dichloropropane	ug/L	20	20.6	103	81-126	
2-Butanone (MEK)	ug/L	100	102	102	65-134	
2-Hexanone	ug/L	100	97.8	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	66-139	
Acetone	ug/L	100	99.0	99	62-142	
Benzene	ug/L	20	19.5	97	81-118	
Bromodichloromethane	ug/L	20	22.2	111	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.7	108	85-126	
Chlorobenzene	ug/L	20	20.3	101	87-118	
Chloroethane	ug/L	20	22.1	110	73-134	
Chloroform	ug/L	20	21.0	105	85-119	
Chloromethane	ug/L	20	22.7	114	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	20.6	103	83-122	
Ethylbenzene	ug/L	20	19.4	97	80-118	
Methylene chloride	ug/L	20	22.2	111	81-126	
Styrene	ug/L	20	20.5	103	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	19.9	100	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	101	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.1	100	80-122	
Trichloroethene	ug/L	20	22.7	113	82-120	
Vinyl chloride	ug/L	20	24.5	122	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	23.2	112	116	79-135	4	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	71-124	1	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.3	21.4	107	107	77-135	0	12	
1,1-Dichloroethene	ug/L	1.3	20	20	20.6	23.8	96	112	77-138	14	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.6	20.3	98	102	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	21.5	106	107	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	95.2	98.9	95	99	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	97.3	98.8	97	99	53-133	2	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	99.2	101	99	101	62-134	2	15	
Acetone	ug/L	3.0J	100	100	90.1	93.1	87	90	50-127	3	28	
Benzene	ug/L	ND	20	20	20.1	20.8	100	104	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.5	22.5	108	112	75-126	4	12	
Bromoform	ug/L	ND	20	20	19.2	20.8	96	104	70-122	8	14	
Bromomethane	ug/L	ND	20	20	19.5	20.9	98	104	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	20.7	21.4	103	107	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.4	116	117	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	20.4	21.5	102	107	74-130	5	10	
Chloroethane	ug/L	ND	20	20	23.0	23.4	115	117	67-153	2	27	
Chloroform	ug/L	ND	20	20	21.1	20.9	106	105	75-127	1	12	
Chloromethane	ug/L	ND	20	20	16.1	16.5	80	83	22-188	3	68	
cis-1,2-Dichloroethene	ug/L	5.4	20	20	25.4	25.7	100	101	69-135	1	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.9	100	105	61-129	4	11	
Dibromochloromethane	ug/L	ND	20	20	20.3	21.7	102	108	60-133	6	14	
Ethylbenzene	ug/L	ND	20	20	19.7	20.5	98	103	60-140	4	32	
Methylene chloride	ug/L	ND	20	20	21.4	21.5	107	107	72-131	0	16	
Styrene	ug/L	ND	20	20	19.4	20.3	97	101	59-142	5	12	
Tetrachloroethene	ug/L	ND	20	20	20.5	21.6	102	108	72-136	5	15	
Toluene	ug/L	ND	20	20	20.6	20.9	103	104	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.0	108	105	75-137	3	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.2	100	101	60-128	1	13	
Trichloroethene	ug/L	141	20	20	169	167	138	130	66-136	1	15	M1
Vinyl chloride	ug/L	0.53J	20	20	25.2	25.0	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	57.2	59.3	95	99	69-133	4	31	
1,2-Dichloroethane-d4 (S)	%						105	105	80-117			
4-Bromofluorobenzene (S)	%						103	101	80-119			
Toluene-d8 (S)	%						95	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556701 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849021, 60286849023

METHOD BLANK: 2284124 Matrix: Water
Associated Lab Samples: 60286849021, 60286849023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/25/18 13:16	
Xylene (Total)	ug/L	ND	3.0	0.42	11/25/18 13:16	
1,2-Dichloroethane-d4 (S)	%	96	80-117		11/25/18 13:16	
4-Bromofluorobenzene (S)	%	101	80-119		11/25/18 13:16	
Toluene-d8 (S)	%	100	80-115		11/25/18 13:16	

LABORATORY CONTROL SAMPLE: 2284125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.0	100	82-120	
Xylene (Total)	ug/L	60	55.5	92	81-120	
1,2-Dichloroethane-d4 (S)	%			99	80-117	
4-Bromofluorobenzene (S)	%			99	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556702 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031

METHOD BLANK: 2284126 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 01:00	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 01:00	
4-Bromofluorobenzene (S)	%	97	80-119		11/26/18 01:00	
Toluene-d8 (S)	%	97	80-115		11/26/18 01:00	

LABORATORY CONTROL SAMPLE: 2284127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.2	101	82-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555798 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60286849030, 60286849031, 60286849032

METHOD BLANK: 2280423 Matrix: Water
Associated Lab Samples: 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/17/18 14:22	

LABORATORY CONTROL SAMPLE: 2280424

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.50	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280425 2280426

Parameter	Units	60286839002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	0.97	0.5	0.5	1.6	1.6	124	123	75-125	0	20	

SAMPLE DUPLICATE: 2280427

Parameter	Units	60286839002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.97	1.1	10	20	

SAMPLE DUPLICATE: 2280428

Parameter	Units	60286849032 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2280429

Parameter	Units	60286839003 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.98	ND		20	

SAMPLE DUPLICATE: 2280430

Parameter	Units	60286878004 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

SAMPLE DUPLICATE: 2280431

Parameter	Units	60286878005 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557820 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849026

METHOD BLANK: 2288554 Matrix: Water
Associated Lab Samples: 60286849026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/01/18 02:25	

LABORATORY CONTROL SAMPLE: 2288555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288556 2288557

Parameter	Units	60287003004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	67.0	25	25	96.8	92.4	119	102	90-110	5	15	M1

MATRIX SPIKE SAMPLE: 2288558

Parameter	Units	60287011001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	21.8	25	46.4	98	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 559544 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849026, 60286849027, 60286849028

METHOD BLANK: 2296207 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.48J	1.0	0.29	12/11/18 22:06	
Sulfate	mg/L	ND	1.0	0.24	12/11/18 22:06	

LABORATORY CONTROL SAMPLE: 2296208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	
Sulfate	mg/L	10	9.6	96	90-110	

MATRIX SPIKE SAMPLE: 2296211

Parameter	Units	60287946003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	169	50	226	114	90-110	E,M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 559548 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849030, 60286849031, 60286849032

METHOD BLANK: 2296223 Matrix: Water
Associated Lab Samples: 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/12/18 07:18	

LABORATORY CONTROL SAMPLE: 2296224

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	10	9.1	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2296225 2296226

Parameter	Units	60286849030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	4.3	5	5	8.9	9.1	93	96	90-110	2	15	

MATRIX SPIKE SAMPLE: 2296227

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1.3	5	5.9	93	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 560256 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849029

METHOD BLANK: 2299507 Matrix: Water
Associated Lab Samples: 60286849029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/14/18 12:58	

LABORATORY CONTROL SAMPLE: 2299508

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2299509 2299510

Parameter	Units	60286849029 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	150	100	100	250	250	101	100	90-110	0	15	H1

MATRIX SPIKE SAMPLE: 2299511

Parameter	Units	60288606001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	890	500	528	-73	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 560506 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849029

METHOD BLANK: 2301093 Matrix: Water
Associated Lab Samples: 60286849029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/17/18 16:57	

LABORATORY CONTROL SAMPLE: 2301094

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.8	95	90-110	

MATRIX SPIKE SAMPLE: 2301097

Parameter	Units	60288887003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	ND	100	115	102	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555437 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849027, 60286849028, 60286849030, 60286849031, 60286849032

METHOD BLANK: 2278591 Matrix: Water
Associated Lab Samples: 60286849027, 60286849028, 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/15/18 18:18	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/15/18 18:18	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/15/18 18:18	

LABORATORY CONTROL SAMPLE: 2278592

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.95	95	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE SAMPLE: 2278594

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.99	95	70-130	
Nitrogen, Nitrite	mg/L	ND	1	0.99	98	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.0	96	90-110	

SAMPLE DUPLICATE: 2278593

Parameter	Units	60286849030 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	91.4	92.7	1	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	92.0	93.3	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555770
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849026

METHOD BLANK: 2280236 Matrix: Water
Associated Lab Samples: 60286849026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 10:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 10:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 10:04	

LABORATORY CONTROL SAMPLE: 2280237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.91	91	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	103	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280238

Parameter	Units	60287044031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.16	1	0.55	39	70-130	M1
Nitrogen, Nitrite	mg/L	0.25	1	1.3	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.41	2	1.8	71	90-110	M1

SAMPLE DUPLICATE: 2280239

Parameter	Units	60286849026 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10J		20	H1
Nitrogen, Nitrite	mg/L	0.14	0.22	43	20	D6,H1
Nitrogen, NO2 plus NO3	mg/L	0.13	0.31	85	20	D6,H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 560129
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849029

METHOD BLANK: 2298931 Matrix: Water
Associated Lab Samples: 60286849029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	12/14/18 09:55	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	12/14/18 09:55	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	12/14/18 09:55	

LABORATORY CONTROL SAMPLE: 2298932

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.96	96	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	101	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	99	90-110	

MATRIX SPIKE SAMPLE: 2298935

Parameter	Units	60289438003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.14	1	1.3	117	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.1	113	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	0.14	2	2.4	115	90-110	M1

MATRIX SPIKE SAMPLE: 2298936

Parameter	Units	60289469002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.5	1	2.4	95	70-130	H1
Nitrogen, Nitrite	mg/L	<0.033	1	1.0	103	90-110	H1
Nitrogen, NO2 plus NO3	mg/L	1.5	2	3.5	99	90-110	H1

SAMPLE DUPLICATE: 2298934

Parameter	Units	60289469001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	14.1	14.2	1	20	H1
Nitrogen, Nitrite	mg/L	<0.33	ND		20	H1
Nitrogen, NO2 plus NO3	mg/L	14.2	14.2	0	20	H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556506 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849028, 60286849029, 60286849030, 60286849031, 60286849032

METHOD BLANK: 2283260 Matrix: Water
Associated Lab Samples: 60286849028, 60286849029, 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 16:46	

LABORATORY CONTROL SAMPLE: 2283261

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2283262

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	4.3	85	80-120	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556799 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849027

METHOD BLANK: 2284767 Matrix: Water
Associated Lab Samples: 60286849027

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/26/18 13:14	

LABORATORY CONTROL SAMPLE: 2284768

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	107	80-120	

MATRIX SPIKE SAMPLE: 2284769

Parameter	Units	60286668006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	5.6	100	80-120	

SAMPLE DUPLICATE: 2284770

Parameter	Units	60286668007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	ND	0.88J		25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557381 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849026, 60286849033

METHOD BLANK: 2286692 Matrix: Water
Associated Lab Samples: 60286849026, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 16:39	

LABORATORY CONTROL SAMPLE: 2286693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.8	115	80-120	

MATRIX SPIKE SAMPLE: 2286694

Parameter	Units	60287017004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	9.8	5	14.0	84	80-120	

SAMPLE DUPLICATE: 2286695

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13000	13000	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849033

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556701

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 556702

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
H1	Analysis conducted outside the EPA method holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849026	**MW-186-201811**	EPA 3010	557239	EPA 6010	557370
60286849027	**MW-185-201811**	EPA 3010	557239	EPA 6010	557370
60286849028	**TMW-34-201811**	EPA 3010	557239	EPA 6010	557370
60286849029	**MW-194-201811**	EPA 3010	557239	EPA 6010	557370
60286849030	**MW-89-201811**	EPA 3010	557239	EPA 6010	557370
60286849031	**IW-73-201811**	EPA 3010	557239	EPA 6010	557370
60286849032	**RW-69-201811**	EPA 3010	557239	EPA 6010	557370
60286849033	**TMW-30-201811**	EPA 3010	557239	EPA 6010	557370
60286849001	**MW-188-201811**	EPA 5030B/8260	555989		
60286849002	**TMW-19-201811**	EPA 5030B/8260	555989		
60286849003	**TMW-27-201811**	EPA 5030B/8260	555989		
60286849004	**MW-178-201811**	EPA 5030B/8260	555989		
60286849005	**MW-84-201811**	EPA 5030B/8260	555989		
60286849006	**MW-83-201811**	EPA 5030B/8260	555989		
60286849007	**MW-22-201811**	EPA 5030B/8260	555989		
60286849008	**MW-56R-201811**	EPA 5030B/8260	555989		
60286849009	**MW-57R-201811**	EPA 5030B/8260	555989		
60286849010	**MW-46R-201811**	EPA 5030B/8260	555989		
60286849011	**MW-60R-201811**	EPA 5030B/8260	555989		
60286849012	**MW-40R-201811**	EPA 5030B/8260	555989		
60286849013	**MW-62R-201811**	EPA 5030B/8260	555989		
60286849014	**MW-63R-201811**	EPA 5030B/8260	555989		
60286849015	**MW-26-201811**	EPA 5030B/8260	555990		
60286849016	**DUP-09-201811**	EPA 5030B/8260	555990		
60286849017	**ITMW-20-201811**	EPA 5030B/8260	555990		
60286849018	**EB-03-201811**	EPA 5030B/8260	555990		
60286849019	**MW-191-201811**	EPA 5030B/8260	555990		
60286849020	**TMW-14-201811**	EPA 5030B/8260	555990		
60286849021	**ITMW-10-201811**	EPA 5030B/8260	555990		
60286849021	**ITMW-10-201811**	EPA 5030B/8260	556701		
60286849022	**MW-184-201811**	EPA 5030B/8260	555990		
60286849023	**MW-183R-201811**	EPA 5030B/8260	555990		
60286849023	**MW-183R-201811**	EPA 5030B/8260	556701		
60286849024	**MW-98-201811**	EPA 5030B/8260	555990		
60286849025	**EB-04-201811**	EPA 5030B/8260	555990		
60286849026	**MW-186-201811**	EPA 5030B/8260	555990		
60286849026	**MW-186-201811**	EPA 5030B/8260	556702		
60286849027	**MW-185-201811**	EPA 5030B/8260	555990		
60286849027	**MW-185-201811**	EPA 5030B/8260	556702		
60286849028	**TMW-34-201811**	EPA 5030B/8260	555990		
60286849028	**TMW-34-201811**	EPA 5030B/8260	556702		
60286849029	**MW-194-201811**	EPA 5030B/8260	555990		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849029	**MW-194-201811**	EPA 5030B/8260	556702		
60286849030	**MW-89-201811**	EPA 5030B/8260	555990		
60286849030	**MW-89-201811**	EPA 5030B/8260	556702		
60286849031	**IW-73-201811**	EPA 5030B/8260	555990		
60286849031	**IW-73-201811**	EPA 5030B/8260	556702		
60286849032	**RW-69-201811**	EPA 5030B/8260	556253		
60286849033	**TMW-30-201811**	EPA 5030B/8260	555990		
60286849034	**TRIP BLANK**	EPA 5030B/8260	556253		
60286849035	**TRIP BLANK 2**	EPA 5030B/8260	556253		
60286849036	**EB-05-201811**	EPA 5030B/8260	556253		
60286849030	**MW-89-201811**	SM 4500-S-2 D	555798		
60286849031	**IW-73-201811**	SM 4500-S-2 D	555798		
60286849032	**RW-69-201811**	SM 4500-S-2 D	555798		
60286849026	**MW-186-201811**	EPA 300.0	557820		
60286849026	**MW-186-201811**	EPA 300.0	559544		
60286849027	**MW-185-201811**	EPA 300.0	559544		
60286849028	**TMW-34-201811**	EPA 300.0	559544		
60286849029	**MW-194-201811**	EPA 300.0	560256		
60286849029	**MW-194-201811**	EPA 300.0	560506		
60286849030	**MW-89-201811**	EPA 300.0	559548		
60286849031	**IW-73-201811**	EPA 300.0	559548		
60286849032	**RW-69-201811**	EPA 300.0	559548		
60286849026	**MW-186-201811**	EPA 353.2	555770		
60286849027	**MW-185-201811**	EPA 353.2	555437		
60286849028	**TMW-34-201811**	EPA 353.2	555437		
60286849029	**MW-194-201811**	EPA 353.2	560129		
60286849030	**MW-89-201811**	EPA 353.2	555437		
60286849031	**IW-73-201811**	EPA 353.2	555437		
60286849032	**RW-69-201811**	EPA 353.2	555437		
60286849026	**MW-186-201811**	SM 5310C	557381		
60286849027	**MW-185-201811**	SM 5310C	556799		
60286849028	**TMW-34-201811**	SM 5310C	556506		
60286849029	**MW-194-201811**	SM 5310C	556506		
60286849030	**MW-89-201811**	SM 5310C	556506		
60286849031	**IW-73-201811**	SM 5310C	556506		
60286849032	**RW-69-201811**	SM 5310C	556506		
60286849033	**TMW-30-201811**	SM 5310C	557381		
60286849026	**MW-186-201811**	SM 5310C	556798		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849027	**MW-185-201811**	SM 5310C	556798		
60286849028	**TMW-34-201811**	SM 5310C	556798		
60286849029	**MW-194-201811**	SM 5310C	556798		
60286849033	**TMW-30-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affi ALL S

WO# : 60286849

60286849

MTJL Log-in

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **

(3)

Lab Project Manager:

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com jpavlowsky@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690001033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

Analyses

LAB Profile/Line: 7444 Line 1

Phone: Email: 314-833-7325

Site/Facility ID #: Whirlpool

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): JoPavlowsky

Purchase Order#

DW PWS ID #:

Collected by (signature):

Quote #

DW Location Code #:

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

Turnaround Date Required: Standard

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Immediately Packed on Ice? [X] Yes [ ] No

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: dissolved organic carbon

8260 full list VOCs

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	Y	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	(Y)	N	NA
pH Strips: 9881-1			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-188-201811	GW	G	11-14-18	0920				3	X	3DC917
TMW-19-201811				1020				3		
TMW-19-201811-MS				1020				3		
TMW-19-201811-MSD				1020				3		
TMW-27-201811				1130				3		
MW-187-201811				1345				3		
MW-192-201811				1505				3		
DUP-07-201811				1500				3		
ITMW-18-201811				1700				3		
MW-178-201811	GW	G		1120				3		3DC917

Customer Remarks/ Special Conditions/ Possible Hazards:

page 1 of 5

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc, Bubble Bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky IREM	11/14/18 1800	UPS	11-15-18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.4 oC 1.2

Cooler Therm Corr. Factor +0.2 oC 0.2

Cooler Temp Corrected 0.6 oC 1.4

Comments:

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller [see 1st page]

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (A)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns			Lab Sample # / Comments
MW-178-201811-MS	GW	G	11-14-18	1120				3	X		→ DGEH + 3 VOAs
MW-178-201811-MSD				1120				3	X		
MW-84-201811				0920				3		X	3 OTHR ↓
MW-83-201811				1050				3		X	3 DG9H
MW-22-201811				1245				3	X		
MW-56R-201811				1425				3	X		
MW-57R-201811				1540				3	X		
MW-46R-201811				1710				3	X		
MW-60R-201811				0920				3	X		
MW-40R-201811				1050				3	X		3 VOA (9) DG9H

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc Bubblebag

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS (Client) (Courier) [ ] Pace Courier [ ]

cc 11-15-18

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[signature] /REH	11/14/18	[signature]	11-15-18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor +0.2 °C +0.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight [See page 1]

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Container Preservative Type **: (3)

Lab Project Manager:

**Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 VOCs Full List

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-40R-20181l-MS	GW	G	11-14-18	1050				3	X 30C 9H Bottles
MW-40R-20181l-MSD				1052				3	
MW-62R-20181l				1210				3	
MW-63R-20181l				1340				3	
MW-26-20181l				1525				3	
DUP-09-20181l				1525				3	
TMW-20-20181l				1625				3	
EB-03-20181l				1700				3	
MW-191-20181l				1455				3	
TMW-14-20181l				1551				3	

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc, Bubblebags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client (Courier) [ ] Pace Courier

MTJL LAB USE ONLY

Table #:
ACCT #:
Template:
Prelogin:
PM:
PB:

LAB Sample Temperature Info:
Temp Blank received: (Y) N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor 70.2 °C 70.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		W.C.pt 1 Pass	11.15.18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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3

CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

(see page #1)

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

(3)	D	U	U	45	1	2	U	U	U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Volatile Fatty Acid	Dissolved Org. Carbon	Sulfate/Nitrate/Chloride	Sulfide	metals (total iron)	total organic carbon	MEG	MEEA	sulfate/nitrate
ITMW-10-201811	GW	G	11-14-18	1737				3	X									
MW-184-201811				0947				3										
MW-183R-201811				1123				3										
MW-183R-201811-MS				1123				3										
MW-183R-201811-MSD				1123				3										
MW-98-201811				1351				3										
EB-09-201811	OT			1740				3										
MW-186-201811	BPJU			1005			BPJN	12	X	X	X	X	X	X	X			
MW-185-201811				1140				12	X	X	X	X	X	X	X			
TMW-3A-201811				1500				12	X	X	X	X	X	X	X			

3D69H

A63S, A63U, 3D69Q, 2D69U

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓
Lab Sample # / Comments

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc Bubble Bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor +0.2 °C +0.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		W Zipf / Pace	11.15.18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page #1)

State / County/City / Time Zone Collected PT MT CT ET

Phone: Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (D) (U) (U) (4) (5) (7) (2) (U) (U) (U)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

LAB Profile/Line: 7444 Line 1

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 full list VOCs	Volatile Fatty Acids	Dissolved Organic Carbon	Sulfate/Nitrate/Chloride	Sulfide	Metals (total iron)	total organic carbon	MEE	MEEA	Sulfate/nitrate	Lab Sample # / Comments
MW-194-201811	GW	G	11-14-18	1720				12	X	X	X	A6JU	X	X	X	A6JU			3DG9H, BP3U, 2DG9U
MW-89-201811	GW	G		1010				9	X	X			X	X	X	BP3Z	X	X	
IW-73-201811	GW	G		1510				9	X	X			X	X	X		X	X	
RW-69-201811	GW	G		1230				9	X	X			X	X	X		X	X	
RW-69-201811-MS	GW	G		1230				3	X	X									
RW-69-201811-MSD	GW	G		1230				3	X	X									
TMW-30-201811	GW	G						12	X	X	X	2AG3S	X	X	X				
TRIP Blank	OT	-		-				2	X										
TRIP Blank	OT	-		-				2	X										
EB-05-201811	OT	G		1710				3	X										

Customer Remarks/ Special Conditions/ Possible Hazards: Last page

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zip, Bubble bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.4 oC 1.2

Cooler Therm Corr. Factor +0.2 oC +0.2

Cooler Temp Corrected 0.6 oC

Comments: 1.4

Trip Blank Received: Y N N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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F-ALL-C-010-rev.00, 05Jul2018

030

5

60286849

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

Date: 11.15.18	Evaluated by: MZ, pf, RGS
Client: Kimball	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

	Collection date/time missing or incorrect		Analyses or analytes: missing or clarification needed		Samples listed on COC do not match samples received (missing, additional, etc.)
	Sample IDs on COC do not match sample labels		Required trip blanks were not received		Required signatures are missing

Comments/Details/Other Issues not listed above: I am missing Samples, 3069H for MW-187-201811 MW-192-201811, Dup-07-201811, ITMW-18-201811

Did not have volume for BP3Z for MW-194-201811, TMW-30-201811

3. Sample integrity issues: check applicable issues below and add details where appropriate:

	Samples: Past holding time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samples: Not field filtered		Containers: Broken or compromised		Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temperature: Samples arrived frozen
	Samples: Cooler damaged or compromised		Custody Seals: Missing or compromised on samples, trip blanks or coolers		Vials received with improper headspace
	Samples: contain chlorine or sulfides		Packing Material: Insufficient/Improper		Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:	
PM Initials:	Date/Time:	

Client Comments/Instructions:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 30, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **FORT SMITH, AR / 60286849**

Pace Workorder: 28752

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, November 19, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/30/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287520001	MW-186-201811	Water	11/14/2018 10:05	11/19/2018 08:00
287520002	MW-185-201811	Water	11/14/2018 11:40	11/19/2018 08:00
287520003	TMW-34-201811	Water	11/14/2018 15:00	11/19/2018 08:00
287520004	MW-194-201811	Water	11/14/2018 17:20	11/19/2018 08:00

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PROJECT SUMMARY

Workorder: 28752 FORT SMITH, AR / 60286849

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520001** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-186-201811** Date Collected: 11/14/2018 10:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**3500**	mg/l	100	24	1000	11/26/2018 16:38	KB	d,B
Propionic Acid	**14000**	mg/l	1000	44	10000	11/26/2018 17:35	KB	d,B
Butyric Acid	**1000**	mg/l	100	4.7	1000	11/26/2018 16:38	KB	d,B
i-Pentanoic Acid	**22**	mg/l	10	0.75	100	11/26/2018 15:42	KB	d
Pentanoic Acid	**580**	mg/l	100	12	1000	11/26/2018 16:38	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**14000**	ug/l	0.50	0.014	1	11/21/2018 20:41	BW	n
Ethane	**0.50**	ug/l	0.10	0.0070	1	11/21/2018 20:41	BW	n
Ethene	**6.6**	ug/l	0.10	0.0050	1	11/21/2018 20:41	BW	n

nelac

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520002** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-185-201811** Date Collected: 11/14/2018 11:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**2.8**	mg/l	1.0	0.24	10	11/21/2018 18:02	KB	d,M3,B,M5
Propionic Acid	**2.5**	mg/l	1.0	0.044	10	11/21/2018 18:02	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 18:02	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 18:02	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 18:02	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.014	1	11/21/2018 20:51	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/21/2018 20:51	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/21/2018 20:51	BW	n

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520003** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **TMW-34-201811** Date Collected: 11/14/2018 15:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**1.8**	mg/l	1.0	0.24	10	11/21/2018 18:58	KB	d,M3,B,M5
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/21/2018 18:58	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 18:58	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 18:58	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 18:58	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**4700**	ug/l	0.50	0.014	1	11/21/2018 21:00	BW	n
Ethane	**1.1**	ug/l	0.10	0.0070	1	11/21/2018 21:00	BW	n
Ethene	**0.73**	ug/l	0.10	0.0050	1	11/21/2018 21:00	BW	n

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520004** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-194-201811** Date Collected: 11/14/2018 17:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**2.5**	mg/l	1.0	0.24	10	11/21/2018 19:55	KB	d,M3,B,M5
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/21/2018 19:55	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 19:55	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 19:55	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 19:55	KB	d

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28752 FORT SMITH, AR / 60286849

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
M3	The matrix spike sample recovery was outside laboratory control limits.

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287520002, 287520003, 287520004

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.25	0.10	M3,B,M5
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
i-Pentanoic Acid	mg/l	<0.10	0.10	
Pentanoic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	2.3	114	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.1	105	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
i-Pentanoic Acid	mg/l	2	2.0	100	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	120	20	150	150	145	150	70-130	0.67	30	d,M3,B,M5
Propionic Acid	mg/l	73	20	87	88	70	73	70-130	0.5	30	d,B
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
i-Pentanoic Acid	mg/l	1.6	20	23	23	107	108	70-130	0.99	30	d
Pentanoic Acid	mg/l	1.9	20	24	24	111	112	70-130	0.61	30	d

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: DISG/7224 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287520001, 287520002, 287520003

METHOD BLANK: 58622

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 58624 58626

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	740	97	99	80-120	2.1	20	n
Ethane	ug/l	38	40	40	105	106	80-120	1.3	20	n
Ethene	ug/l	35	38	38	107	108	80-120	1.1	20	n

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287520001

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
i-Pentanoic Acid	mg/l	<0.10	0.10	
Pentanoic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
i-Pentanoic Acid	mg/l	2	2.0	100	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28752 FORT SMITH, AR / 60286849

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
M3	The matrix spike sample recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287520002	MW-185-201811			AM23G	EDON/3943
287520003	TMW-34-201811			AM23G	EDON/3943
287520004	MW-194-201811			AM23G	EDON/3943
287520001	MW-186-201811			AM20GAX	DISG/7224
287520002	MW-185-201811			AM20GAX	DISG/7224
287520003	TMW-34-201811			AM20GAX	DISG/7224
287520001	MW-186-201811			AM23G	EDON/3944

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Chain of Custody

28752

Pace Analytical®
www.pacelabs.com

Workorder: 60286849 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 11/29/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9565	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: TSP	Preserved Containers: Unpres					VFA	VFA & MEE											LAB USE ONLY
1	MW-186-201811	11/14/2018 10:05	60286849026	Water	3	2						X											
2	MW-185-201811	11/14/2018 11:40	60286849027	Water	3	2						X											
3	TMW-34-201811	11/14/2018 15:00	60286849028	Water	3	2						X											
4	MW-194-201811	11/14/2018 17:20	60286849029	Water		2					X												
5																							

Comments

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler Dasi	11/16/18 1800	Lora PAS	11.19.18
2				0800
3				

Cooler Temperature on Receipt 3.0 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

Cooler Receipt Form

Client Name: Pace **Project:** Forth Smith **Lab Work Order:** 28752

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 459227863250

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 3°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : LY **Date:** 11.19.18

Project Manager Review : ERJ **Date:** 11-19-18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

December 24, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60286849**

Pace Workorder: 29013

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, December 17, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 12/24/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 13

CERTIFICATE OF ANALYSIS

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Pittsburgh, PA 15238
Phone: (412) 826-5245
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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
290130001	MW-194-201811	Water	11/14/2018 17:20	12/17/2018 07:30

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PROJECT SUMMARY

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Workorder Comments

Sample was received 12/17/2018, greater than 30 days into the analysis holding time period. Samples 29013 (0001) were analyzed outside the hold time of 14 days from collection for the Light Hydrocarbons, method AM20GAx.

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ANALYTICAL RESULTS

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Lab ID: **290130001** Date Received: 12/17/2018 07:30 Matrix: Water

Sample ID: **MW-194-201811** Date Collected: 11/14/2018 17:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**870**	ug/l	0.50	0.014	1	12/19/2018 12:10	BW	H2,n
Ethane	**0.26**	ug/l	0.10	0.0070	1	12/19/2018 12:10	BW	H2,n
Ethene	**0.27**	ug/l	0.10	0.0050	1	12/19/2018 12:10	BW	H2,n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
H2	The sample was received or analysis was requested outside the method specific holding time.

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QUALITY CONTROL DATA

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

QC Batch: DISG/7280 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 290130001

METHOD BLANK: 59030

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 59031 59032

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	96	97	80-120	0.36	20	n
Ethane	ug/l	38	39	40	104	104	80-120	0.32	20	n
Ethene	ug/l	35	37	37	104	104	80-120	0.16	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 59083 59084 Original: 289420007

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	370	1500	1700	1700	91	87	70-130	3.7	20	d,n
Ethane	ug/l	16	76	90	87	98	95	70-130	3	20	d,n
Ethene	ug/l	0.086	71	67	65	95	92	70-130	2.3	20	d,n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

QUALITY CONTROL PARAMETER QUALIFIERS

d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
290130001	MW-194-201811			AM20GAX	DISG/7280

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Chain of Custody

29013

Pace Analytical®
www.pacelabs.com

Workorder: 60286849 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 12/21/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9644	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	Preserved Containers: Unpreserved	VFA	Methane, Ethene, Ethane	LAB USE ONLY
1	MW-194-201811	11/14/2018 17:20	60286849029	Water	3	2	X	X	
2									
3									
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Haley Fouts Pasi	12:14:18 1800	Lesa PAS	12.17.18 0730
2				
3				

Comments

Cooler Temperature on Receipt 2.1 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: PAE Project: Whirlpool Lab Work Order: 29013

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 774687387505

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2.1°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags			✓	
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided		✓		
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : LG **Date:** 12.17.18

Project Manager Review : ERF **Date:** 12-17-18

F-PAE-Q-009-rev.01, 3Oct2017

NON-CONFORMANCE FORM

PAES Work Order #: 29013

Date: 12.17.18 Time of Receipt: 07:30 Receiver: LY

Client: Pace

REASON FOR NON-CONFORMANCE:

1. Received only 3 ISP vials No volume for VFAs request.
2. Sample was out of hold.

ACTION TAKEN:

Client name: Pace KS Date: 12-17-18 Time: 16:35

Emailed client to notify & inquire on how to proceed

Customer Service Initials: ERJ Date: 12-17-18

F-PAE-Q-014-rev.00, 20 Nov2014

Emma Louis - Re: Whirlpool Annual 60286849

From: Richard Mannz
To: Emma Louis
Date: 12/17/2018 4:40 PM
Subject: Re: Whirlpool Annual 60286849

Please proceed for the methane, ethane and ethene analysis out of holding time.

The client also requested the VFA test, but log in said we did not receive sample containers for the VFA test. I guess they failed to cross it off the COC.

Thank you

Rich

Richard Mannz
Project Manager
Pace Analytical Services
4120 Seven Hills Drive, Florissant, MO 63033
(314) 838-7223 | (314) 413-6227
www.pacelabs.com
Rapid Response Line (877) 859-7778

>>> Emma Louis 12/17/2018 3:37 PM >>>
Hi Richard

We received the samples for the project above. We only received 3 TSP vials. There was no volume received for the VFA requested on the COC. Additionally, the samples are out of holding time. Please let us know how to proceed.

Thank you

Emma Louis
Project Coordinator
Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
412-826-2378 (O) | 412-826-5245 (Main)
www.pacelabs.com

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 10, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church for
Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287044001	DUP-07-201811	Water	11/14/18 15:00	11/16/18 05:50
60287044002	MW-192-201811	Water	11/14/18 15:05	11/16/18 05:50
60287044003	MW-187-201811	Water	11/14/18 13:45	11/16/18 05:50
60287044004	ITMW-18-201811	Water	11/14/18 17:00	11/16/18 05:50
60287044005	MW-96-201811	Water	11/15/18 09:45	11/16/18 05:50
60287044006	MW-97-201811	Water	11/15/18 11:42	11/16/18 05:50
60287044007	MW-24-201811	Water	11/15/18 13:35	11/16/18 05:50
60287044008	DUP-02-201811	Water	11/15/18 13:25	11/16/18 05:50
60287044009	MW-55R-201811	Water	11/15/18 15:56	11/16/18 05:50
60287044010	DUP-08-201811	Water	11/15/18 15:56	11/16/18 05:50
60287044011	IW-77-201811	Water	11/15/18 17:10	11/16/18 05:50
60287044012	TMW-12-201811	Water	11/15/18 09:30	11/16/18 05:50
60287044013	DUP-04-201811	Water	11/15/18 09:30	11/16/18 05:50
60287044014	MW-82-201811	Water	11/15/18 11:15	11/16/18 05:50
60287044015	ITMW-7-201811	Water	11/15/18 13:30	11/16/18 05:50
60287044016	ITMW-19-201811	Water	11/15/18 14:30	11/16/18 05:50
60287044017	MW-93-201811	Water	11/15/18 15:45	11/16/18 05:50
60287044018	MW-189-201811	Water	11/15/18 16:55	11/16/18 05:50
60287044019	TRIP BLANK	Water	11/15/18 08:00	11/16/18 05:50
60287044020	EB-01-201811	Water	11/15/18 08:00	11/16/18 05:50
60287044021	MW-190-201811	Water	11/15/18 09:25	11/16/18 05:50
60287044022	ITMW-21-201811	Water	11/15/18 11:01	11/16/18 05:50
60287044023	ITMW-1-201811	Water	11/15/18 12:25	11/16/18 05:50
60287044024	ITMW-5-201811	Water	11/15/18 14:25	11/16/18 05:50
60287044025	MW-91-201811	Water	11/15/18 15:45	11/16/18 05:50
60287044026	MW-29-201811	Water	11/15/18 09:10	11/16/18 05:50
60287044027	MW-39R-201811	Water	11/15/18 10:30	11/16/18 05:50
60287044028	MW-182-201811	Water	11/15/18 14:30	11/16/18 05:50
60287044029	IW-78-201811	Water	11/15/18 15:25	11/16/18 05:50
60287044030	TMW-24-201811	Water	11/15/18 17:00	11/16/18 05:50
60287044031	TMW-26-201811	Water	11/15/18 11:15	11/16/18 05:50
60287044032	TMW-25-201811	Water	11/15/18 13:30	11/16/18 05:50
60287044033	TMW-21-201811	Water	11/15/18 15:15	11/16/18 05:50
60287044034	TMW-22R-201811	Water	11/15/18 16:50	11/16/18 05:50
60287044035	MW-58R-201811	Water	11/15/18 14:00	11/16/18 05:50
60287044036	DUP-05-201811	Water	11/15/18 14:00	11/16/18 05:50
60287044037	MW-95-201811	Water	11/15/18 15:55	11/16/18 05:50

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287044038	**ITMW-9-201811**	Water	11/15/18 15:20	11/16/18 05:50
60287044039	**MW-87-201811**	Water	11/15/18 13:30	11/16/18 05:50
60287044040	**MW-38-201811**	Water	11/15/18 09:55	11/16/18 05:50
60287044041	**TRIP BLANK**	Water	11/15/18 08:00	11/16/18 05:50
60287044042	**TRIP BLANK**	Water	11/15/18 08:00	11/16/18 05:50

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287044001	DUP-07-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044002	MW-192-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044003	MW-187-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044004	ITMW-18-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044005	MW-96-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044006	MW-97-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044007	MW-24-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044008	DUP-02-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044009	MW-55R-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044010	DUP-08-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044011	IW-77-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044012	TMW-12-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044013	DUP-04-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044014	MW-82-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044015	ITMW-7-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044016	ITMW-19-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044017	MW-93-201811	EPA 5030B/8260	EAG, PGH	38	PASI-K
60287044018	MW-189-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044019	TRIP BLANK	EPA 5030B/8260	PGH	38	PASI-K
60287044020	EB-01-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044021	MW-190-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044022	ITMW-21-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044023	ITMW-1-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044024	ITMW-5-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044025	MW-91-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044026	MW-29-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044027	MW-39R-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044028	MW-182-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044029	IW-78-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044030	TMW-24-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044031	TMW-26-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044032	TMW-25-201811	EPA 6010	EMR	1	PASI-K

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Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044033	**TMW-21-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044034	**TMW-22R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044035	**MW-58R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044036	**DUP-05-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287044037	**MW-95-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG, PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044038	**ITMW-9-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044039	**MW-87-201811**	EPA 6010	EMR	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044040	**MW-38-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044041	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60287044042	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 557483

B: Analyte was detected in the associated method blank.
- BLANK for HBN 557483 [MPRP/482 (Lab ID: 2287058)
  - Iron

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
42 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- TMW-21-201811 (Lab ID: 60287044033)
- TMW-25-201811 (Lab ID: 60287044032)
- TMW-26-201811 (Lab ID: 60287044031)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: 556704

S0: Surrogate recovery outside laboratory control limits.
- TRIP BLANK (Lab ID: 60287044041)
  - 1,2-Dichloroethane-d4 (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 556488

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556488 [MSV/9341 (Lab ID: 2283209)
  - 1,2-Dichloroethane

QC Batch: 556704

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556704 [MSV/9344 (Lab ID: 2284130)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

QC Batch: 556489

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 2283212)
  - Trichloroethene

QC Batch: 557295

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 2286313)
  - Carbon disulfide

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556253

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286849032

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2282309)
  - Trichloroethene

QC Batch: 556483

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556488

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556489

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556702

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556704

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556810

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556812

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557295

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
5 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 558789

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031,60287132005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2292728)
  - Sulfate
- MS (Lab ID: 2292730)
  - Sulfate
- MSD (Lab ID: 2292729)
  - Sulfate

QC Batch: 559201

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044033,60287044038

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2295157)
  - Sulfate
- MS (Lab ID: 2295159)
  - Sulfate
- MSD (Lab ID: 2295158)
  - Sulfate

Additional Comments:

Analyte Comments:

QC Batch: 558789

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MSD (Lab ID: 2292729)
  - Sulfate

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555770

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2280238)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrate

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 555770

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 2280239)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-07-201811 **Lab ID: 60287044001** Collected: 11/14/18 15:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 05:10	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 05:10	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 05:10	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 05:10	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 05:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 05:10	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 05:10	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 05:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 05:10	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:10	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 05:10	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 05:10	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 05:10	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 05:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 05:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 05:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 05:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 05:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 05:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 05:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 05:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 05:10	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 05:10	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 05:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 05:10	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 05:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 05:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 05:10	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 05:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 05:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 05:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/23/18 10:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 05:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 05:10	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/21/18 05:10	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/21/18 05:10	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 05:10	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 05:10		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-192-201811 **Lab ID: 60287044002** Collected: 11/14/18 15:05 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/21/18 04:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 04:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 04:28	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 04:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 04:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 04:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 04:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 04:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 04:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:28	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 04:28	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 04:28	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 04:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 04:28	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/21/18 04:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/21/18 04:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 04:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 04:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 04:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 04:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 04:28	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 04:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 04:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 04:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:28	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 04:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 04:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 04:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 04:28	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/21/18 04:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 04:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 04:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 04:28	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/21/18 04:28	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 04:28	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 04:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-187-201811 **Lab ID: 60287044003** Collected: 11/14/18 13:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/21/18 04:42	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 04:42	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 04:42	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 04:42	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 04:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 04:42	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 04:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 04:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 04:42	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:42	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 04:42	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 04:42	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 04:42	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 04:42	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 04:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:42	75-35-4	
cis-1,2-Dichloroethene	**0.81J**	ug/L	1.0	0.080	1		11/21/18 04:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 04:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 04:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 04:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 04:42	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 04:42	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 04:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 04:42	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 04:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 04:42	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 04:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 04:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 04:42	79-00-5	
Trichloroethene	**0.86J**	ug/L	1.0	0.17	1		11/21/18 04:42	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 04:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 04:42	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 04:42	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/21/18 04:42	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/21/18 04:42	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 04:42		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-18-201811 **Lab ID: 60287044004** Collected: 11/14/18 17:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		11/21/18 04:56	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 04:56	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 04:56	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 04:56	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 04:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 04:56	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 04:56	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 04:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 04:56	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:56	75-00-3	
Chloroform	**0.52J**	ug/L	1.0	0.14	1		11/21/18 04:56	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 04:56	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 04:56	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 04:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 04:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 04:56	75-35-4	
cis-1,2-Dichloroethene	**55.3**	ug/L	1.0	0.080	1		11/21/18 04:56	156-59-2	
trans-1,2-Dichloroethene	**10.3**	ug/L	1.0	0.20	1		11/21/18 04:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 04:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 04:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 04:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 04:56	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 04:56	591-78-6	
Methylene chloride	**0.62J**	ug/L	1.0	0.15	1		11/21/18 04:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 04:56	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 04:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 04:56	79-34-5	
Tetrachloroethene	**0.26J**	ug/L	1.0	0.10	1		11/21/18 04:56	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 04:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 04:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 04:56	79-00-5	
Trichloroethene	**641**	ug/L	10.0	1.7	10		11/23/18 10:56	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 04:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 04:56	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 04:56	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/21/18 04:56	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/21/18 04:56	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 04:56		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-96-201811 **Lab ID: 60287044005** Collected: 11/15/18 09:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.0J**	ug/L	10.0	1.9	1		11/23/18 23:37	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/23/18 23:37	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/23/18 23:37	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/23/18 23:37	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/23/18 23:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/23/18 23:37	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/23/18 23:37	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/23/18 23:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/23/18 23:37	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:37	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/23/18 23:37	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/23/18 23:37	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/23/18 23:37	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/23/18 23:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/23/18 23:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/23/18 23:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/23/18 23:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/23/18 23:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/23/18 23:37	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/23/18 23:37	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/23/18 23:37	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/23/18 23:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/23/18 23:37	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/23/18 23:37	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/23/18 23:37	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/23/18 23:37	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/23/18 23:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/23/18 23:37	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/23/18 23:37	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/23/18 23:37	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/23/18 23:37	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/23/18 23:37	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/23/18 23:37	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/23/18 23:37	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/23/18 23:37		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-97-201811 **Lab ID: 60287044006** Collected: 11/15/18 11:42 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.4J**	ug/L	10.0	1.9	1		11/23/18 23:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/23/18 23:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/23/18 23:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/23/18 23:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/23/18 23:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/23/18 23:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/23/18 23:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/23/18 23:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/23/18 23:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/23/18 23:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/23/18 23:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/23/18 23:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/23/18 23:51	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/23/18 23:51	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/23/18 23:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/23/18 23:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/23/18 23:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/23/18 23:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/23/18 23:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/23/18 23:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/23/18 23:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/23/18 23:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/23/18 23:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/23/18 23:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/23/18 23:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/23/18 23:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/23/18 23:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/23/18 23:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/23/18 23:51	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/23/18 23:51	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/23/18 23:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/23/18 23:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/23/18 23:51	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/23/18 23:51	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/23/18 23:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/23/18 23:51		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-24-201811 **Lab ID: 60287044007** Collected: 11/15/18 13:35 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**23.4**	ug/L	10.0	1.9	1		11/24/18 00:19	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 00:19	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:19	75-27-4	
Bromoform	**27.6**	ug/L	1.0	0.070	1		11/24/18 00:19	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:19	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:19	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:19	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:19	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:19	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:19	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 00:19	67-66-3	
Chloromethane	**1.8**	ug/L	1.0	0.080	1		11/24/18 00:19	74-87-3	
Dibromochloromethane	**1.0**	ug/L	1.0	0.21	1		11/24/18 00:19	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:19	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:19	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 00:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:19	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:19	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:19	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:19	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:19	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:19	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:19	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:19	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:19	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:19	79-00-5	
Trichloroethene	**12.6**	ug/L	1.0	0.17	1		11/24/18 00:19	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:19	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:19	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 00:19	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 00:19	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 00:19	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:19		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-02-201811 **Lab ID: 60287044008** Collected: 11/15/18 13:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**19.5**	ug/L	10.0	1.9	1		11/24/18 00:47	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 00:47	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:47	75-27-4	
Bromoform	**27.1**	ug/L	1.0	0.070	1		11/24/18 00:47	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:47	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:47	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:47	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:47	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:47	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 00:47	67-66-3	
Chloromethane	**1.9**	ug/L	1.0	0.080	1		11/24/18 00:47	74-87-3	
Dibromochloromethane	**1.0**	ug/L	1.0	0.21	1		11/24/18 00:47	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 00:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:47	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:47	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:47	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:47	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:47	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:47	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:47	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:47	79-00-5	
Trichloroethene	**12.5**	ug/L	1.0	0.17	1		11/24/18 00:47	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:47	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:47	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 00:47	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/24/18 00:47	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/24/18 00:47	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:47		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-55R-201811 **Lab ID: 60287044009** Collected: 11/15/18 15:56 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.6J**	ug/L	10.0	1.9	1		11/24/18 00:05	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 00:05	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:05	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 00:05	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:05	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:05	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:05	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:05	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:05	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 00:05	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 00:05	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 00:05	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:05	107-06-2	
1,1-Dichloroethene	**0.36J**	ug/L	1.0	0.20	1		11/24/18 00:05	75-35-4	
cis-1,2-Dichloroethene	**0.91J**	ug/L	1.0	0.080	1		11/24/18 00:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 00:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:05	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:05	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:05	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:05	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:05	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:05	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:05	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:05	79-00-5	
Trichloroethene	**22.3**	ug/L	1.0	0.17	1		11/24/18 00:05	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:05	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:05	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 00:05	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/24/18 00:05	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/24/18 00:05	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:05		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-08-201811 **Lab ID: 60287044010** Collected: 11/15/18 15:56 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		11/24/18 01:01	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 01:01	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 01:01	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 01:01	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 01:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 01:01	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 01:01	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 01:01	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 01:01	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 01:01	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 01:01	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 01:01	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 01:01	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 01:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 01:01	107-06-2	
1,1-Dichloroethene	**0.32J**	ug/L	1.0	0.20	1		11/24/18 01:01	75-35-4	
cis-1,2-Dichloroethene	**0.85J**	ug/L	1.0	0.080	1		11/24/18 01:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 01:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 01:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 01:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 01:01	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 01:01	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 01:01	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 01:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 01:01	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 01:01	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 01:01	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 01:01	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 01:01	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 01:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 01:01	79-00-5	
Trichloroethene	**23.1**	ug/L	1.0	0.17	1		11/24/18 01:01	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 01:01	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 01:01	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/24/18 01:01	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/24/18 01:01	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 01:01	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 01:01		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: IW-77-201811 **Lab ID: 60287044011** Collected: 11/15/18 17:10 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.8J**	ug/L	10.0	1.9	1		11/24/18 00:33	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/24/18 00:33	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 00:33	75-27-4	
Bromoform	**1.5**	ug/L	1.0	0.070	1		11/24/18 00:33	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 00:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 00:33	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 00:33	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 00:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 00:33	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:33	75-00-3	
Chloroform	**0.19J**	ug/L	1.0	0.14	1		11/24/18 00:33	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 00:33	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 00:33	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 00:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 00:33	107-06-2	
1,1-Dichloroethene	**0.41J**	ug/L	1.0	0.20	1		11/24/18 00:33	75-35-4	
cis-1,2-Dichloroethene	**5.1**	ug/L	1.0	0.080	1		11/24/18 00:33	156-59-2	
trans-1,2-Dichloroethene	**0.59J**	ug/L	1.0	0.20	1		11/24/18 00:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 00:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 00:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 00:33	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 00:33	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 00:33	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 00:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 00:33	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 00:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 00:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 00:33	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 00:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 00:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 00:33	79-00-5	
Trichloroethene	**218**	ug/L	5.0	0.85	5		11/26/18 05:13	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 00:33	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 00:33	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 00:33	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	80-117		1		11/24/18 00:33	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 00:33	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 00:33		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-12-201811 **Lab ID: 60287044012** Collected: 11/15/18 09:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 06:25	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 06:25	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 06:25	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 06:25	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 06:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 06:25	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 06:25	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 06:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 06:25	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:25	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 06:25	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 06:25	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 06:25	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 06:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 06:25	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/24/18 06:25	75-35-4	
cis-1,2-Dichloroethene	**13.7**	ug/L	1.0	0.080	1		11/24/18 06:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 06:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 06:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 06:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 06:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 06:25	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 06:25	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 06:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 06:25	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 06:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 06:25	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 06:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 06:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 06:25	79-00-5	
Trichloroethene	**429**	ug/L	10.0	1.7	10		11/26/18 05:27	79-01-6	
Vinyl chloride	**0.41J**	ug/L	1.0	0.13	1		11/24/18 06:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 06:25	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/24/18 06:25	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 06:25	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/24/18 06:25	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 06:25		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-04-201811 **Lab ID: 60287044013** Collected: 11/15/18 09:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.1J**	ug/L	10.0	1.9	1		11/24/18 05:15	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 05:15	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 05:15	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 05:15	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 05:15	74-83-9	
2-Butanone (MEK)	**3.7J**	ug/L	10.0	0.59	1		11/24/18 05:15	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 05:15	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 05:15	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 05:15	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:15	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 05:15	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 05:15	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 05:15	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 05:15	75-34-3	
1,2-Dichloroethane	**0.26J**	ug/L	1.0	0.12	1		11/24/18 05:15	107-06-2	
1,1-Dichloroethene	**1.8**	ug/L	1.0	0.20	1		11/24/18 05:15	75-35-4	
cis-1,2-Dichloroethene	**12.8**	ug/L	1.0	0.080	1		11/24/18 05:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 05:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 05:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 05:15	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 05:15	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 05:15	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 05:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 05:15	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 05:15	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:15	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 05:15	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 05:15	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 05:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 05:15	79-00-5	
Trichloroethene	**470**	ug/L	10.0	1.7	10		11/26/18 05:41	79-01-6	
Vinyl chloride	**0.37J**	ug/L	1.0	0.13	1		11/24/18 05:15	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 05:15	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 05:15	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	80-117		1		11/24/18 05:15	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/24/18 05:15	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 05:15		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-82-201811 **Lab ID: 60287044014** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**28.8**	ug/L	10.0	1.9	1		11/24/18 02:54	67-64-1	
Benzene	**0.16J**	ug/L	1.0	0.060	1		11/24/18 02:54	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 02:54	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 02:54	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 02:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 02:54	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 02:54	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 02:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 02:54	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:54	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 02:54	67-66-3	
Chloromethane	**0.30J**	ug/L	1.0	0.080	1		11/24/18 02:54	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 02:54	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 02:54	75-34-3	
1,2-Dichloroethane	**0.21J**	ug/L	1.0	0.12	1		11/24/18 02:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:54	75-35-4	
cis-1,2-Dichloroethene	**1.2**	ug/L	1.0	0.080	1		11/24/18 02:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 02:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 02:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 02:54	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 02:54	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 02:54	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 02:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 02:54	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 02:54	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 02:54	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 02:54	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 02:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 02:54	79-00-5	
Trichloroethene	**60.3**	ug/L	1.0	0.17	1		11/27/18 00:22	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 02:54	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 02:54	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 02:54	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/24/18 02:54	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 02:54	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 02:54		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-7-201811 **Lab ID: 60287044015** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		11/24/18 03:08	67-64-1	
Benzene	**0.14J**	ug/L	1.0	0.060	1		11/24/18 03:08	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:08	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:08	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:08	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:08	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:08	56-23-5	
Chlorobenzene	**3.1**	ug/L	1.0	0.21	1		11/24/18 03:08	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:08	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:08	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:08	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:08	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 03:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:08	75-35-4	
cis-1,2-Dichloroethene	**7.3**	ug/L	1.0	0.080	1		11/24/18 03:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:08	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:08	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:08	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:08	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:08	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:08	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:08	79-00-5	
Trichloroethene	**22.8**	ug/L	1.0	0.17	1		11/27/18 00:36	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:08	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:08	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		11/24/18 03:08	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/24/18 03:08	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 03:08	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:08		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-19-201811 **Lab ID: 60287044016** Collected: 11/15/18 14:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**16.4**	ug/L	10.0	1.9	1		11/24/18 05:28	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 05:28	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 05:28	75-27-4	
Bromoform	**5.3**	ug/L	1.0	0.070	1		11/24/18 05:28	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 05:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 05:28	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 05:28	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 05:28	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 05:28	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:28	75-00-3	
Chloroform	**1.2**	ug/L	1.0	0.14	1		11/24/18 05:28	67-66-3	
Chloromethane	**0.63J**	ug/L	1.0	0.080	1		11/24/18 05:28	74-87-3	
Dibromochloromethane	**0.55J**	ug/L	1.0	0.21	1		11/24/18 05:28	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 05:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 05:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:28	75-35-4	
cis-1,2-Dichloroethene	**1.3**	ug/L	1.0	0.080	1		11/24/18 05:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 05:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 05:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 05:28	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 05:28	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 05:28	591-78-6	
Methylene chloride	**0.31J**	ug/L	1.0	0.15	1		11/24/18 05:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 05:28	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 05:28	100-42-5	
1,1,2,2-Tetrachloroethane	**0.55J**	ug/L	1.0	0.15	1		11/24/18 05:28	79-34-5	
Tetrachloroethene	**0.32J**	ug/L	1.0	0.10	1		11/24/18 05:28	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 05:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 05:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 05:28	79-00-5	
Trichloroethene	**204**	ug/L	5.0	0.85	5		11/27/18 00:50	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 05:28	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 05:28	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/24/18 05:28	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/24/18 05:28	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/24/18 05:28	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	1		11/24/18 05:28		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-93-201811 **Lab ID: 60287044017** Collected: 11/15/18 15:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.5J**	ug/L	10.0	1.9	1		11/28/18 12:52	67-64-1	
Benzene	**0.12J**	ug/L	1.0	0.060	1		11/28/18 12:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 12:52	75-27-4	
Bromoform	**0.34J**	ug/L	1.0	0.070	1		11/28/18 12:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 12:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 12:52	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 12:52	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 12:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 12:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 12:52	75-00-3	
Chloroform	**3.6**	ug/L	1.0	0.14	1		11/28/18 12:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 12:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 12:52	124-48-1	
1,1-Dichloroethane	**0.31J**	ug/L	1.0	0.050	1		11/28/18 12:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 12:52	107-06-2	
1,1-Dichloroethene	**15.0**	ug/L	1.0	0.20	1		11/28/18 12:52	75-35-4	
cis-1,2-Dichloroethene	**106**	ug/L	1.0	0.080	1		11/28/18 12:52	156-59-2	
trans-1,2-Dichloroethene	**10.6**	ug/L	1.0	0.20	1		11/28/18 12:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 12:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 12:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 12:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 12:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 12:52	591-78-6	
Methylene chloride	**1.6**	ug/L	1.0	0.15	1		11/28/18 12:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 12:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 12:52	100-42-5	
1,1,2,2-Tetrachloroethane	**0.40J**	ug/L	1.0	0.15	1		11/28/18 12:52	79-34-5	
Tetrachloroethene	**4.3**	ug/L	1.0	0.10	1		11/28/18 12:52	127-18-4	
Toluene	**0.30J**	ug/L	1.0	0.17	1		11/28/18 12:52	108-88-3	
1,1,1-Trichloroethane	**0.51J**	ug/L	1.0	0.11	1		11/28/18 12:52	71-55-6	
1,1,2-Trichloroethane	**0.99J**	ug/L	1.0	0.20	1		11/28/18 12:52	79-00-5	
Trichloroethene	**16300**	ug/L	200	34.0	200		11/27/18 01:18	79-01-6	
Vinyl chloride	**3.6**	ug/L	1.0	0.13	1		11/28/18 12:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 12:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/28/18 12:52	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/28/18 12:52	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 12:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 12:52		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-189-201811 **Lab ID: 60287044018** Collected: 11/15/18 16:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 05:57	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 05:57	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 05:57	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 05:57	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 05:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 05:57	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 05:57	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 05:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 05:57	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:57	75-00-3	
Chloroform	**0.26J**	ug/L	1.0	0.14	1		11/24/18 05:57	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 05:57	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 05:57	124-48-1	
1,1-Dichloroethane	**1.4**	ug/L	1.0	0.050	1		11/24/18 05:57	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/24/18 05:57	107-06-2	
1,1-Dichloroethene	**1.8**	ug/L	1.0	0.20	1		11/24/18 05:57	75-35-4	
cis-1,2-Dichloroethene	**11.3**	ug/L	1.0	0.080	1		11/24/18 05:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 05:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 05:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 05:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 05:57	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 05:57	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 05:57	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 05:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 05:57	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 05:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 05:57	79-34-5	
Tetrachloroethene	**0.39J**	ug/L	1.0	0.10	1		11/24/18 05:57	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 05:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 05:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 05:57	79-00-5	
Trichloroethene	**670**	ug/L	10.0	1.7	10		11/27/18 01:04	79-01-6	
Vinyl chloride	**0.64J**	ug/L	1.0	0.13	1		11/24/18 05:57	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 05:57	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 05:57	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	80-117		1		11/24/18 05:57	17060-07-0	
Toluene-d8 (S)	93	%	80-115		1		11/24/18 05:57	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 05:57		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TRIP BLANK **Lab ID: 60287044019** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 02:26	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 02:26	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 02:26	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 02:26	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 02:26	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 02:26	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 02:26	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 02:26	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 02:26	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:26	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 02:26	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 02:26	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 02:26	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 02:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 02:26	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 02:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 02:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 02:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 02:26	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 02:26	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 02:26	591-78-6	
Methylene chloride	**0.42J**	ug/L	1.0	0.15	1		11/24/18 02:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 02:26	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 02:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:26	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 02:26	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 02:26	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 02:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 02:26	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 02:26	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 02:26	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 02:26	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/24/18 02:26	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 02:26	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/24/18 02:26	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 02:26		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: EB-01-201811 **Lab ID: 60287044020** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 02:40	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 02:40	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 02:40	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 02:40	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 02:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 02:40	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 02:40	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 02:40	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 02:40	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:40	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 02:40	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 02:40	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 02:40	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 02:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 02:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 02:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 02:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 02:40	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 02:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 02:40	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 02:40	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 02:40	591-78-6	
Methylene chloride	**0.56J**	ug/L	1.0	0.15	1		11/24/18 02:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 02:40	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 02:40	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 02:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 02:40	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 02:40	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 02:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 02:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 02:40	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 02:40	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 02:40	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	94	%	80-119		1		11/24/18 02:40	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/24/18 02:40	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 02:40	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 02:40		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-190-201811 **Lab ID: 60287044021** Collected: 11/15/18 09:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.2J**	ug/L	10.0	1.9	1		11/24/18 03:22	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 03:22	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:22	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:22	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:22	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:22	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 03:22	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:22	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:22	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:22	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:22	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:22	75-34-3	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.12	1		11/24/18 03:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 03:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:22	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:22	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:22	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:22	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:22	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:22	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:22	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:22	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:22	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 03:22	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:22	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:22	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		11/24/18 03:22	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 03:22	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/24/18 03:22	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:22		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-21-201811 **Lab ID: 60287044022** Collected: 11/15/18 11:01 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**16.6**	ug/L	10.0	1.9	1		11/24/18 03:36	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 03:36	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:36	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:36	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:36	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:36	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:36	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:36	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 03:36	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:36	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:36	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:36	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:36	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 03:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 03:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:36	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:36	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:36	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:36	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:36	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:36	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:36	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:36	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:36	79-00-5	
Trichloroethene	**8.0**	ug/L	1.0	0.17	1		11/27/18 04:08	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:36	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:36	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 03:36	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	80-117		1		11/24/18 03:36	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 03:36	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:36		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-1-201811 **Lab ID: 60287044023** Collected: 11/15/18 12:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**20.3**	ug/L	10.0	1.9	1		11/24/18 03:50	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 03:50	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 03:50	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 03:50	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 03:50	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 03:50	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 03:50	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 03:50	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 03:50	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:50	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 03:50	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 03:50	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 03:50	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 03:50	75-34-3	
1,2-Dichloroethane	**0.17J**	ug/L	1.0	0.12	1		11/24/18 03:50	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:50	75-35-4	
cis-1,2-Dichloroethene	**5.4**	ug/L	1.0	0.080	1		11/24/18 03:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 03:50	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 03:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 03:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 03:50	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 03:50	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 03:50	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 03:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 03:50	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 03:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 03:50	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 03:50	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 03:50	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 03:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 03:50	79-00-5	
Trichloroethene	**12.7**	ug/L	1.0	0.17	1		11/27/18 04:22	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 03:50	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 03:50	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		11/24/18 03:50	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/24/18 03:50	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/24/18 03:50	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 03:50		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-5-201811 **Lab ID: 60287044024** Collected: 11/15/18 14:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.7J**	ug/L	10.0	1.9	1		11/26/18 13:48	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 13:48	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 13:48	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 13:48	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 13:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 13:48	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 13:48	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 13:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 13:48	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:48	75-00-3	
Chloroform	**0.62J**	ug/L	1.0	0.14	1		11/26/18 13:48	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 13:48	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 13:48	124-48-1	
1,1-Dichloroethane	**1.5**	ug/L	1.0	0.050	1		11/26/18 13:48	75-34-3	
1,2-Dichloroethane	**0.13J**	ug/L	1.0	0.12	1		11/26/18 13:48	107-06-2	B
1,1-Dichloroethene	**6.0**	ug/L	1.0	0.20	1		11/26/18 13:48	75-35-4	
cis-1,2-Dichloroethene	**36.9**	ug/L	1.0	0.080	1		11/26/18 13:48	156-59-2	
trans-1,2-Dichloroethene	**0.32J**	ug/L	1.0	0.20	1		11/26/18 13:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 13:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 13:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 13:48	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 13:48	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 13:48	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 13:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 13:48	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 13:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:48	79-34-5	
Tetrachloroethene	**1.4**	ug/L	1.0	0.10	1		11/26/18 13:48	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 13:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 13:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 13:48	79-00-5	
Trichloroethene	**2250**	ug/L	20.0	3.4	20		11/26/18 14:02	79-01-6	
Vinyl chloride	**2.0**	ug/L	1.0	0.13	1		11/26/18 13:48	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 13:48	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 13:48	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/26/18 13:48	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 13:48	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 13:48		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-91-201811 **Lab ID: 60287044025** Collected: 11/15/18 15:45 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 06:53	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 06:53	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 06:53	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 06:53	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 06:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 06:53	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 06:53	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 06:53	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 06:53	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:53	75-00-3	
Chloroform	**0.19J**	ug/L	1.0	0.14	1		11/24/18 06:53	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 06:53	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 06:53	124-48-1	
1,1-Dichloroethane	**1.6**	ug/L	1.0	0.050	1		11/24/18 06:53	75-34-3	
1,2-Dichloroethane	**0.23J**	ug/L	1.0	0.12	1		11/24/18 06:53	107-06-2	
1,1-Dichloroethene	**4.1**	ug/L	1.0	0.20	1		11/24/18 06:53	75-35-4	
cis-1,2-Dichloroethene	**33.4**	ug/L	1.0	0.080	1		11/24/18 06:53	156-59-2	
trans-1,2-Dichloroethene	**0.60J**	ug/L	1.0	0.20	1		11/24/18 06:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 06:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 06:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 06:53	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 06:53	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 06:53	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 06:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 06:53	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 06:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 06:53	79-34-5	
Tetrachloroethene	**4.0**	ug/L	1.0	0.10	1		11/24/18 06:53	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 06:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 06:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 06:53	79-00-5	
Trichloroethene	**437**	ug/L	10.0	1.7	10		11/27/18 04:50	79-01-6	
Vinyl chloride	**0.30J**	ug/L	1.0	0.13	1		11/24/18 06:53	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 06:53	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/24/18 06:53	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/24/18 06:53	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/24/18 06:53	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 06:53		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-29-201811 **Lab ID: 60287044026** Collected: 11/15/18 09:10 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/24/18 04:04	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 04:04	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:04	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:04	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 04:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:04	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:04	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:04	56-23-5	
Chlorobenzene	**2.1**	ug/L	1.0	0.21	1		11/24/18 04:04	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:04	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:04	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 04:04	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:04	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 04:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:04	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:04	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:04	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:04	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:04	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:04	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 04:04	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:04	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/24/18 04:04	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/24/18 04:04	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/24/18 04:04	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:04		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-39R-201811 **Lab ID: 60287044027** Collected: 11/15/18 10:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		11/24/18 04:18	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 04:18	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:18	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:18	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 04:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:18	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:18	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 04:18	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:18	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:18	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 04:18	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:18	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 04:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:18	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:18	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:18	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:18	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:18	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/24/18 04:18	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:18	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:18	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		11/24/18 04:18	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/24/18 04:18	17060-07-0	
Toluene-d8 (S)	90	%	80-115		1		11/24/18 04:18	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:18		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-182-201811 **Lab ID: 60287044028** Collected: 11/15/18 14:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.2J**	ug/L	10.0	1.9	1		11/24/18 04:46	67-64-1	
Benzene	**0.19J**	ug/L	1.0	0.060	1		11/24/18 04:46	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:46	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:46	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/24/18 04:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:46	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:46	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:46	56-23-5	
Chlorobenzene	**7.3**	ug/L	1.0	0.21	1		11/24/18 04:46	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:46	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:46	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/24/18 04:46	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:46	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:46	75-35-4	
cis-1,2-Dichloroethene	**2.5**	ug/L	1.0	0.080	1		11/24/18 04:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:46	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:46	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:46	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:46	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:46	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:46	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:46	79-00-5	
Trichloroethene	**40.8**	ug/L	1.0	0.17	1		11/27/18 04:36	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:46	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:46	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	94	%	80-119		1		11/24/18 04:46	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/24/18 04:46	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/24/18 04:46	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:46		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: IW-78-201811 **Lab ID: 60287044029** Collected: 11/15/18 15:25 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**15.8**	ug/L	10.0	1.9	1		11/24/18 04:33	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/24/18 04:33	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/24/18 04:33	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/24/18 04:33	75-25-2	
Bromomethane	**1.3J**	ug/L	5.0	0.16	1		11/24/18 04:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/24/18 04:33	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/24/18 04:33	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/24/18 04:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/24/18 04:33	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:33	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/24/18 04:33	67-66-3	
Chloromethane	**2.8**	ug/L	1.0	0.080	1		11/24/18 04:33	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/24/18 04:33	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/24/18 04:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/24/18 04:33	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/24/18 04:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/24/18 04:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/24/18 04:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/24/18 04:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/24/18 04:33	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/24/18 04:33	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/24/18 04:33	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/24/18 04:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/24/18 04:33	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/24/18 04:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/24/18 04:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/24/18 04:33	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/24/18 04:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/24/18 04:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/24/18 04:33	79-00-5	
Trichloroethene	**0.74J**	ug/L	1.0	0.17	1		11/24/18 04:33	79-01-6	L1
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/24/18 04:33	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/24/18 04:33	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/24/18 04:33	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/24/18 04:33	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/24/18 04:33	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/24/18 04:33		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-24-201811 **Lab ID: 60287044030** Collected: 11/15/18 17:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		11/26/18 12:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 12:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 12:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 12:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 12:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 12:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 12:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 12:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 12:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 12:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 12:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 12:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 12:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 12:51	107-06-2	
1,1-Dichloroethene	**1.1**	ug/L	1.0	0.20	1		11/26/18 12:51	75-35-4	
cis-1,2-Dichloroethene	**10.9**	ug/L	1.0	0.080	1		11/26/18 12:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 12:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 12:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 12:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 12:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 12:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 12:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 12:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 12:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 12:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 12:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 12:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 12:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 12:51	79-00-5	
Trichloroethene	**540**	ug/L	10.0	1.7	10		11/26/18 13:06	79-01-6	
Vinyl chloride	**0.25J**	ug/L	1.0	0.13	1		11/26/18 12:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 12:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 12:51	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/26/18 12:51	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 12:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 12:51		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-26-201811 **Lab ID: 60287044031** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1300000**	ug/L	500	61.5	10	11/29/18 11:42	11/30/18 19:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**242**	ug/L	50.0	9.4	5		11/24/18 05:00	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/24/18 05:00	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/24/18 05:00	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/24/18 05:00	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/24/18 05:00	74-83-9	
2-Butanone (MEK)	**1460**	ug/L	50.0	3.0	5		11/24/18 05:00	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/24/18 05:00	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/24/18 05:00	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/24/18 05:00	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/24/18 05:00	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/24/18 05:00	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/24/18 05:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/24/18 05:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/24/18 05:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	75-35-4	
cis-1,2-Dichloroethene	**11.1**	ug/L	5.0	0.40	5		11/24/18 05:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/24/18 05:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/24/18 05:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/24/18 05:00	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/24/18 05:00	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/24/18 05:00	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/24/18 05:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/24/18 05:00	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/24/18 05:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/24/18 05:00	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/24/18 05:00	127-18-4	
Toluene	**1.1J**	ug/L	5.0	0.85	5		11/24/18 05:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/24/18 05:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/24/18 05:00	79-00-5	
Trichloroethene	**54.4**	ug/L	5.0	0.85	5		11/27/18 21:38	79-01-6	
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/24/18 05:00	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/24/18 05:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		5		11/24/18 05:00	460-00-4	F1
1,2-Dichloroethane-d4 (S)	110	%	80-117		5		11/24/18 05:00	17060-07-0	
Toluene-d8 (S)	95	%	80-115		5		11/24/18 05:00	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	5		11/24/18 05:00		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**431**	mg/L	50.0	14.5	50		12/09/18 17:25	16887-00-6	
Sulfate	**239**	mg/L	20.0	4.8	20		12/09/18 16:42	14808-79-8	M1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-26-201811 **Lab ID: 60287044031** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.16**	mg/L	0.10	0.060	1		11/17/18 10:07		M1
Nitrogen, Nitrite	**0.25**	mg/L	0.10	0.033	1		11/17/18 10:07		
Nitrogen, NO2 plus NO3	**0.41**	mg/L	0.10	0.060	1		11/17/18 10:07		M1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**11800**	mg/L	1000	654	1000		11/29/18 19:13	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**10100**	mg/L	1000	654	1000		11/27/18 14:24	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-25-201811 **Lab ID: 60287044032** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1410000**	ug/L	500	61.5	10	11/29/18 11:42	11/30/18 19:45	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**193**	ug/L	50.0	9.4	5		11/26/18 11:41	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/26/18 11:41	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/26/18 11:41	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/26/18 11:41	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/26/18 11:41	74-83-9	
2-Butanone (MEK)	**328**	ug/L	50.0	3.0	5		11/26/18 11:41	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/26/18 11:41	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/26/18 11:41	56-23-5	
Chlorobenzene	**2.9J**	ug/L	5.0	1.0	5		11/26/18 11:41	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/26/18 11:41	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/26/18 11:41	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/26/18 11:41	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/26/18 11:41	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/26/18 11:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/26/18 11:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/26/18 11:41	75-35-4	
cis-1,2-Dichloroethene	**11.0**	ug/L	5.0	0.40	5		11/26/18 11:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/26/18 11:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/26/18 11:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/26/18 11:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/26/18 11:41	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/26/18 11:41	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/26/18 11:41	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/26/18 11:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/26/18 11:41	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/26/18 11:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/26/18 11:41	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/26/18 11:41	127-18-4	
Toluene	ND	ug/L	5.0	0.85	5		11/26/18 11:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/26/18 11:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/26/18 11:41	79-00-5	
Trichloroethene	**58.6**	ug/L	5.0	0.85	5		11/26/18 11:41	79-01-6	
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/26/18 11:41	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/26/18 11:41	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		5		11/26/18 11:41	460-00-4	F1
1,2-Dichloroethane-d4 (S)	99	%	80-117		5		11/26/18 11:41	17060-07-0	
Toluene-d8 (S)	100	%	80-115		5		11/26/18 11:41	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	5		11/26/18 11:41		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**441**	mg/L	50.0	14.5	50		12/09/18 18:50	16887-00-6	
Sulfate	**186**	mg/L	20.0	4.8	20		12/09/18 18:36	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-25-201811 **Lab ID: 60287044032** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.14**	mg/L	0.10	0.060	1		11/17/18 10:10		
Nitrogen, Nitrite	**0.18**	mg/L	0.10	0.033	1		11/17/18 10:10		
Nitrogen, NO2 plus NO3	**0.32**	mg/L	0.10	0.060	1		11/17/18 10:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**13000**	mg/L	1000	654	1000		11/29/18 19:26	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**11000**	mg/L	1000	654	1000		11/27/18 14:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-21-201811 **Lab ID: 60287044033** Collected: 11/15/18 15:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**131000**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:47	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**331**	ug/L	10.0	1.9	1		11/26/18 13:20	67-64-1	
Benzene	**0.11J**	ug/L	1.0	0.060	1		11/26/18 13:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 13:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 13:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 13:20	74-83-9	
2-Butanone (MEK)	**760**	ug/L	10.0	0.59	1		11/26/18 13:20	78-93-3	
Carbon disulfide	**0.78J**	ug/L	5.0	0.12	1		11/26/18 13:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 13:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 13:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 13:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 13:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 13:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 13:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 13:20	107-06-2	
1,1-Dichloroethene	**0.21J**	ug/L	1.0	0.20	1		11/26/18 13:20	75-35-4	
cis-1,2-Dichloroethene	**86.3**	ug/L	1.0	0.080	1		11/26/18 13:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 13:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 13:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 13:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 13:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 13:20	100-41-4	
2-Hexanone	**6.5J**	ug/L	10.0	1.2	1		11/26/18 13:20	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 13:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.3J**	ug/L	10.0	0.42	1		11/26/18 13:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 13:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 13:20	127-18-4	
Toluene	**0.93J**	ug/L	1.0	0.17	1		11/26/18 13:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 13:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 13:20	79-00-5	
Trichloroethene	**22.1**	ug/L	1.0	0.17	1		11/26/18 13:20	79-01-6	
Vinyl chloride	**0.52J**	ug/L	1.0	0.13	1		11/26/18 13:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 13:20	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/26/18 13:20	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 13:20	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 13:20	2037-26-5	
Preservation pH	**3.0**		0.10	0.10	1		11/26/18 13:20		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**281**	mg/L	20.0	5.8	20		12/09/18 19:05	16887-00-6	
Sulfate	**10.6**	mg/L	1.0	0.24	1		12/10/18 10:04	14808-79-8	M1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-21-201811 **Lab ID: 60287044033** Collected: 11/15/18 15:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:06		
Nitrogen, Nitrite	**0.19**	mg/L	0.10	0.033	1		11/17/18 08:06		
Nitrogen, NO2 plus NO3	**0.13**	mg/L	0.10	0.060	1		11/17/18 08:06		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2770**	mg/L	500	327	500		11/29/18 19:51	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**2670**	mg/L	500	327	500		11/27/18 14:50	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-22R-201811 **Lab ID: 60287044034** Collected: 11/15/18 16:50 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**3510**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:49	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**32.8**	ug/L	10.0	1.9	1		11/26/18 14:16	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/26/18 14:16	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 14:16	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 14:16	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 14:16	74-83-9	
2-Butanone (MEK)	**20.5**	ug/L	10.0	0.59	1		11/26/18 14:16	78-93-3	
Carbon disulfide	**1.3J**	ug/L	5.0	0.12	1		11/26/18 14:16	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 14:16	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 14:16	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:16	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 14:16	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 14:16	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 14:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 14:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 14:16	107-06-2	
1,1-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/26/18 14:16	75-35-4	
cis-1,2-Dichloroethene	**71.2**	ug/L	1.0	0.080	1		11/26/18 14:16	156-59-2	
trans-1,2-Dichloroethene	**0.51J**	ug/L	1.0	0.20	1		11/26/18 14:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 14:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 14:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 14:16	10061-02-6	
Ethylbenzene	**0.36J**	ug/L	1.0	0.18	1		11/26/18 14:16	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 14:16	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 14:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 14:16	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 14:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:16	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 14:16	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 14:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 14:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 14:16	79-00-5	
Trichloroethene	**347**	ug/L	20.0	3.4	20		11/26/18 14:30	79-01-6	
Vinyl chloride	**0.16J**	ug/L	1.0	0.13	1		11/26/18 14:16	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 14:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 14:16	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 14:16	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 14:16	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**148**	mg/L	20.0	5.8	20		12/09/18 19:33	16887-00-6	
Sulfate	**7.3**	mg/L	1.0	0.24	1		12/09/18 19:19	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-22R-201811 **Lab ID: 60287044034** Collected: 11/15/18 16:50 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:12		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:12		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 08:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**161**	mg/L	50.0	32.7	50		11/29/18 20:07	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	500	327	500		11/27/18 15:03	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-58R-201811 **Lab ID: 60287044035** Collected: 11/15/18 14:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**453**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:52	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**7.1J**	ug/L	10.0	1.9	1		11/26/18 11:55	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 11:55	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 11:55	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 11:55	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 11:55	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 11:55	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 11:55	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 11:55	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 11:55	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:55	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 11:55	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 11:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 11:55	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 11:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 11:55	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/26/18 11:55	75-35-4	
cis-1,2-Dichloroethene	**10.2**	ug/L	1.0	0.080	1		11/26/18 11:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 11:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 11:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 11:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 11:55	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 11:55	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 11:55	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 11:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 11:55	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 11:55	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:55	79-34-5	
Tetrachloroethene	**0.13J**	ug/L	1.0	0.10	1		11/26/18 11:55	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 11:55	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 11:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 11:55	79-00-5	
Trichloroethene	**312**	ug/L	5.0	0.85	5		11/26/18 12:09	79-01-6	
Vinyl chloride	**0.43J**	ug/L	1.0	0.13	1		11/26/18 11:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 11:55	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/26/18 11:55	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 11:55	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/26/18 11:55	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 11:55		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:34	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-58R-201811 **Lab ID: 60287044035** Collected: 11/15/18 14:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**2.4**	mg/L	1.0	0.24	1		12/09/18 19:47	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:05		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:05		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 08:05		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/29/18 20:20	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: DUP-05-201811 **Lab ID: 60287044036** Collected: 11/15/18 14:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.9J**	ug/L	10.0	1.9	1		11/26/18 11:27	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 11:27	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 11:27	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 11:27	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 11:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 11:27	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 11:27	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 11:27	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 11:27	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:27	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 11:27	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 11:27	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 11:27	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 11:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 11:27	107-06-2	
1,1-Dichloroethene	**1.7**	ug/L	1.0	0.20	1		11/26/18 11:27	75-35-4	
cis-1,2-Dichloroethene	**9.8**	ug/L	1.0	0.080	1		11/26/18 11:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 11:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 11:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 11:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 11:27	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 11:27	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 11:27	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 11:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 11:27	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 11:27	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 11:27	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 11:27	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 11:27	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 11:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 11:27	79-00-5	
Trichloroethene	**319**	ug/L	10.0	1.7	10		11/27/18 21:52	79-01-6	
Vinyl chloride	**0.47J**	ug/L	1.0	0.13	1		11/26/18 11:27	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 11:27	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 11:27	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 11:27	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/26/18 11:27	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 11:27		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-95-201811 **Lab ID: 60287044037** Collected: 11/15/18 15:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**27.4J**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:54	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		11/28/18 13:06	67-64-1	
Benzene	**0.12J**	ug/L	1.0	0.060	1		11/28/18 13:06	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 13:06	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 13:06	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 13:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 13:06	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 13:06	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 13:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 13:06	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 13:06	75-00-3	
Chloroform	**4.8**	ug/L	1.0	0.14	1		11/28/18 13:06	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 13:06	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 13:06	124-48-1	
1,1-Dichloroethane	**0.38J**	ug/L	1.0	0.050	1		11/28/18 13:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 13:06	107-06-2	
1,1-Dichloroethene	**29.5**	ug/L	1.0	0.20	1		11/28/18 13:06	75-35-4	
cis-1,2-Dichloroethene	**152**	ug/L	1.0	0.080	1		11/28/18 13:06	156-59-2	
trans-1,2-Dichloroethene	**7.8**	ug/L	1.0	0.20	1		11/28/18 13:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 13:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 13:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 13:06	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 13:06	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 13:06	591-78-6	
Methylene chloride	**2.9**	ug/L	1.0	0.15	1		11/28/18 13:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 13:06	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 13:06	100-42-5	
1,1,2,2-Tetrachloroethane	**0.34J**	ug/L	1.0	0.15	1		11/28/18 13:06	79-34-5	
Tetrachloroethene	**6.0**	ug/L	1.0	0.10	1		11/28/18 13:06	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 13:06	108-88-3	
1,1,1-Trichloroethane	**0.37J**	ug/L	1.0	0.11	1		11/28/18 13:06	71-55-6	
1,1,2-Trichloroethane	**1.5**	ug/L	1.0	0.20	1		11/28/18 13:06	79-00-5	
Trichloroethene	**20300**	ug/L	200	34.0	200		11/26/18 15:41	79-01-6	
Vinyl chloride	**39.6**	ug/L	1.0	0.13	1		11/28/18 13:06	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 13:06	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/28/18 13:06	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/28/18 13:06	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/28/18 13:06	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 13:06		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:34	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-95-201811 **Lab ID: 60287044037** Collected: 11/15/18 15:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**3.8**	mg/L	1.0	0.24	1		12/09/18 20:01	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.83**	mg/L	0.10	0.060	1		11/17/18 08:10		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:10		
Nitrogen, NO2 plus NO3	**0.86**	mg/L	0.10	0.060	1		11/17/18 08:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/29/18 20:33	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-9-201811 **Lab ID: 60287044038** Collected: 11/15/18 15:20 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**22.3J**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:56	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/26/18 12:23	67-64-1	
Benzene	**1.3**	ug/L	1.0	0.060	1		11/26/18 12:23	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 12:23	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 12:23	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 12:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 12:23	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 12:23	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 12:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 12:23	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:23	75-00-3	
Chloroform	**0.49J**	ug/L	1.0	0.14	1		11/26/18 12:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 12:23	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 12:23	124-48-1	
1,1-Dichloroethane	**4.7**	ug/L	1.0	0.050	1		11/26/18 12:23	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/26/18 12:23	107-06-2	B
1,1-Dichloroethene	**9.9**	ug/L	1.0	0.20	1		11/26/18 12:23	75-35-4	
cis-1,2-Dichloroethene	**77.1**	ug/L	1.0	0.080	1		11/26/18 12:23	156-59-2	
trans-1,2-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/26/18 12:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 12:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 12:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 12:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 12:23	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 12:23	591-78-6	
Methylene chloride	**0.94J**	ug/L	1.0	0.15	1		11/26/18 12:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 12:23	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 12:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 12:23	79-34-5	
Tetrachloroethene	**2.1**	ug/L	1.0	0.10	1		11/26/18 12:23	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 12:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 12:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 12:23	79-00-5	
Trichloroethene	**1390**	ug/L	20.0	3.4	20		11/27/18 22:06	79-01-6	
Vinyl chloride	**2.0**	ug/L	1.0	0.13	1		11/26/18 12:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 12:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 12:23	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		11/26/18 12:23	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/26/18 12:23	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 12:23		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:36	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: ITMW-9-201811 **Lab ID: 60287044038** Collected: 11/15/18 15:20 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**29.0**	mg/L	2.0	0.48	2		12/10/18 10:47	14808-79-8	M1
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**4.3**	mg/L	0.10	0.060	1		11/17/18 08:09		
Nitrogen, Nitrite	**0.18**	mg/L	0.10	0.033	1		11/17/18 08:09		
Nitrogen, NO2 plus NO3	**4.5**	mg/L	0.10	0.060	1		11/17/18 08:09		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.5**	mg/L	1.0	0.65	1		11/29/18 20:45	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-87-201811 **Lab ID: 60287044039** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**47.0J**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:58	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.0J**	ug/L	10.0	1.9	1		11/26/18 14:44	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 14:44	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 14:44	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 14:44	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 14:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 14:44	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 14:44	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 14:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 14:44	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:44	75-00-3	
Chloroform	**0.18J**	ug/L	1.0	0.14	1		11/26/18 14:44	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 14:44	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 14:44	124-48-1	
1,1-Dichloroethane	**1.1**	ug/L	1.0	0.050	1		11/26/18 14:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 14:44	107-06-2	
1,1-Dichloroethene	**2.9**	ug/L	1.0	0.20	1		11/26/18 14:44	75-35-4	
cis-1,2-Dichloroethene	**28.3**	ug/L	1.0	0.080	1		11/26/18 14:44	156-59-2	
trans-1,2-Dichloroethene	**0.95J**	ug/L	1.0	0.20	1		11/26/18 14:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 14:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 14:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 14:44	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 14:44	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 14:44	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 14:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 14:44	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 14:44	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:44	79-34-5	
Tetrachloroethene	**4.8**	ug/L	1.0	0.10	1		11/26/18 14:44	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 14:44	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 14:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 14:44	79-00-5	
Trichloroethene	**397**	ug/L	20.0	3.4	20		11/26/18 14:58	79-01-6	
Vinyl chloride	**0.77J**	ug/L	1.0	0.13	1		11/26/18 14:44	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 14:44	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 14:44	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/26/18 14:44	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 14:44	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 14:44		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:36	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-87-201811 **Lab ID: 60287044039** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**13.5**	mg/L	1.0	0.24	1		12/09/18 20:30	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**2.6**	mg/L	0.10	0.060	1		11/17/18 08:05		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:05		
Nitrogen, NO2 plus NO3	**2.6**	mg/L	0.10	0.060	1		11/17/18 08:05		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.69J**	mg/L	1.0	0.65	1		11/29/18 20:59	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-38-201811 **Lab ID: 60287044040** Collected: 11/15/18 09:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**4250**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 20:01	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		11/26/18 15:12	67-64-1	
Benzene	**0.18J**	ug/L	1.0	0.060	1		11/26/18 15:12	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 15:12	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 15:12	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 15:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 15:12	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 15:12	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 15:12	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 15:12	108-90-7	
Chloroethane	**0.98J**	ug/L	1.0	0.15	1		11/26/18 15:12	75-00-3	
Chloroform	**0.42J**	ug/L	1.0	0.14	1		11/26/18 15:12	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 15:12	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 15:12	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 15:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 15:12	107-06-2	
1,1-Dichloroethene	**7.7**	ug/L	1.0	0.20	1		11/26/18 15:12	75-35-4	
cis-1,2-Dichloroethene	**675**	ug/L	50.0	4.0	50		11/26/18 15:26	156-59-2	
trans-1,2-Dichloroethene	**4.0**	ug/L	1.0	0.20	1		11/26/18 15:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 15:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 15:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 15:12	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 15:12	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 15:12	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 15:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 15:12	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 15:12	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 15:12	79-34-5	
Tetrachloroethene	**0.21J**	ug/L	1.0	0.10	1		11/26/18 15:12	127-18-4	
Toluene	**0.24J**	ug/L	1.0	0.17	1		11/26/18 15:12	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 15:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 15:12	79-00-5	
Trichloroethene	**2340**	ug/L	50.0	8.5	50		11/26/18 15:26	79-01-6	
Vinyl chloride	**360**	ug/L	50.0	6.5	50		11/26/18 15:26	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 15:12	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 15:12	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 15:12	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 15:12	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 15:12		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/19/18 09:37	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: MW-38-201811 **Lab ID: 60287044040** Collected: 11/15/18 09:55 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**84.7**	mg/L	20.0	4.8	20		12/01/18 12:44	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:00		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:00		
Nitrogen, NO2 plus NO3	**0.061J**	mg/L	0.10	0.060	1		11/17/18 08:00		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.4**	mg/L	1.0	0.65	1		11/29/18 21:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TRIP BLANK **Lab ID: 60287044041** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/26/18 09:06	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 09:06	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:06	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:06	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 09:06	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:06	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:06	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:06	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:06	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 09:06	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:06	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:06	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/26/18 09:06	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:06	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:06	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:06	591-78-6	
Methylene chloride	**0.39J**	ug/L	1.0	0.15	1		11/26/18 09:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 09:06	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:06	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:06	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 09:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:06	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 09:06	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 09:06	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:06	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/26/18 09:06	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	80-117		1		11/26/18 09:06	17060-07-0	S0
Toluene-d8 (S)	94	%	80-115		1		11/26/18 09:06	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:06		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TRIP BLANK **Lab ID: 60287044042** Collected: 11/15/18 08:00 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		11/26/18 09:20	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/26/18 09:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 09:20	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 09:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 09:20	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:20	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:20	591-78-6	
Methylene chloride	**0.56J**	ug/L	1.0	0.15	1		11/26/18 09:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 09:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:20	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 09:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:20	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 09:20	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 09:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:20	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 09:20	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/26/18 09:20	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/26/18 09:20	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:20		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557483 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2287058 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	7.4J	50.0	6.1	12/01/18 14:49	

LABORATORY CONTROL SAMPLE: 2287059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2287060 2287061

Parameter	Units	40179870001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	19000	10000	10000	28400	28800	94	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556253 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044001, 60287044002, 60287044003, 60287044004

METHOD BLANK: 2282307 Matrix: Water
Associated Lab Samples: 60287044001, 60287044002, 60287044003, 60287044004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 02:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 02:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/21/18 02:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 02:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 02:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 02:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 02:06	
Acetone	ug/L	ND	10.0	1.9	11/21/18 02:06	
Benzene	ug/L	ND	1.0	0.060	11/21/18 02:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 02:06	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 02:06	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 02:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 02:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 02:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 02:06	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 02:06	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 02:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 02:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 02:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 02:06	
Styrene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 02:06	
Toluene	ug/L	ND	1.0	0.17	11/21/18 02:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 02:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 02:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 02:06	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/21/18 02:06	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 02:06	
Toluene-d8 (S)	%	98	80-115		11/21/18 02:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2282308

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.7	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.3	102	77-120	
1,2-Dichloropropane	ug/L	20	20.6	103	81-126	
2-Butanone (MEK)	ug/L	100	102	102	65-134	
2-Hexanone	ug/L	100	97.8	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	66-139	
Acetone	ug/L	100	99.0	99	62-142	
Benzene	ug/L	20	19.5	97	81-118	
Bromodichloromethane	ug/L	20	22.2	111	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.7	108	85-126	
Chlorobenzene	ug/L	20	20.3	101	87-118	
Chloroethane	ug/L	20	22.1	110	73-134	
Chloroform	ug/L	20	21.0	105	85-119	
Chloromethane	ug/L	20	22.7	114	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	20.6	103	83-122	
Ethylbenzene	ug/L	20	19.4	97	80-118	
Methylene chloride	ug/L	20	22.2	111	81-126	
Styrene	ug/L	20	20.5	103	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	19.9	100	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	101	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.1	100	80-122	
Trichloroethene	ug/L	20	22.7	113	82-120	
Vinyl chloride	ug/L	20	24.5	122	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	23.2	112	116	79-135	4	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	71-124	1	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.3	21.4	107	107	77-135	0	12	
1,1-Dichloroethene	ug/L	1.3	20	20	20.6	23.8	96	112	77-138	14	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.6	20.3	98	102	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	21.5	106	107	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	95.2	98.9	95	99	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	97.3	98.8	97	99	53-133	2	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	99.2	101	99	101	62-134	2	15	
Acetone	ug/L	3.0J	100	100	90.1	93.1	87	90	50-127	3	28	
Benzene	ug/L	ND	20	20	20.1	20.8	100	104	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.5	22.5	108	112	75-126	4	12	
Bromoform	ug/L	ND	20	20	19.2	20.8	96	104	70-122	8	14	
Bromomethane	ug/L	ND	20	20	19.5	20.9	98	104	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	20.7	21.4	103	107	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.4	116	117	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	20.4	21.5	102	107	74-130	5	10	
Chloroethane	ug/L	ND	20	20	23.0	23.4	115	117	67-153	2	27	
Chloroform	ug/L	ND	20	20	21.1	20.9	106	105	75-127	1	12	
Chloromethane	ug/L	ND	20	20	16.1	16.5	80	83	22-188	3	68	
cis-1,2-Dichloroethene	ug/L	5.4	20	20	25.4	25.7	100	101	69-135	1	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.9	100	105	61-129	4	11	
Dibromochloromethane	ug/L	ND	20	20	20.3	21.7	102	108	60-133	6	14	
Ethylbenzene	ug/L	ND	20	20	19.7	20.5	98	103	60-140	4	32	
Methylene chloride	ug/L	ND	20	20	21.4	21.5	107	107	72-131	0	16	
Styrene	ug/L	ND	20	20	19.4	20.3	97	101	59-142	5	12	
Tetrachloroethene	ug/L	ND	20	20	20.5	21.6	102	108	72-136	5	15	
Toluene	ug/L	ND	20	20	20.6	20.9	103	104	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.0	108	105	75-137	3	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.2	100	101	60-128	1	13	
Trichloroethene	ug/L	141	20	20	169	167	138	130	66-136	1	15	M1
Vinyl chloride	ug/L	0.53J	20	20	25.2	25.0	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	57.2	59.3	95	99	69-133	4	31	
1,2-Dichloroethane-d4 (S)	%						105	105	80-117			
4-Bromofluorobenzene (S)	%						103	101	80-119			
Toluene-d8 (S)	%						95	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556483 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044001, 60287044004

METHOD BLANK: 2283187 Matrix: Water
Associated Lab Samples: 60287044001, 60287044004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/23/18 09:17	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/23/18 09:17	
4-Bromofluorobenzene (S)	%	102	80-119		11/23/18 09:17	
Toluene-d8 (S)	%	98	80-115		11/23/18 09:17	

LABORATORY CONTROL SAMPLE: 2283188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	23.5	117	82-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556488 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044005, 60287044006, 60287044007, 60287044008, 60287044009, 60287044010, 60287044011

METHOD BLANK: 2283209 Matrix: Water
Associated Lab Samples: 60287044005, 60287044006, 60287044007, 60287044008, 60287044009, 60287044010, 60287044011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/23/18 21:02	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/23/18 21:02	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/23/18 21:02	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/23/18 21:02	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 21:02	
1,2-Dichloroethane	ug/L	0.17J	1.0	0.12	11/23/18 21:02	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/23/18 21:02	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/23/18 21:02	
2-Hexanone	ug/L	ND	10.0	1.2	11/23/18 21:02	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/23/18 21:02	
Acetone	ug/L	ND	10.0	1.9	11/23/18 21:02	
Benzene	ug/L	ND	1.0	0.060	11/23/18 21:02	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/23/18 21:02	
Bromoform	ug/L	ND	1.0	0.070	11/23/18 21:02	
Bromomethane	ug/L	ND	5.0	0.16	11/23/18 21:02	
Carbon disulfide	ug/L	ND	5.0	0.12	11/23/18 21:02	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/23/18 21:02	
Chlorobenzene	ug/L	ND	1.0	0.21	11/23/18 21:02	
Chloroethane	ug/L	ND	1.0	0.15	11/23/18 21:02	
Chloroform	ug/L	ND	1.0	0.14	11/23/18 21:02	
Chloromethane	ug/L	ND	1.0	0.080	11/23/18 21:02	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/23/18 21:02	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/23/18 21:02	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/23/18 21:02	
Ethylbenzene	ug/L	ND	1.0	0.18	11/23/18 21:02	
Methylene chloride	ug/L	ND	1.0	0.15	11/23/18 21:02	
Styrene	ug/L	ND	1.0	0.12	11/23/18 21:02	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/23/18 21:02	
Toluene	ug/L	ND	1.0	0.17	11/23/18 21:02	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 21:02	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/23/18 21:02	
Trichloroethene	ug/L	ND	1.0	0.17	11/23/18 21:02	
Vinyl chloride	ug/L	ND	1.0	0.13	11/23/18 21:02	
Xylene (Total)	ug/L	ND	3.0	0.42	11/23/18 21:02	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/23/18 21:02	
4-Bromofluorobenzene (S)	%	100	80-119		11/23/18 21:02	
Toluene-d8 (S)	%	96	80-115		11/23/18 21:02	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2283210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.9	114	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.9	104	83-119	
1,1-Dichloroethane	ug/L	20	22.6	113	85-128	
1,1-Dichloroethene	ug/L	20	22.5	112	85-123	
1,2-Dichloroethane	ug/L	20	22.3	111	77-120	
1,2-Dichloropropane	ug/L	20	21.5	107	81-126	
2-Butanone (MEK)	ug/L	100	111	111	65-134	
2-Hexanone	ug/L	100	104	104	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	108	108	66-139	
Acetone	ug/L	100	116	116	62-142	
Benzene	ug/L	20	20.6	103	81-118	
Bromodichloromethane	ug/L	20	24.1	120	85-123	
Bromoform	ug/L	20	21.9	110	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.7	103	85-124	
Carbon tetrachloride	ug/L	20	23.7	119	85-126	
Chlorobenzene	ug/L	20	21.6	108	87-118	
Chloroethane	ug/L	20	22.3	111	73-134	
Chloroform	ug/L	20	23.1	116	85-119	
Chloromethane	ug/L	20	26.3	131	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.3	107	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.1	110	80-124	
Dibromochloromethane	ug/L	20	22.7	113	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	23.5	118	81-126	
Styrene	ug/L	20	21.7	108	85-120	
Tetrachloroethene	ug/L	20	21.9	110	87-120	
Toluene	ug/L	20	21.5	107	82-118	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	83-121	
trans-1,3-Dichloropropene	ug/L	20	21.6	108	80-122	
Trichloroethene	ug/L	20	23.8	119	82-120	
Vinyl chloride	ug/L	20	24.9	125	74-147	
Xylene (Total)	ug/L	60	62.4	104	81-120	
1,2-Dichloroethane-d4 (S)	%			109	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			95	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556489 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044012, 60287044013, 60287044014, 60287044015, 60287044016, 60287044018, 60287044019, 60287044020, 60287044021, 60287044022, 60287044023, 60287044025, 60287044026, 60287044027, 60287044028, 60287044029, 60287044031

METHOD BLANK: 2283211 Matrix: Water
Associated Lab Samples: 60287044012, 60287044013, 60287044014, 60287044015, 60287044016, 60287044018, 60287044019, 60287044020, 60287044021, 60287044022, 60287044023, 60287044025, 60287044026, 60287044027, 60287044028, 60287044029, 60287044031

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/24/18 02:12	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/24/18 02:12	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/24/18 02:12	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/24/18 02:12	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/24/18 02:12	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/24/18 02:12	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/24/18 02:12	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/24/18 02:12	
2-Hexanone	ug/L	ND	10.0	1.2	11/24/18 02:12	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/24/18 02:12	
Acetone	ug/L	ND	10.0	1.9	11/24/18 02:12	
Benzene	ug/L	ND	1.0	0.060	11/24/18 02:12	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/24/18 02:12	
Bromoform	ug/L	ND	1.0	0.070	11/24/18 02:12	
Bromomethane	ug/L	ND	5.0	0.16	11/24/18 02:12	
Carbon disulfide	ug/L	ND	5.0	0.12	11/24/18 02:12	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/24/18 02:12	
Chlorobenzene	ug/L	ND	1.0	0.21	11/24/18 02:12	
Chloroethane	ug/L	ND	1.0	0.15	11/24/18 02:12	
Chloroform	ug/L	ND	1.0	0.14	11/24/18 02:12	
Chloromethane	ug/L	ND	1.0	0.080	11/24/18 02:12	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/24/18 02:12	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/24/18 02:12	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/24/18 02:12	
Ethylbenzene	ug/L	ND	1.0	0.18	11/24/18 02:12	
Methylene chloride	ug/L	ND	1.0	0.15	11/24/18 02:12	
Styrene	ug/L	ND	1.0	0.12	11/24/18 02:12	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/24/18 02:12	
Toluene	ug/L	ND	1.0	0.17	11/24/18 02:12	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/24/18 02:12	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/24/18 02:12	
Trichloroethene	ug/L	ND	1.0	0.17	11/24/18 02:12	
Vinyl chloride	ug/L	ND	1.0	0.13	11/24/18 02:12	
Xylene (Total)	ug/L	ND	3.0	0.42	11/24/18 02:12	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/24/18 02:12	
4-Bromofluorobenzene (S)	%	101	80-119		11/24/18 02:12	
Toluene-d8 (S)	%	94	80-115		11/24/18 02:12	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2283212

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	23.5	118	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.6	103	74-121	
1,1,2-Trichloroethane	ug/L	20	23.3	117	83-119	
1,1-Dichloroethane	ug/L	20	21.7	109	85-128	
1,1-Dichloroethene	ug/L	20	22.4	112	85-123	
1,2-Dichloroethane	ug/L	20	21.9	110	77-120	
1,2-Dichloropropane	ug/L	20	21.9	110	81-126	
2-Butanone (MEK)	ug/L	100	108	108	65-134	
2-Hexanone	ug/L	100	109	109	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	109	109	66-139	
Acetone	ug/L	100	110	110	62-142	
Benzene	ug/L	20	20.4	102	81-118	
Bromodichloromethane	ug/L	20	24.4	122	85-123	
Bromoform	ug/L	20	24.0	120	83-123	
Bromomethane	ug/L	20	16.3	82	39-149	
Carbon disulfide	ug/L	20	19.7	98	85-124	
Carbon tetrachloride	ug/L	20	23.9	120	85-126	
Chlorobenzene	ug/L	20	21.9	110	87-118	
Chloroethane	ug/L	20	22.1	111	73-134	
Chloroform	ug/L	20	22.7	114	85-119	
Chloromethane	ug/L	20	20.1	100	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.7	104	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.5	112	80-124	
Dibromochloromethane	ug/L	20	23.1	116	83-122	
Ethylbenzene	ug/L	20	20.5	103	80-118	
Methylene chloride	ug/L	20	22.1	110	81-126	
Styrene	ug/L	20	21.2	106	85-120	
Tetrachloroethene	ug/L	20	21.5	107	87-120	
Toluene	ug/L	20	21.6	108	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.1	105	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.3	111	80-122	
Trichloroethene	ug/L	20	24.4	122	82-120	L1
Vinyl chloride	ug/L	20	22.9	115	74-147	
Xylene (Total)	ug/L	60	60.5	101	81-120	
1,2-Dichloroethane-d4 (S)	%			108	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556702 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044011, 60287044012, 60287044013

METHOD BLANK: 2284126 Matrix: Water
Associated Lab Samples: 60287044011, 60287044012, 60287044013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 01:00	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 01:00	
4-Bromofluorobenzene (S)	%	97	80-119		11/26/18 01:00	
Toluene-d8 (S)	%	97	80-115		11/26/18 01:00	

LABORATORY CONTROL SAMPLE: 2284127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.2	101	82-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556704 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044024, 60287044030, 60287044032, 60287044033, 60287044034, 60287044035, 60287044036, 60287044037, 60287044038, 60287044039, 60287044040, 60287044041, 60287044042

METHOD BLANK: 2284130 Matrix: Water
Associated Lab Samples: 60287044024, 60287044030, 60287044032, 60287044033, 60287044034, 60287044035, 60287044036, 60287044037, 60287044038, 60287044039, 60287044040, 60287044041, 60287044042

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/26/18 08:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/26/18 08:52	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,2-Dichloroethane	ug/L	0.12J	1.0	0.12	11/26/18 08:52	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/26/18 08:52	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/26/18 08:52	
2-Hexanone	ug/L	ND	10.0	1.2	11/26/18 08:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/26/18 08:52	
Acetone	ug/L	ND	10.0	1.9	11/26/18 08:52	
Benzene	ug/L	ND	1.0	0.060	11/26/18 08:52	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/26/18 08:52	
Bromoform	ug/L	ND	1.0	0.070	11/26/18 08:52	
Bromomethane	ug/L	ND	5.0	0.16	11/26/18 08:52	
Carbon disulfide	ug/L	ND	5.0	0.12	11/26/18 08:52	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/26/18 08:52	
Chlorobenzene	ug/L	ND	1.0	0.21	11/26/18 08:52	
Chloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
Chloroform	ug/L	ND	1.0	0.14	11/26/18 08:52	
Chloromethane	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/26/18 08:52	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/26/18 08:52	
Ethylbenzene	ug/L	ND	1.0	0.18	11/26/18 08:52	
Methylene chloride	ug/L	ND	1.0	0.15	11/26/18 08:52	
Styrene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/26/18 08:52	
Toluene	ug/L	ND	1.0	0.17	11/26/18 08:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 08:52	
Vinyl chloride	ug/L	ND	1.0	0.13	11/26/18 08:52	
Xylene (Total)	ug/L	ND	3.0	0.42	11/26/18 08:52	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 08:52	
4-Bromofluorobenzene (S)	%	99	80-119		11/26/18 08:52	
Toluene-d8 (S)	%	99	80-115		11/26/18 08:52	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2284131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.5	97	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.2	101	74-121	
1,1,2-Trichloroethane	ug/L	20	19.8	99	83-119	
1,1-Dichloroethane	ug/L	20	19.1	95	85-128	
1,1-Dichloroethene	ug/L	20	17.8	89	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	19.6	98	81-126	
2-Butanone (MEK)	ug/L	100	91.7	92	65-134	
2-Hexanone	ug/L	100	98.3	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.1	98	66-139	
Acetone	ug/L	100	81.3	81	62-142	
Benzene	ug/L	20	19.4	97	81-118	
Bromodichloromethane	ug/L	20	19.6	98	85-123	
Bromoform	ug/L	20	17.4	87	83-123	
Bromomethane	ug/L	20	24.3	122	39-149	
Carbon disulfide	ug/L	20	18.4	92	85-124	
Carbon tetrachloride	ug/L	20	19.4	97	85-126	
Chlorobenzene	ug/L	20	19.5	98	87-118	
Chloroethane	ug/L	20	22.5	113	73-134	
Chloroform	ug/L	20	19.3	96	85-119	
Chloromethane	ug/L	20	16.8	84	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.9	100	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.3	97	80-124	
Dibromochloromethane	ug/L	20	19.0	95	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.2	101	81-126	
Styrene	ug/L	20	18.9	95	85-120	
Tetrachloroethene	ug/L	20	18.8	94	87-120	
Toluene	ug/L	20	18.7	93	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.3	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.8	94	80-122	
Trichloroethene	ug/L	20	20.6	103	82-120	
Vinyl chloride	ug/L	20	22.5	113	74-147	
Xylene (Total)	ug/L	60	55.7	93	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556810 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044014, 60287044015, 60287044016, 60287044017, 60287044018

METHOD BLANK: 2284786 Matrix: Water
Associated Lab Samples: 60287044014, 60287044015, 60287044016, 60287044017, 60287044018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 20:36	
1,2-Dichloroethane-d4 (S)	%	101	80-117		11/26/18 20:36	
4-Bromofluorobenzene (S)	%	98	80-119		11/26/18 20:36	
Toluene-d8 (S)	%	98	80-115		11/26/18 20:36	

LABORATORY CONTROL SAMPLE: 2284787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.4	102	82-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			99	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556812 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044022, 60287044023, 60287044025, 60287044028

METHOD BLANK: 2284790 Matrix: Water
Associated Lab Samples: 60287044022, 60287044023, 60287044025, 60287044028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	0.19J	1.0	0.17	11/27/18 02:15	
1,2-Dichloroethane-d4 (S)	%	99	80-117		11/27/18 02:15	
4-Bromofluorobenzene (S)	%	98	80-119		11/27/18 02:15	
Toluene-d8 (S)	%	100	80-115		11/27/18 02:15	

LABORATORY CONTROL SAMPLE: 2284791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.9	104	82-120	
1,2-Dichloroethane-d4 (S)	%			100	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556988 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044031, 60287044036, 60287044038

METHOD BLANK: 2285301 Matrix: Water
Associated Lab Samples: 60287044031, 60287044036, 60287044038

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/27/18 18:20	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/27/18 18:20	
4-Bromofluorobenzene (S)	%	98	80-119		11/27/18 18:20	
Toluene-d8 (S)	%	100	80-115		11/27/18 18:20	

LABORATORY CONTROL SAMPLE: 2285302

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	21.5	108	82-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			101	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557295 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044017, 60287044037

METHOD BLANK: 2286312 Matrix: Water
Associated Lab Samples: 60287044017, 60287044037

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 11:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 11:56	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 11:56	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 11:56	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 11:56	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 11:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 11:56	
Acetone	ug/L	ND	10.0	1.9	11/28/18 11:56	
Benzene	ug/L	ND	1.0	0.060	11/28/18 11:56	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 11:56	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 11:56	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 11:56	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 11:56	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 11:56	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 11:56	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 11:56	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 11:56	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 11:56	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 11:56	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 11:56	
Styrene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 11:56	
Toluene	ug/L	ND	1.0	0.17	11/28/18 11:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 11:56	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 11:56	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/28/18 11:56	
4-Bromofluorobenzene (S)	%	101	80-119		11/28/18 11:56	
Toluene-d8 (S)	%	98	80-115		11/28/18 11:56	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2286313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.9	94	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	19.7	99	83-119	
1,1-Dichloroethane	ug/L	20	18.9	94	85-128	
1,1-Dichloroethene	ug/L	20	17.2	86	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	19.1	96	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	97.9	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.7	98	66-139	
Acetone	ug/L	100	90.8	91	62-142	
Benzene	ug/L	20	18.9	95	81-118	
Bromodichloromethane	ug/L	20	18.9	95	85-123	
Bromoform	ug/L	20	18.8	94	83-123	
Bromomethane	ug/L	20	10.5	53	39-149	
Carbon disulfide	ug/L	20	15.7	78	85-124	L2
Carbon tetrachloride	ug/L	20	19.2	96	85-126	
Chlorobenzene	ug/L	20	18.7	94	87-118	
Chloroethane	ug/L	20	18.5	92	73-134	
Chloroform	ug/L	20	18.6	93	85-119	
Chloromethane	ug/L	20	12.4	62	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.7	93	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	19.5	97	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	19.2	96	81-126	
Styrene	ug/L	20	18.8	94	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	18.2	91	82-118	
trans-1,2-Dichloroethene	ug/L	20	17.9	89	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.9	95	80-122	
Vinyl chloride	ug/L	20	15.1	76	74-147	
Xylene (Total)	ug/L	60	54.9	92	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555865 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2281117 Matrix: Water
Associated Lab Samples: 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/19/18 09:17	

LABORATORY CONTROL SAMPLE: 2281118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.48	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281119 2281120

Parameter	Units	60286928002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.47	0.48	95	95	75-125	1	20	

SAMPLE DUPLICATE: 2281121

Parameter	Units	60286928002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2281122

Parameter	Units	60286947002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557759
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044040

METHOD BLANK: 2288315
Matrix: Water
Associated Lab Samples: 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/01/18 02:48	

LABORATORY CONTROL SAMPLE: 2288316

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	10	10.5	105	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 558789 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044039

METHOD BLANK: 2292726 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/09/18 15:02	
Sulfate	mg/L	ND	1.0	0.24	12/09/18 15:02	

LABORATORY CONTROL SAMPLE: 2292727

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2292728 2292729

Parameter	Units	60287044031 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	431	250	250	670	656	96	90	90-110	2	15	
Sulfate	mg/L	239	100	100	386	404	148	166	90-110	5	15	E,M1

MATRIX SPIKE SAMPLE: 2292730

Parameter	Units	60287132005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.8	5	7.3	91	90-110	
Sulfate	mg/L	806	500	1230	85	90-110	M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 559201 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044033, 60287044038

METHOD BLANK: 2295155 Matrix: Water
Associated Lab Samples: 60287044033, 60287044038

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/10/18 08:43	

LABORATORY CONTROL SAMPLE: 2295156

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2295157 2295158

Parameter	Units	60287044033 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	10.6	5	5	12.7	14.4	44	76	90-110	12	15	M1

MATRIX SPIKE SAMPLE: 2295159

Parameter	Units	60287044038 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	29.0	250	698	267	90-110	M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555762 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2280185 Matrix: Water
Associated Lab Samples: 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 07:59	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 07:59	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 07:59	

LABORATORY CONTROL SAMPLE: 2280186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.92	92	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	102	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280187

Parameter	Units	60287044040 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.97	94	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.061J	2	2.0	97	90-110	

SAMPLE DUPLICATE: 2280188

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.14	ND		20	
Nitrogen, Nitrite	mg/L	0.18	0.60	7	20	
Nitrogen, NO2 plus NO3	mg/L	0.32	0.31	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555770 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287044031, 60287044032

METHOD BLANK: 2280236 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 10:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 10:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 10:04	

LABORATORY CONTROL SAMPLE: 2280237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.91	91	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	103	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280238

Parameter	Units	60287044031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.16	1	0.55	39	70-130	M1
Nitrogen, Nitrite	mg/L	0.25	1	1.3	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.41	2	1.8	71	90-110	M1

SAMPLE DUPLICATE: 2280239

Parameter	Units	60286849026 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10J		20	H1
Nitrogen, Nitrite	mg/L	0.14	0.22	43	20	D6,H1
Nitrogen, NO2 plus NO3	mg/L	0.13	0.31	85	20	D6,H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557381 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2286692 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 16:39	

LABORATORY CONTROL SAMPLE: 2286693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.8	115	80-120	

MATRIX SPIKE SAMPLE: 2286694

Parameter	Units	60287017004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	9.8	5	14.0	84	80-120	

SAMPLE DUPLICATE: 2286695

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13000	13000	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556483
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556488
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556489
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556702
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556704
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556810
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556812
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 557295
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
H1	Analysis conducted outside the EPA method holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044031	**TMW-26-201811**	EPA 3010	557483	EPA 6010	557608
60287044032	**TMW-25-201811**	EPA 3010	557483	EPA 6010	557608
60287044033	**TMW-21-201811**	EPA 3010	557483	EPA 6010	557608
60287044034	**TMW-22R-201811**	EPA 3010	557483	EPA 6010	557608
60287044035	**MW-58R-201811**	EPA 3010	557483	EPA 6010	557608
60287044037	**MW-95-201811**	EPA 3010	557483	EPA 6010	557608
60287044038	**ITMW-9-201811**	EPA 3010	557483	EPA 6010	557608
60287044039	**MW-87-201811**	EPA 3010	557483	EPA 6010	557608
60287044040	**MW-38-201811**	EPA 3010	557483	EPA 6010	557608
60287044001	**DUP-07-201811**	EPA 5030B/8260	556253		
60287044001	**DUP-07-201811**	EPA 5030B/8260	556483		
60287044002	**MW-192-201811**	EPA 5030B/8260	556253		
60287044003	**MW-187-201811**	EPA 5030B/8260	556253		
60287044004	**ITMW-18-201811**	EPA 5030B/8260	556253		
60287044004	**ITMW-18-201811**	EPA 5030B/8260	556483		
60287044005	**MW-96-201811**	EPA 5030B/8260	556488		
60287044006	**MW-97-201811**	EPA 5030B/8260	556488		
60287044007	**MW-24-201811**	EPA 5030B/8260	556488		
60287044008	**DUP-02-201811**	EPA 5030B/8260	556488		
60287044009	**MW-55R-201811**	EPA 5030B/8260	556488		
60287044010	**DUP-08-201811**	EPA 5030B/8260	556488		
60287044011	**IW-77-201811**	EPA 5030B/8260	556488		
60287044011	**IW-77-201811**	EPA 5030B/8260	556702		
60287044012	**TMW-12-201811**	EPA 5030B/8260	556489		
60287044012	**TMW-12-201811**	EPA 5030B/8260	556702		
60287044013	**DUP-04-201811**	EPA 5030B/8260	556489		
60287044013	**DUP-04-201811**	EPA 5030B/8260	556702		
60287044014	**MW-82-201811**	EPA 5030B/8260	556489		
60287044014	**MW-82-201811**	EPA 5030B/8260	556810		
60287044015	**ITMW-7-201811**	EPA 5030B/8260	556489		
60287044015	**ITMW-7-201811**	EPA 5030B/8260	556810		
60287044016	**ITMW-19-201811**	EPA 5030B/8260	556489		
60287044016	**ITMW-19-201811**	EPA 5030B/8260	556810		
60287044017	**MW-93-201811**	EPA 5030B/8260	556810		
60287044017	**MW-93-201811**	EPA 5030B/8260	557295		
60287044018	**MW-189-201811**	EPA 5030B/8260	556489		
60287044018	**MW-189-201811**	EPA 5030B/8260	556810		
60287044019	**TRIP BLANK**	EPA 5030B/8260	556489		
60287044020	**EB-01-201811**	EPA 5030B/8260	556489		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044021	**MW-190-201811**	EPA 5030B/8260	556489		
60287044022	**ITMW-21-201811**	EPA 5030B/8260	556489		
60287044022	**ITMW-21-201811**	EPA 5030B/8260	556812		
60287044023	**ITMW-1-201811**	EPA 5030B/8260	556489		
60287044023	**ITMW-1-201811**	EPA 5030B/8260	556812		
60287044024	**ITMW-5-201811**	EPA 5030B/8260	556704		
60287044025	**MW-91-201811**	EPA 5030B/8260	556489		
60287044025	**MW-91-201811**	EPA 5030B/8260	556812		
60287044026	**MW-29-201811**	EPA 5030B/8260	556489		
60287044027	**MW-39R-201811**	EPA 5030B/8260	556489		
60287044028	**MW-182-201811**	EPA 5030B/8260	556489		
60287044028	**MW-182-201811**	EPA 5030B/8260	556812		
60287044029	**IW-78-201811**	EPA 5030B/8260	556489		
60287044030	**TMW-24-201811**	EPA 5030B/8260	556704		
60287044031	**TMW-26-201811**	EPA 5030B/8260	556489		
60287044031	**TMW-26-201811**	EPA 5030B/8260	556988		
60287044032	**TMW-25-201811**	EPA 5030B/8260	556704		
60287044033	**TMW-21-201811**	EPA 5030B/8260	556704		
60287044034	**TMW-22R-201811**	EPA 5030B/8260	556704		
60287044035	**MW-58R-201811**	EPA 5030B/8260	556704		
60287044036	**DUP-05-201811**	EPA 5030B/8260	556704		
60287044036	**DUP-05-201811**	EPA 5030B/8260	556988		
60287044037	**MW-95-201811**	EPA 5030B/8260	556704		
60287044037	**MW-95-201811**	EPA 5030B/8260	557295		
60287044038	**ITMW-9-201811**	EPA 5030B/8260	556704		
60287044038	**ITMW-9-201811**	EPA 5030B/8260	556988		
60287044039	**MW-87-201811**	EPA 5030B/8260	556704		
60287044040	**MW-38-201811**	EPA 5030B/8260	556704		
60287044041	**TRIP BLANK**	EPA 5030B/8260	556704		
60287044042	**TRIP BLANK**	EPA 5030B/8260	556704		
60287044035	**MW-58R-201811**	SM 4500-S-2 D	555865		
60287044037	**MW-95-201811**	SM 4500-S-2 D	555865		
60287044038	**ITMW-9-201811**	SM 4500-S-2 D	555865		
60287044039	**MW-87-201811**	SM 4500-S-2 D	555865		
60287044040	**MW-38-201811**	SM 4500-S-2 D	555865		
60287044031	**TMW-26-201811**	EPA 300.0	558789		
60287044032	**TMW-25-201811**	EPA 300.0	558789		
60287044033	**TMW-21-201811**	EPA 300.0	558789		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044033	**TMW-21-201811**	EPA 300.0	559201		
60287044034	**TMW-22R-201811**	EPA 300.0	558789		
60287044035	**MW-58R-201811**	EPA 300.0	558789		
60287044037	**MW-95-201811**	EPA 300.0	558789		
60287044038	**ITMW-9-201811**	EPA 300.0	559201		
60287044039	**MW-87-201811**	EPA 300.0	558789		
60287044040	**MW-38-201811**	EPA 300.0	557759		
60287044031	**TMW-26-201811**	EPA 353.2	555770		
60287044032	**TMW-25-201811**	EPA 353.2	555770		
60287044033	**TMW-21-201811**	EPA 353.2	555762		
60287044034	**TMW-22R-201811**	EPA 353.2	555762		
60287044035	**MW-58R-201811**	EPA 353.2	555762		
60287044037	**MW-95-201811**	EPA 353.2	555762		
60287044038	**ITMW-9-201811**	EPA 353.2	555762		
60287044039	**MW-87-201811**	EPA 353.2	555762		
60287044040	**MW-38-201811**	EPA 353.2	555762		
60287044031	**TMW-26-201811**	SM 5310C	557381		
60287044032	**TMW-25-201811**	SM 5310C	557381		
60287044033	**TMW-21-201811**	SM 5310C	557381		
60287044034	**TMW-22R-201811**	SM 5310C	557381		
60287044035	**MW-58R-201811**	SM 5310C	557381		
60287044037	**MW-95-201811**	SM 5310C	557381		
60287044038	**ITMW-9-201811**	SM 5310C	557381		
60287044039	**MW-87-201811**	SM 5310C	557381		
60287044040	**MW-38-201811**	SM 5310C	557381		
60287044031	**TMW-26-201811**	SM 5310C	556798		
60287044032	**TMW-25-201811**	SM 5310C	556798		
60287044033	**TMW-21-201811**	SM 5310C	556798		
60287044034	**TMW-22R-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY — WO# : 60287044 — 60287044

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number:

State: AR County/City: Fort Smith Time Zone Collected: PT MT (CT) ET

Phone: Email: 314-833-7325

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): Jo Pavlowsky

Purchase Order #:

DW PWS ID #:

Quote #:

DW Location Code #:

Collected by (signature): Jo Pavlowsky

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: 8881-1			
Sample pH Acceptable	(Y)	N	NA
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	LAB USE ONLY: Lab Sample # / Comments
DUP-07-201811	GW	G	11-14-18	1500				3	-001
MW-192-201811	GW	G	11-14-18	1505				3	-002
MW-187-201811	GW	G	11-14-18	1345				3	-003
ITMW-18-201811	GW	G	11-14-18	1700				3	-004
MW-96-201811	GW	G	11-15-18	0946				3	-005
MW-97-201811	GW	G		1142				3	-006
MW-24-201811	GW	G		1325				3	-007
DUP-02-201811	GW	G		1325				3	-008
MW-55R-201811	GW	G		1556				3	-009
DUP-08-201811	GW	G		1556				3	-010

3D69H; 8260+HR; 3D69H

Customer Remarks/ Special Conditions/ Possible Hazards: MW-24-201811 & DUP-02 were both ascorbic acid bottles, not HCl bottles

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zplc

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client (X) Courier [ ] Pace Courier [ ]

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Jo Pavlowsky (Ramb)	11-15-18 1400	UPS of 1 pcs.	11-16-18 0550
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4, 1.8 oC

Comments: _____

Trip Blank Received: (Y) N N/A HCL MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page 1)

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	N	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	8260 Full List VOCs		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
IW-77-201811	GW	G	11-15-18	1710				3	X		3D69H	-011
TMW-12-201811				0930				3	X			-012
DUP-04-201811				0930				3	X			-013
MW-82-201811				1115				3	X			-014
ITMW-7-201811				1330				3	X			-015
ITMW-19-201811				1430				3		X	3D7HR	-016
MW-93-201811				1545				3		X		-017
MW-189-201811				1655				3	X		3D69H	-018
---- Trip Blank				—				2	X		2D69H	-019
EB-01-201811								3	X		3D69H	-020

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zpcl

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.5, 1.2 °C 1.6

Cooler Therm Corr. Factor +0.2 °C

Cooler Temp Corrected 0.7, 1.4 °C 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature) Client / Pace	11.16.18 0550
Relinquished by/Company : (Signature) (see page 1)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page 1)

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 full list VOCs; 8260 full list VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns			Lab Sample # / Comments
MW-190-201811	GW	G	11-15-18	0925				3	X	3D69H	-021
ITMW-21-201811				1101					X		-022
ITMW-1-201811				1225					X		-023
ITMW-5-201811				1425					X		-024
MW-91-201811				1545					X		-025
MW-29-201811				0910					X		-026
MW-39R-201811				1030					X		-027
MW-182-201811				1430					X		-028
IW-78-201811				1525					X	3D69H	-029
TMW-24-201811				1700					X		-030

Customer Remarks/ Special Conditions/ Possible Hazards: IW-78 has ascorbic acid VOAs, not HCl

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zpk

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)		Received / Pass.	11-16-18 0550
Relinquished by/Company : (Signature) (see page 1)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T500

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

HCL MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State: KS | County/City | Time Zone Collected: / PT MT CT ET

Phone: see page #1

Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: Dissolved org carbon

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) D D | U U 2 U U U 45

Lab Project Manager: 60287044

**Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

LAB Profile/Line: 7444 Line 1

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Methane Ethane Ethene	MEE, A	Metals- TOTAL IRON	Sulfate/Nitrate/Chloride	TOTAL ORGANIC CARBON	Volatile fatty acids	dissolved organic carbon	Sulfate/Nitrate	Sulfide	Lab Sample # / Comments
TMW-26-201811	SP3U	GW	G	11-15-18	1115				X	X	AG3U	X	X	X	X	X			-031
TMW-25-201811					1330				X	X		X	X	X	X	X			-032
TMW-21-201811					1515				X	X		X	X	X	X	X			-033
TMW-22R-201811					1650				X	X		X	X	X	X	X			-034
MW-58R-201811					1400				X		X	X		X	BP3B		X	X	-035
DUP-05-201811					1400			3	X										-036
MW-95-201811					1555				X	X		X		X			X	X	-037
ITMW-9-201811					1520				X	X		X		X			X	X	-038
MW-87-201811					1330				X	X		X		X			X	X	-039
MW-36-201811					0955				X	X		X		X			X	X	-046

2D69U, 1D69Q, AG3S, BP3U

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags Zac

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		UC of / Pac.	11-16-18 0550
Relinquished by/Company : (Signature) see page #1	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: TJ00

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

4

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: see page

State / County/City / Time Zone Collected: PT MT CT ET

Phone: see page
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3)

Lab Project Manager: L00287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 full list VOC

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
Trip Blank	-	-	-	-				2	X	2D68H -041
Trip Blank	-	-	-	-				2	X	-042

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble bags Zpk

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:
Temp Blank received: Y (N) NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6
Cooler Therm Corr. Factor +0.2 oC
Cooler Temp Corrected 0.7, 1.4 oC 1.8
Comments: _____

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature) NCI pf Pace	11-16-18 0550
Relinquished by/Company : (Signature) see page	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Energy Services LLC
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November 30, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60287044**

Pace Workorder: 28772

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, November 20, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/30/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 21

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287720001	TMW-26-201811	Water	11/15/2018 11:15	11/20/2018 11:45
287720002	TMW-25-201811	Water	11/15/2018 13:30	11/20/2018 11:45
287720003	TMW-21-201811	Water	11/15/2018 15:15	11/20/2018 11:45
287720004	TMW-22R-201811	Water	11/15/2018 16:50	11/20/2018 11:45
287720005	MW-58R-201811	Water	11/15/2018 14:00	11/20/2018 11:45
287720006	MW-95-201811	Water	11/15/2018 15:55	11/20/2018 11:45
287720007	ITMW-9-201811	Water	11/15/2018 15:20	11/20/2018 11:45
287720008	MW-87-201811	Water	11/15/2018 13:30	11/20/2018 11:45
287720009	MW-38-201811	Water	11/15/2018 09:55	11/20/2018 11:45

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PROJECT SUMMARY

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Workorder Comments

The container pH for samples 28772 (0001-0003) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720001** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-26-201811** Date Collected: 11/15/2018 11:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<200**	mg/l	200	14	1000	11/27/2018 02:02	KB	d
Acetic Acid	**4000**	mg/l	100	24	1000	11/27/2018 02:02	KB	d,B
Propionic Acid	**16000**	mg/l	1000	44	10000	11/27/2018 02:58	KB	d,B
Butyric Acid	**1600**	mg/l	100	4.7	1000	11/27/2018 02:02	KB	d,B
Pyruvic Acid	**83**	mg/l	10	0.57	100	11/27/2018 01:05	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**11000**	ug/l	0.50	0.014	1	11/29/2018 09:48	BW	n
Ethane	**1.5**	ug/l	0.10	0.0070	1	11/29/2018 09:48	BW	n
Ethene	**15**	ug/l	0.10	0.0050	1	11/29/2018 09:48	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720002** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-25-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**220**	mg/l	20	1.4	100	11/27/2018 03:54	KB	d
Acetic Acid	**3800**	mg/l	100	24	1000	11/27/2018 04:50	KB	d,B
Propionic Acid	**19000**	mg/l	1000	44	10000	11/27/2018 05:47	KB	d,B
Butyric Acid	**1200**	mg/l	100	4.7	1000	11/27/2018 04:50	KB	d,B
Pyruvic Acid	**<100**	mg/l	100	5.7	1000	11/27/2018 04:50	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**900**	ug/l	0.50	0.014	1	11/29/2018 11:02	BW	n
Ethane	**6.3**	ug/l	0.10	0.0070	1	11/29/2018 11:02	BW	n
Ethene	**31**	ug/l	0.10	0.0050	1	11/29/2018 11:02	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720003** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-21-201811** Date Collected: 11/15/2018 15:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<20**	mg/l	20	1.4	100	11/27/2018 06:43	KB	d
Acetic Acid	**260**	mg/l	10	2.4	100	11/27/2018 06:43	KB	d,B
Propionic Acid	**4600**	mg/l	100	4.4	1000	11/27/2018 07:39	KB	d,B
Butyric Acid	**130**	mg/l	10	0.47	100	11/27/2018 06:43	KB	d,B
Pyruvic Acid	**38**	mg/l	10	0.57	100	11/27/2018 06:43	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**15000**	ug/l	0.50	0.014	1	11/29/2018 11:15	BW	n
Ethane	**0.49**	ug/l	0.10	0.0070	1	11/29/2018 11:15	BW	n
Ethene	**1.9**	ug/l	0.10	0.0050	1	11/29/2018 11:15	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720004** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-22R-201811** Date Collected: 11/15/2018 16:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/22/2018 08:08	KB	d
Acetic Acid	**62**	mg/l	10	2.4	100	11/27/2018 08:36	KB	d,B
Propionic Acid	**230**	mg/l	10	0.44	100	11/27/2018 08:36	KB	d,B
Butyric Acid	**12**	mg/l	1.0	0.047	10	11/22/2018 08:08	KB	d,B
Pyruvic Acid	**2.1**	mg/l	1.0	0.057	10	11/22/2018 08:08	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**700**	ug/l	0.50	0.014	1	11/29/2018 11:28	BW	n
Ethane	**1.6**	ug/l	0.10	0.0070	1	11/29/2018 11:28	BW	n
Ethene	**4.2**	ug/l	0.10	0.0050	1	11/29/2018 11:28	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720005** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-58R-201811** Date Collected: 11/15/2018 14:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**24**	ug/l	0.50	0.014	1	11/29/2018 11:43	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 11:43	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 11:43	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 11:43	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720006** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-95-201811** Date Collected: 11/15/2018 15:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**7.3**	ug/l	0.50	0.014	1	11/29/2018 11:56	BW	n
Ethane	**0.64**	ug/l	0.10	0.0070	1	11/29/2018 11:56	BW	n
Ethene	**0.10**	ug/l	0.10	0.0050	1	11/29/2018 11:56	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 11:56	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720007** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **ITMW-9-201811** Date Collected: 11/15/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**29**	ug/l	0.50	0.014	1	11/29/2018 12:09	BW	n
Ethane	**0.13**	ug/l	0.10	0.0070	1	11/29/2018 12:09	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 12:09	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:09	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720008** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-87-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**2.0**	ug/l	0.50	0.014	1	11/29/2018 12:21	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 12:21	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 12:21	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:21	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720009** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-38-201811** Date Collected: 11/15/2018 09:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**18**	ug/l	0.50	0.014	1	11/29/2018 12:37	BW	n
Ethane	**0.62**	ug/l	0.10	0.0070	1	11/29/2018 12:37	BW	n
Ethene	**16**	ug/l	0.10	0.0050	1	11/29/2018 12:37	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:37	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287720004

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	110	70-130	
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.036	20	21	21	107	106	70-130	1.2	30	d
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
Pyruvic Acid	mg/l	1	20	21	21	100	99	70-130	0.28	30	d

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: DISG/7237 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287720001, 287720002, 287720003, 287720004, 287720005, 287720006, 287720007, 287720008, 287720009

METHOD BLANK: 58691

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58692 58693

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	97	96	80-120	0.86	20	n
Ethane	ug/l	38	41	41	108	109	80-120	0.88	20	n
Ethene	ug/l	35	38	39	109	109	80-120	0.49	20	n
Acetylene	ug/l	33	37	37	113	114	80-120	1.3	20	n

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287720001, 287720002, 287720003, 287720004

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	109	70-130	
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287720004	TMW-22R-201811			AM23G	EDON/3943
287720001	TMW-26-201811			AM20GAX	DISG/7237
287720002	TMW-25-201811			AM20GAX	DISG/7237
287720003	TMW-21-201811			AM20GAX	DISG/7237
287720004	TMW-22R-201811			AM20GAX	DISG/7237
287720005	MW-58R-201811			AM20GAX	DISG/7237
287720006	MW-95-201811			AM20GAX	DISG/7237
287720007	ITMW-9-201811			AM20GAX	DISG/7237
287720008	MW-87-201811			AM20GAX	DISG/7237
287720009	MW-38-201811			AM20GAX	DISG/7237
287720001	TMW-26-201811			AM23G	EDON/3944
287720002	TMW-25-201811			AM23G	EDON/3944
287720003	TMW-21-201811			AM23G	EDON/3944
287720004	TMW-22R-201811			AM23G	EDON/3944

CERTIFICATE OF ANALYSIS

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Chain of Custody

28772

Pace Analytical®
www.pacelabs.com

Workorder: 60287044 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 11/30/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9567	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: TSP	Volatile Fatty Acids	Methane, Ethane, Ethene	M,E,A	LAB USE ONLY
1	TMW-26-201811	11/15/2018 11:15	60287044031	Water	2	3	X	X		
2	TMW-25-201811	11/15/2018 13:30	60287044032	Water	2	3	X	X		
3	TMW-21-201811	11/15/2018 15:15	60287044033	Water	2	3	X	X		
4	TMW-22R-201811	11/15/2018 16:50	60287044034	Water	2	3	X	X		
5	MW-58R-201811	11/15/2018 14:00	60287044035	Water		3			X	
6	MW-95-201811	11/15/2018 15:55	60287044037	Water		3			X	
7	ITMW-9-201811	11/15/2018 15:20	60287044038	Water		3			X	
8	MW-87-201811	11/15/2018 13:30	60287044039	Water		3			X	
9	MW-38-201811	11/15/2018 09:55	60287044040	Water		3			X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Faulkenberry	11.9.18 1800	[illegible]	11.20.18 1145
2				
3				

Comments

Cooler Temperature on Receipt 2 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: Pace **Project:** Whirlpool Annual **Lab Work Order:** 28772

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227864392

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : CG **Date:** 11.20.18

Project Manager Review : ERJ **Date:** 11-20-18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 30, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287058001	**VP-7-201811**	Water	11/15/18 11:35	11/16/18 05:50
60287058002	**VP-8-201811**	Water	11/15/18 11:42	11/16/18 05:50
60287058003	**VP-10-201811**	Water	11/15/18 11:05	11/16/18 05:50
60287058004	**VP-12-201811**	Water	11/15/18 12:09	11/16/18 05:50
60287058005	**VP-14-201811**	Water	11/15/18 12:30	11/16/18 05:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287058001	**VP-7-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058002	**VP-8-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058003	**VP-10-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058004	**VP-12-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287058005	**VP-14-201811**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
5 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 556704

B: Analyte was detected in the associated method blank.

- BLANK for HBN 556704 [MSV/9344 (Lab ID: 2284130)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556704

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-7-201811 **Lab ID: 60287058001** Collected: 11/15/18 11:35 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**23.3**	ug/L	10.0	1.9	1		11/26/18 09:34	67-64-1	
Benzene	**0.97J**	ug/L	1.0	0.060	1		11/26/18 09:34	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:34	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:34	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 09:34	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:34	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:34	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:34	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:34	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:34	67-66-3	
Chloromethane	**0.12J**	ug/L	1.0	0.080	1		11/26/18 09:34	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:34	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:34	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		11/26/18 09:34	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:34	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:34	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:34	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 09:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.66J**	ug/L	10.0	0.42	1		11/26/18 09:34	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:34	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:34	127-18-4	
Toluene	**0.21J**	ug/L	1.0	0.17	1		11/26/18 09:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:34	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 09:34	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 09:34	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:34	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 09:34	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 09:34	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/26/18 09:34	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:34		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-8-201811 **Lab ID: 60287058002** Collected: 11/15/18 11:42 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**69.1**	ug/L	10.0	1.9	1		11/26/18 09:48	67-64-1	
Benzene	**0.89J**	ug/L	1.0	0.060	1		11/26/18 09:48	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 09:48	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 09:48	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 09:48	74-83-9	
2-Butanone (MEK)	**12.7**	ug/L	10.0	0.59	1		11/26/18 09:48	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 09:48	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 09:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 09:48	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:48	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 09:48	67-66-3	
Chloromethane	**0.39J**	ug/L	1.0	0.080	1		11/26/18 09:48	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 09:48	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 09:48	75-34-3	
1,2-Dichloroethane	**0.24J**	ug/L	1.0	0.12	1		11/26/18 09:48	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 09:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 09:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 09:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 09:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 09:48	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 09:48	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 09:48	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 09:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.92J**	ug/L	10.0	0.42	1		11/26/18 09:48	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 09:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 09:48	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 09:48	127-18-4	
Toluene	**0.33J**	ug/L	1.0	0.17	1		11/26/18 09:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 09:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 09:48	79-00-5	
Trichloroethene	**4.5**	ug/L	1.0	0.17	1		11/26/18 09:48	79-01-6	
Vinyl chloride	**0.17J**	ug/L	1.0	0.13	1		11/26/18 09:48	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 09:48	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 09:48	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		11/26/18 09:48	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/26/18 09:48	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 09:48		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-10-201811 **Lab ID: 60287058003** Collected: 11/15/18 11:05 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.1J**	ug/L	10.0	1.9	1		11/26/18 10:59	67-64-1	
Benzene	**0.26J**	ug/L	1.0	0.060	1		11/26/18 10:59	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 10:59	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 10:59	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 10:59	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 10:59	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 10:59	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 10:59	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 10:59	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:59	75-00-3	
Chloroform	**0.83J**	ug/L	1.0	0.14	1		11/26/18 10:59	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 10:59	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 10:59	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 10:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 10:59	107-06-2	
1,1-Dichloroethene	**1.6**	ug/L	1.0	0.20	1		11/26/18 10:59	75-35-4	
cis-1,2-Dichloroethene	**14.4**	ug/L	1.0	0.080	1		11/26/18 10:59	156-59-2	
trans-1,2-Dichloroethene	**0.36J**	ug/L	1.0	0.20	1		11/26/18 10:59	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 10:59	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 10:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 10:59	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 10:59	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 10:59	591-78-6	
Methylene chloride	**0.35J**	ug/L	1.0	0.15	1		11/26/18 10:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 10:59	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 10:59	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:59	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 10:59	127-18-4	
Toluene	**0.41J**	ug/L	1.0	0.17	1		11/26/18 10:59	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 10:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 10:59	79-00-5	
Trichloroethene	**250**	ug/L	5.0	0.85	5		11/26/18 11:13	79-01-6	
Vinyl chloride	**0.55J**	ug/L	1.0	0.13	1		11/26/18 10:59	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 10:59	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 10:59	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		11/26/18 10:59	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		11/26/18 10:59	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 10:59		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-12-201811 **Lab ID: 60287058004** Collected: 11/15/18 12:09 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.5J**	ug/L	10.0	1.9	1		11/26/18 10:02	67-64-1	
Benzene	**0.17J**	ug/L	1.0	0.060	1		11/26/18 10:02	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 10:02	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 10:02	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 10:02	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 10:02	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 10:02	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 10:02	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 10:02	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:02	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 10:02	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 10:02	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 10:02	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 10:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 10:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 10:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/26/18 10:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 10:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 10:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 10:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 10:02	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 10:02	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 10:02	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 10:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 10:02	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 10:02	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:02	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 10:02	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 10:02	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 10:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 10:02	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/26/18 10:02	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 10:02	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 10:02	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		11/26/18 10:02	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 10:02	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 10:02	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 10:02		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Sample: VP-14-201811 **Lab ID: 60287058005** Collected: 11/15/18 12:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/26/18 10:45	67-64-1	
Benzene	**0.18J**	ug/L	1.0	0.060	1		11/26/18 10:45	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 10:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 10:45	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 10:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/26/18 10:45	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/26/18 10:45	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 10:45	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 10:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:45	75-00-3	
Chloroform	**0.32J**	ug/L	1.0	0.14	1		11/26/18 10:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 10:45	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 10:45	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 10:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 10:45	107-06-2	
1,1-Dichloroethene	**0.80J**	ug/L	1.0	0.20	1		11/26/18 10:45	75-35-4	
cis-1,2-Dichloroethene	**2.6**	ug/L	1.0	0.080	1		11/26/18 10:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 10:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 10:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 10:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 10:45	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 10:45	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 10:45	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 10:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 10:45	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 10:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 10:45	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 10:45	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 10:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 10:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 10:45	79-00-5	
Trichloroethene	**64.1**	ug/L	1.0	0.17	1		11/26/18 10:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/26/18 10:45	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 10:45	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/26/18 10:45	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 10:45	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/26/18 10:45	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 10:45		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

QC Batch: 556704 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287058001, 60287058002, 60287058003, 60287058004, 60287058005

METHOD BLANK: 2284130 Matrix: Water
Associated Lab Samples: 60287058001, 60287058002, 60287058003, 60287058004, 60287058005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/26/18 08:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/26/18 08:52	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,2-Dichloroethane	ug/L	0.12J	1.0	0.12	11/26/18 08:52	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/26/18 08:52	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/26/18 08:52	
2-Hexanone	ug/L	ND	10.0	1.2	11/26/18 08:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/26/18 08:52	
Acetone	ug/L	ND	10.0	1.9	11/26/18 08:52	
Benzene	ug/L	ND	1.0	0.060	11/26/18 08:52	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/26/18 08:52	
Bromoform	ug/L	ND	1.0	0.070	11/26/18 08:52	
Bromomethane	ug/L	ND	5.0	0.16	11/26/18 08:52	
Carbon disulfide	ug/L	ND	5.0	0.12	11/26/18 08:52	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/26/18 08:52	
Chlorobenzene	ug/L	ND	1.0	0.21	11/26/18 08:52	
Chloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
Chloroform	ug/L	ND	1.0	0.14	11/26/18 08:52	
Chloromethane	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/26/18 08:52	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/26/18 08:52	
Ethylbenzene	ug/L	ND	1.0	0.18	11/26/18 08:52	
Methylene chloride	ug/L	ND	1.0	0.15	11/26/18 08:52	
Styrene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/26/18 08:52	
Toluene	ug/L	ND	1.0	0.17	11/26/18 08:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 08:52	
Vinyl chloride	ug/L	ND	1.0	0.13	11/26/18 08:52	
Xylene (Total)	ug/L	ND	3.0	0.42	11/26/18 08:52	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 08:52	
4-Bromofluorobenzene (S)	%	99	80-119		11/26/18 08:52	
Toluene-d8 (S)	%	99	80-115		11/26/18 08:52	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

LABORATORY CONTROL SAMPLE: 2284131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.5	97	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.2	101	74-121	
1,1,2-Trichloroethane	ug/L	20	19.8	99	83-119	
1,1-Dichloroethane	ug/L	20	19.1	95	85-128	
1,1-Dichloroethene	ug/L	20	17.8	89	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	19.6	98	81-126	
2-Butanone (MEK)	ug/L	100	91.7	92	65-134	
2-Hexanone	ug/L	100	98.3	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.1	98	66-139	
Acetone	ug/L	100	81.3	81	62-142	
Benzene	ug/L	20	19.4	97	81-118	
Bromodichloromethane	ug/L	20	19.6	98	85-123	
Bromoform	ug/L	20	17.4	87	83-123	
Bromomethane	ug/L	20	24.3	122	39-149	
Carbon disulfide	ug/L	20	18.4	92	85-124	
Carbon tetrachloride	ug/L	20	19.4	97	85-126	
Chlorobenzene	ug/L	20	19.5	98	87-118	
Chloroethane	ug/L	20	22.5	113	73-134	
Chloroform	ug/L	20	19.3	96	85-119	
Chloromethane	ug/L	20	16.8	84	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.9	100	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.3	97	80-124	
Dibromochloromethane	ug/L	20	19.0	95	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.2	101	81-126	
Styrene	ug/L	20	18.9	95	85-120	
Tetrachloroethene	ug/L	20	18.8	94	87-120	
Toluene	ug/L	20	18.7	93	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.3	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.8	94	80-122	
Trichloroethene	ug/L	20	20.6	103	82-120	
Vinyl chloride	ug/L	20	22.5	113	74-147	
Xylene (Total)	ug/L	60	55.7	93	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			99	80-115	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556704

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287058

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287058001	**VP-7-201811**	EPA 5030B/8260	556704		
60287058002	**VP-8-201811**	EPA 5030B/8260	556704		
60287058003	**VP-10-201811**	EPA 5030B/8260	556704		
60287058004	**VP-12-201811**	EPA 5030B/8260	556704		
60287058005	**VP-14-201811**	EPA 5030B/8260	556704		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY

WO# : 60287058

60287058

er or MTJL Log-in

AL ILY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Container Preservative Type **

(3)

Lab Project Manager: 60287058

* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690010033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

Phone: Email: 314-853-7325

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print): Nick Zurweller

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required: Standard

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses

8260 Full List VOC

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	(Y)	N	NA
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
VP-7-201811		G	11-15-18	1135					X	-001
VP-8-201811		G	11-15-18	1142					X	-002
VP-10-201811		G	11-15-18	1105					X	-003
VP-12-201811		G	11-15-18	1209					X	-004
VP-14-201811		G	11-15-18	1230					X	-005

3D69H

Customer Remarks/ Special Conditions/ Possible Hazards: separate chain page 1 of 1

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags Zplc

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor: +0.2 oC

Cooler Temp Corrected: 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[illegible] Pavlowsky/REM	11/15/18 1500	[illegible] of/Pest	11-16-18 0550
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Services, LLC
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(913)599-5665

December 10, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church for
Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287140001	**TMW-23-201811**	Water	11/16/18 09:55	11/17/18 09:00
60287140002	**DUP-03-201811**	Water	11/16/18 09:55	11/17/18 09:00
60287140003	**EB-08-201811**	Water	11/16/18 10:30	11/17/18 09:00
60287140004	**EB-02-201811**	Water	11/16/18 10:53	11/17/18 09:00
60287140005	**MW-86-201811**	Water	11/16/18 09:40	11/17/18 09:00
60287140006	**MW-25-201811**	Water	11/16/18 09:25	11/17/18 09:00
60287140007	**TMW-16-201811**	Water	11/16/18 10:25	11/17/18 09:00
60287140008	**TMW-32-201811**	Water	11/16/18 09:35	11/17/18 09:00
60287140009	**MW-89-201811**	Water	11/16/18 09:35	11/17/18 09:00
60287140010	**MW-50R-201811**	Water	11/16/18 12:10	11/17/18 09:00
60287140011	**MW-87-201811**	Air	11/15/18 13:30	11/17/18 09:00
60287140012	**MW-86-201811**	Air	11/16/18 09:40	11/17/18 09:00
60287140013	**MW-25-201811**	Air	11/16/18 08:00	11/17/18 09:00
60287140014	**RW-69-201811**	Water	11/16/18 13:15	11/17/18 09:00
60287140015	**MW-73-201811**	Water	11/16/18 13:20	11/17/18 09:00
60287140016	**IW-73-201811**	Air	11/14/18 15:10	11/17/18 09:00
60287140017	**MW-58R-201811**	Air	11/15/18 14:00	11/17/18 09:00
60287140018	**RW-69-201811**	Air	11/14/18 12:30	11/17/18 09:00
60287140019	**MW-95-201811**	Air	11/15/18 08:00	11/17/18 09:00
60287140020	**ITMW-9-201811**	Air	11/15/18 15:20	11/17/18 09:00
60287140021	**MW-38-201811**	Air	11/15/18 09:55	11/17/18 09:00
60287140022	**MW-89-201811**	Air	11/14/18 10:10	11/17/18 09:00
60287140023	**MW-50R-201811**	Air	11/13/18 14:10	11/17/18 09:00
60287140024	**TMW-11-201811**	Air	11/13/18 16:45	11/17/18 09:00
60287140025	**TMW-10-201811**	Air	11/13/18 16:55	11/17/18 09:00

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287140001	**TMW-23-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140002	**DUP-03-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140003	**EB-08-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140004	**EB-02-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140005	**MW-86-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140006	**MW-25-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140007	**TMW-16-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140008	**TMW-32-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
8 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 557295

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 2286313)
  - Carbon disulfide

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557295

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557298

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557528

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
2 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557819

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286569009,60286770001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2288550)
  - Chloride
- MSD (Lab ID: 2288551)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-23-201811 **Lab ID: 60287140001** Collected: 11/16/18 09:55 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**13.2**	ug/L	10.0	1.9	1		11/28/18 16:09	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:09	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:09	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:09	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:09	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 16:09	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:09	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:09	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:09	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:09	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:09	75-35-4	
cis-1,2-Dichloroethene	**1.2**	ug/L	1.0	0.080	1		11/28/18 16:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:09	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:09	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:09	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:09	591-78-6	
Methylene chloride	**0.17J**	ug/L	1.0	0.15	1		11/28/18 16:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:09	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:09	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:09	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:09	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:09	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:09	79-00-5	
Trichloroethene	**110**	ug/L	1.0	0.17	1		11/28/18 16:09	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:09	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:09	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	108	%	80-119		1		11/28/18 16:09	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/28/18 16:09	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		11/28/18 16:09	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:09		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: DUP-03-201811 **Lab ID: 60287140002** Collected: 11/16/18 09:55 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.5J**	ug/L	10.0	1.9	1		11/28/18 16:23	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:23	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:23	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:23	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:23	78-93-3	
Carbon disulfide	**0.13J**	ug/L	5.0	0.12	1		11/28/18 16:23	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:23	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:23	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:23	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:23	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:23	107-06-2	
1,1-Dichloroethene	**0.21J**	ug/L	1.0	0.20	1		11/28/18 16:23	75-35-4	
cis-1,2-Dichloroethene	**1.6**	ug/L	1.0	0.080	1		11/28/18 16:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:23	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:23	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/28/18 16:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:23	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:23	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:23	79-00-5	
Trichloroethene	**116**	ug/L	1.0	0.17	1		11/28/18 16:23	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		1		11/28/18 16:23	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/28/18 16:23	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/28/18 16:23	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:23		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: EB-08-201811 **Lab ID: 60287140003** Collected: 11/16/18 10:30 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**1.9J**	ug/L	10.0	1.9	1		11/28/18 16:37	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:37	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:37	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:37	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:37	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 16:37	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:37	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:37	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:37	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:37	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:37	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/28/18 16:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:37	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:37	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:37	591-78-6	
Methylene chloride	**0.55J**	ug/L	1.0	0.15	1		11/28/18 16:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:37	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:37	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:37	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:37	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:37	79-00-5	
Trichloroethene	**0.83J**	ug/L	1.0	0.17	1		11/28/18 16:37	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:37	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:37	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	108	%	80-119		1		11/28/18 16:37	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/28/18 16:37	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 16:37	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:37		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: EB-02-201811 **Lab ID: 60287140004** Collected: 11/16/18 10:53 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/28/18 16:52	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 16:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 16:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 16:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 16:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 16:52	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/28/18 16:52	75-15-0	L2
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 16:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 16:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 16:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 16:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 16:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 16:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 16:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/28/18 16:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 16:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 16:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 16:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 16:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 16:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 16:52	591-78-6	
Methylene chloride	**0.58J**	ug/L	1.0	0.15	1		11/28/18 16:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 16:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 16:52	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/28/18 16:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 16:52	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 16:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 16:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 16:52	79-00-5	
Trichloroethene	**0.54J**	ug/L	1.0	0.17	1		11/28/18 16:52	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/28/18 16:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 16:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	109	%	80-119		1		11/28/18 16:52	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/28/18 16:52	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 16:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 16:52		

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-86-201811 **Lab ID: 60287140005** Collected: 11/16/18 09:40 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**295**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 12:39	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**21.2**	ug/L	10.0	1.9	1		11/28/18 19:41	67-64-1	
Benzene	**0.41J**	ug/L	1.0	0.060	1		11/28/18 19:41	71-43-2	
Bromodichloromethane	**2.5**	ug/L	1.0	0.19	1		11/28/18 19:41	75-27-4	
Bromoform	**3.6**	ug/L	1.0	0.070	1		11/28/18 19:41	75-25-2	
Bromomethane	**0.26J**	ug/L	5.0	0.16	1		11/28/18 19:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 19:41	78-93-3	
Carbon disulfide	**3.3J**	ug/L	5.0	0.12	1		11/28/18 19:41	75-15-0	
Carbon tetrachloride	**0.92J**	ug/L	1.0	0.18	1		11/28/18 19:41	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 19:41	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 19:41	75-00-3	
Chloroform	**29.9**	ug/L	1.0	0.14	1		11/28/18 19:41	67-66-3	
Chloromethane	**3.5**	ug/L	1.0	0.080	1		11/28/18 19:41	74-87-3	
Dibromochloromethane	**0.70J**	ug/L	1.0	0.21	1		11/28/18 19:41	124-48-1	
1,1-Dichloroethane	**4.6**	ug/L	1.0	0.050	1		11/28/18 19:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 19:41	107-06-2	
1,1-Dichloroethene	**84.0**	ug/L	1.0	0.20	1		11/28/18 19:41	75-35-4	
cis-1,2-Dichloroethene	**19500**	ug/L	2000	160	2000		11/28/18 19:55	156-59-2	
trans-1,2-Dichloroethene	**1890J**	ug/L	2000	400	2000		11/28/18 19:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 19:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 19:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 19:41	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 19:41	100-41-4	
2-Hexanone	**29.3**	ug/L	10.0	1.2	1		11/28/18 19:41	591-78-6	
Methylene chloride	**6.5**	ug/L	1.0	0.15	1		11/28/18 19:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.44J**	ug/L	10.0	0.42	1		11/28/18 19:41	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 19:41	100-42-5	
1,1,2,2-Tetrachloroethane	**133**	ug/L	1.0	0.15	1		11/28/18 19:41	79-34-5	
Tetrachloroethene	**43.1**	ug/L	1.0	0.10	1		11/28/18 19:41	127-18-4	
Toluene	**4.8**	ug/L	1.0	0.17	1		11/28/18 19:41	108-88-3	
1,1,1-Trichloroethane	**73.9**	ug/L	1.0	0.11	1		11/28/18 19:41	71-55-6	
1,1,2-Trichloroethane	**3.5**	ug/L	1.0	0.20	1		11/28/18 19:41	79-00-5	
Trichloroethene	**188000**	ug/L	2000	340	2000		11/28/18 19:55	79-01-6	
Vinyl chloride	**2780**	ug/L	2000	260	2000		11/28/18 19:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 19:41	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	111	%	80-119		1		11/28/18 19:41	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/28/18 19:41	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/28/18 19:41	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 19:41		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/20/18 16:43	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-86-201811 **Lab ID: 60287140005** Collected: 11/16/18 09:40 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**1250**	mg/L	200	48.0	200		12/08/18 07:45	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.14**	mg/L	0.10	0.060	1		11/17/18 12:54		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:54		
Nitrogen, NO2 plus NO3	**0.14**	mg/L	0.10	0.060	1		11/17/18 12:54		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.8**	mg/L	1.0	0.65	1		11/30/18 02:08	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-25-201811 **Lab ID: 60287140006** Collected: 11/16/18 09:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**5570**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 12:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**112**	ug/L	10.0	1.9	1		11/28/18 20:09	67-64-1	
Benzene	**0.37J**	ug/L	1.0	0.060	1		11/28/18 20:09	71-43-2	
Bromodichloromethane	**1.6**	ug/L	1.0	0.19	1		11/28/18 20:09	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:09	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/28/18 20:09	78-93-3	
Carbon disulfide	**3.0J**	ug/L	5.0	0.12	1		11/28/18 20:09	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/28/18 20:09	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:09	75-00-3	
Chloroform	**52.9**	ug/L	1.0	0.14	1		11/28/18 20:09	67-66-3	
Chloromethane	**4.7**	ug/L	1.0	0.080	1		11/28/18 20:09	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:09	124-48-1	
1,1-Dichloroethane	**11.6**	ug/L	1.0	0.050	1		11/28/18 20:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	2000	400	2000		11/29/18 14:04	75-35-4	
cis-1,2-Dichloroethene	**18200**	ug/L	2000	160	2000		11/29/18 14:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	2000	400	2000		11/29/18 14:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:09	10061-02-6	
Ethylbenzene	**0.22J**	ug/L	1.0	0.18	1		11/28/18 20:09	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 20:09	591-78-6	
Methylene chloride	**17.9**	ug/L	1.0	0.15	1		11/28/18 20:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.6J**	ug/L	10.0	0.42	1		11/28/18 20:09	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:09	100-42-5	
1,1,2,2-Tetrachloroethane	**192**	ug/L	1.0	0.15	1		11/28/18 20:09	79-34-5	
Tetrachloroethene	**49.6**	ug/L	1.0	0.10	1		11/28/18 20:09	127-18-4	
Toluene	**11.6**	ug/L	1.0	0.17	1		11/28/18 20:09	108-88-3	
1,1,1-Trichloroethane	**10.7**	ug/L	1.0	0.11	1		11/28/18 20:09	71-55-6	
1,1,2-Trichloroethane	**4.1**	ug/L	1.0	0.20	1		11/28/18 20:09	79-00-5	
Trichloroethene	**94300**	ug/L	2000	340	2000		11/29/18 14:04	79-01-6	
Vinyl chloride	**762J**	ug/L	2000	260	2000		11/29/18 14:04	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:09	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	110	%	80-119		1		11/28/18 20:09	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	80-117		1		11/28/18 20:09	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/28/18 20:09	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:09		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	ND	mg/L	0.050	0.023	1		11/20/18 16:44	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: MW-25-201811 **Lab ID: 60287140006** Collected: 11/16/18 09:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**486**	mg/L	50.0	14.5	50		12/08/18 08:01	16887-00-6	
Sulfate	**500**	mg/L	50.0	12.0	50		12/08/18 08:01	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 12:52		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:52		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 12:52		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.2**	mg/L	1.0	0.65	1		11/30/18 02:47	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-16-201811 **Lab ID: 60287140007** Collected: 11/16/18 10:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**186000**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 16:29	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**146**	ug/L	10.0	1.9	1		11/28/18 20:38	67-64-1	
Benzene	**0.13J**	ug/L	1.0	0.060	1		11/28/18 20:38	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 20:38	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:38	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:38	74-83-9	
2-Butanone (MEK)	**1090**	ug/L	100	5.9	10		11/29/18 14:19	78-93-3	
Carbon disulfide	**0.97J**	ug/L	5.0	0.12	1		11/28/18 20:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:38	56-23-5	
Chlorobenzene	**0.33J**	ug/L	1.0	0.21	1		11/28/18 20:38	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:38	75-00-3	
Chloroform	**0.15J**	ug/L	1.0	0.14	1		11/28/18 20:38	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 20:38	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:38	124-48-1	
1,1-Dichloroethane	**0.25J**	ug/L	1.0	0.050	1		11/28/18 20:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:38	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	2.0	10		11/29/18 14:19	75-35-4	
cis-1,2-Dichloroethene	**29.1**	ug/L	10.0	0.80	10		11/29/18 14:19	156-59-2	
trans-1,2-Dichloroethene	**6.8J**	ug/L	10.0	2.0	10		11/29/18 14:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 20:38	100-41-4	
2-Hexanone	**22.0**	ug/L	10.0	1.2	1		11/28/18 20:38	591-78-6	
Methylene chloride	**0.72J**	ug/L	1.0	0.15	1		11/28/18 20:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 20:38	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:38	100-42-5	
1,1,2,2-Tetrachloroethane	**1.6**	ug/L	1.0	0.15	1		11/28/18 20:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 20:38	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 20:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 20:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 20:38	79-00-5	
Trichloroethene	**368**	ug/L	10.0	1.7	10		11/29/18 14:19	79-01-6	
Vinyl chloride	**1.6J**	ug/L	10.0	1.3	10		11/29/18 14:19	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:38	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	106	%	80-119		1		11/28/18 20:38	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/28/18 20:38	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/28/18 20:38	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**480**	mg/L	50.0	14.5	50		12/06/18 19:09	16887-00-6	
Sulfate	**10.9**	mg/L	10.0	2.4	10		12/01/18 19:44	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-16-201811 **Lab ID: 60287140007** Collected: 11/16/18 10:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.072J**	mg/L	0.10	0.060	1		11/17/18 12:57		
Nitrogen, Nitrite	**0.10**	mg/L	0.10	0.033	1		11/17/18 12:57		
Nitrogen, NO2 plus NO3	**0.18**	mg/L	0.10	0.060	1		11/17/18 12:57		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2980**	mg/L	500	327	500		11/30/18 06:00	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**5910**	mg/L	1000	654	1000		11/27/18 15:16	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-32-201811 **Lab ID: 60287140008** Collected: 11/16/18 09:35 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**7780**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 16:31	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.6J**	ug/L	10.0	1.9	1		11/28/18 20:52	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 20:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 20:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:52	74-83-9	
2-Butanone (MEK)	**21.4**	ug/L	10.0	0.59	1		11/28/18 20:52	78-93-3	
Carbon disulfide	**1.2J**	ug/L	5.0	0.12	1		11/28/18 20:52	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:52	56-23-5	
Chlorobenzene	**1.9**	ug/L	1.0	0.21	1		11/28/18 20:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 20:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 20:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 20:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 20:52	75-35-4	
cis-1,2-Dichloroethene	**1.9**	ug/L	1.0	0.080	1		11/29/18 14:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 20:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 20:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 20:52	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/28/18 20:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 20:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:52	100-42-5	
1,1,2,2-Tetrachloroethane	**0.41J**	ug/L	1.0	0.15	1		11/28/18 20:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 20:52	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 20:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 20:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 20:52	79-00-5	
Trichloroethene	**16.0**	ug/L	1.0	0.17	1		11/29/18 14:33	79-01-6	
Vinyl chloride	**0.35J**	ug/L	1.0	0.13	1		11/28/18 20:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	106	%	80-119		1		11/28/18 20:52	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/28/18 20:52	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/28/18 20:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**98.9**	mg/L	10.0	2.9	10		12/01/18 20:00	16887-00-6	
Sulfate	**22.3**	mg/L	10.0	2.4	10		12/01/18 20:00	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-32-201811 **Lab ID: 60287140008** Collected: 11/16/18 09:35 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 12:53		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:53		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 12:53		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.8**	mg/L	1.0	0.65	1		11/30/18 14:50	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**4.6**	mg/L	1.0	0.65	1		11/27/18 15:54	7440-44-0	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557711 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2288074 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	12/03/18 11:43	

LABORATORY CONTROL SAMPLE: 2288075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9960	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288076 2288077

Parameter	Units	60287171008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	371	10000	10000	10200	10300	98	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557716 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2288094 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	55.1	50.0	6.1	12/03/18 16:24	

LABORATORY CONTROL SAMPLE: 2288095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9630	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288096 2288097

Parameter	Units	60287155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	13400	10000	10000	23000	23800	95	104	75-125	4	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557295 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140001, 60287140002, 60287140003, 60287140004

METHOD BLANK: 2286312 Matrix: Water
Associated Lab Samples: 60287140001, 60287140002, 60287140003, 60287140004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 11:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 11:56	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 11:56	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 11:56	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 11:56	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 11:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 11:56	
Acetone	ug/L	ND	10.0	1.9	11/28/18 11:56	
Benzene	ug/L	ND	1.0	0.060	11/28/18 11:56	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 11:56	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 11:56	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 11:56	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 11:56	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 11:56	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 11:56	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 11:56	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 11:56	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 11:56	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 11:56	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 11:56	
Styrene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 11:56	
Toluene	ug/L	ND	1.0	0.17	11/28/18 11:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Trichloroethene	ug/L	ND	1.0	0.17	11/28/18 11:56	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 11:56	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 11:56	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/28/18 11:56	
4-Bromofluorobenzene (S)	%	101	80-119		11/28/18 11:56	
Toluene-d8 (S)	%	98	80-115		11/28/18 11:56	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

LABORATORY CONTROL SAMPLE: 2286313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.9	94	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	19.7	99	83-119	
1,1-Dichloroethane	ug/L	20	18.9	94	85-128	
1,1-Dichloroethene	ug/L	20	17.2	86	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	19.1	96	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	97.9	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.7	98	66-139	
Acetone	ug/L	100	90.8	91	62-142	
Benzene	ug/L	20	18.9	95	81-118	
Bromodichloromethane	ug/L	20	18.9	95	85-123	
Bromoform	ug/L	20	18.8	94	83-123	
Bromomethane	ug/L	20	10.5	53	39-149	
Carbon disulfide	ug/L	20	15.7	78	85-124	L2
Carbon tetrachloride	ug/L	20	19.2	96	85-126	
Chlorobenzene	ug/L	20	18.7	94	87-118	
Chloroethane	ug/L	20	18.5	92	73-134	
Chloroform	ug/L	20	18.6	93	85-119	
Chloromethane	ug/L	20	12.4	62	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.7	93	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	19.5	97	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	19.2	96	81-126	
Styrene	ug/L	20	18.8	94	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	18.2	91	82-118	
trans-1,2-Dichloroethene	ug/L	20	17.9	89	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.9	95	80-122	
Trichloroethene	ug/L	20	20.4	102	82-120	
Vinyl chloride	ug/L	20	15.1	76	74-147	
Xylene (Total)	ug/L	60	54.9	92	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557298 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

METHOD BLANK: 2286322 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 17:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 17:34	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 17:34	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 17:34	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 17:34	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 17:34	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 17:34	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 17:34	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 17:34	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 17:34	
Acetone	ug/L	ND	10.0	1.9	11/28/18 17:34	
Benzene	ug/L	ND	1.0	0.060	11/28/18 17:34	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 17:34	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 17:34	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 17:34	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 17:34	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 17:34	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 17:34	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 17:34	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 17:34	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 17:34	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 17:34	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 17:34	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 17:34	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 17:34	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 17:34	
Styrene	ug/L	ND	1.0	0.12	11/28/18 17:34	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 17:34	
Toluene	ug/L	ND	1.0	0.17	11/28/18 17:34	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 17:34	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 17:34	
Trichloroethene	ug/L	0.39J	1.0	0.17	11/28/18 17:34	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 17:34	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 17:34	
1,2-Dichloroethane-d4 (S)	%	107	80-117		11/28/18 17:34	
4-Bromofluorobenzene (S)	%	106	80-119		11/28/18 17:34	
Toluene-d8 (S)	%	102	80-115		11/28/18 17:34	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

LABORATORY CONTROL SAMPLE: 2286323

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.7	98	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	74-121	
1,1,2-Trichloroethane	ug/L	20	19.9	100	83-119	
1,1-Dichloroethane	ug/L	20	20.0	100	85-128	
1,1-Dichloroethene	ug/L	20	20.0	100	85-123	
1,2-Dichloroethane	ug/L	20	21.4	107	77-120	
1,2-Dichloropropane	ug/L	20	20.2	101	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	105	105	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	66-139	
Acetone	ug/L	100	89.4	89	62-142	
Benzene	ug/L	20	20.5	102	81-118	
Bromodichloromethane	ug/L	20	19.3	96	85-123	
Bromoform	ug/L	20	18.9	95	83-123	
Bromomethane	ug/L	20	10.8	54	39-149	
Carbon disulfide	ug/L	20	19.3	97	85-124	
Carbon tetrachloride	ug/L	20	19.8	99	85-126	
Chlorobenzene	ug/L	20	19.1	95	87-118	
Chloroethane	ug/L	20	24.7	124	73-134	
Chloroform	ug/L	20	19.0	95	85-119	
Chloromethane	ug/L	20	24.8	124	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.8	94	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.1	101	80-124	
Dibromochloromethane	ug/L	20	19.1	96	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.8	104	81-126	
Styrene	ug/L	20	19.4	97	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	19.1	95	82-118	
trans-1,2-Dichloroethene	ug/L	20	18.9	94	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.4	102	80-122	
Trichloroethene	ug/L	20	21.7	108	82-120	
Vinyl chloride	ug/L	20	26.1	130	74-147	
Xylene (Total)	ug/L	60	55.9	93	81-120	
1,2-Dichloroethane-d4 (S)	%			102	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557528 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140006, 60287140007, 60287140008

METHOD BLANK: 2287263 Matrix: Water
Associated Lab Samples: 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/29/18 12:12	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/29/18 12:12	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/29/18 12:12	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/29/18 12:12	
Trichloroethene	ug/L	0.43J	1.0	0.17	11/29/18 12:12	
Vinyl chloride	ug/L	ND	1.0	0.13	11/29/18 12:12	
1,2-Dichloroethane-d4 (S)	%	109	80-117		11/29/18 12:12	
4-Bromofluorobenzene (S)	%	105	80-119		11/29/18 12:12	
Toluene-d8 (S)	%	98	80-115		11/29/18 12:12	

LABORATORY CONTROL SAMPLE: 2287264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	20	19.4	97	85-123	
2-Butanone (MEK)	ug/L	100	112	112	65-134	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	84-121	
trans-1,2-Dichloroethene	ug/L	20	18.4	92	83-121	
Trichloroethene	ug/L	20	20.9	104	82-120	
Vinyl chloride	ug/L	20	21.5	108	74-147	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			106	80-119	
Toluene-d8 (S)	%			100	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 556356 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2282714 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/20/18 16:36	

LABORATORY CONTROL SAMPLE: 2282715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.48	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282716 2282717

Parameter	Units	60287027001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.48	0.48	95	96	75-125	0	20	

SAMPLE DUPLICATE: 2282718

Parameter	Units	60287027001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	2.7		20	

SAMPLE DUPLICATE: 2282719

Parameter	Units	60287027002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	2.7	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557819 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2288548 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/01/18 16:31	
Sulfate	mg/L	ND	1.0	0.24	12/01/18 16:31	

LABORATORY CONTROL SAMPLE: 2288549

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.6	96	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288550 2288551

Parameter	Units	60286569009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	<0.29	5	5	4.4	4.4	89	88	90-110	1	15	M1
Sulfate	mg/L	<0.24	5	5	4.8	4.8	96	95	90-110	1	15	

MATRIX SPIKE SAMPLE: 2288552

Parameter	Units	60286770001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	24.0	25	50.8	107	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557949
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140007

METHOD BLANK: 2289235 Matrix: Water
Associated Lab Samples: 60287140007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/06/18 15:48	

LABORATORY CONTROL SAMPLE: 2289236

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	11.0	110	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 558973 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2293697 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/08/18 01:22	
Sulfate	mg/L	ND	1.0	0.24	12/08/18 01:22	

LABORATORY CONTROL SAMPLE: 2293698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2293699 2293700

Parameter	Units	60286737028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	183	100	100	290	287	106	103	90-110	1	15	
Sulfate	mg/L	149	100	100	249	247	100	98	90-110	1	15	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 555800 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

METHOD BLANK: 2280436 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 12:46	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 12:46	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 12:46	

LABORATORY CONTROL SAMPLE: 2280437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.96	96	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE SAMPLE: 2280438

Parameter	Units	60287143001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	1.0	101	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.0	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.1	102	90-110	

SAMPLE DUPLICATE: 2280439

Parameter	Units	60287143003 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557615 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287140005, 60287140006, 60287140007

METHOD BLANK: 2287655 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/30/18 00:51	

LABORATORY CONTROL SAMPLE: 2287656

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	107	80-120	

MATRIX SPIKE SAMPLE: 2287657

Parameter	Units	60287477002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	106	50	152	90	80-120	

SAMPLE DUPLICATE: 2287658

Parameter	Units	60287477003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	6.5	6.6	2	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557682 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287140008

METHOD BLANK: 2287966 Matrix: Water
Associated Lab Samples: 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/30/18 12:41	

LABORATORY CONTROL SAMPLE: 2287967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	102	80-120	

MATRIX SPIKE SAMPLE: 2287968

Parameter	Units	60287257002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	5.5	97	80-120	

SAMPLE DUPLICATE: 2287969

Parameter	Units	60287257003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	0.88J	0.85J		25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 557295

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 557298

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 557528

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287140005	**MW-86-201811**	EPA 3010	557711	EPA 6010	557885
60287140006	**MW-25-201811**	EPA 3010	557711	EPA 6010	557885
60287140007	**TMW-16-201811**	EPA 3010	557716	EPA 6010	557883
60287140008	**TMW-32-201811**	EPA 3010	557716	EPA 6010	557883
60287140001	**TMW-23-201811**	EPA 5030B/8260	557295		
60287140002	**DUP-03-201811**	EPA 5030B/8260	557295		
60287140003	**EB-08-201811**	EPA 5030B/8260	557295		
60287140004	**EB-02-201811**	EPA 5030B/8260	557295		
60287140005	**MW-86-201811**	EPA 5030B/8260	557298		
60287140006	**MW-25-201811**	EPA 5030B/8260	557298		
60287140006	**MW-25-201811**	EPA 5030B/8260	557528		
60287140007	**TMW-16-201811**	EPA 5030B/8260	557298		
60287140007	**TMW-16-201811**	EPA 5030B/8260	557528		
60287140008	**TMW-32-201811**	EPA 5030B/8260	557298		
60287140008	**TMW-32-201811**	EPA 5030B/8260	557528		
60287140005	**MW-86-201811**	SM 4500-S-2 D	556356		
60287140006	**MW-25-201811**	SM 4500-S-2 D	556356		
60287140005	**MW-86-201811**	EPA 300.0	558973		
60287140006	**MW-25-201811**	EPA 300.0	558973		
60287140007	**TMW-16-201811**	EPA 300.0	557819		
60287140007	**TMW-16-201811**	EPA 300.0	557949		
60287140008	**TMW-32-201811**	EPA 300.0	557819		
60287140005	**MW-86-201811**	EPA 353.2	555800		
60287140006	**MW-25-201811**	EPA 353.2	555800		
60287140007	**TMW-16-201811**	EPA 353.2	555800		
60287140008	**TMW-32-201811**	EPA 353.2	555800		
60287140005	**MW-86-201811**	SM 5310C	557615		
60287140006	**MW-25-201811**	SM 5310C	557615		
60287140007	**TMW-16-201811**	SM 5310C	557615		
60287140008	**TMW-32-201811**	SM 5310C	557682		
60287140007	**TMW-16-201811**	SM 5310C	556798		
60287140008	**TMW-32-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder

WO# : 60287140

60287140

ALL SHADE

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool

Customer Project Name/Number: 1690010333

State: AR County/City: Fort Smith Time Zone Collected: PT MT CT ET

Phone: 314-633-7325

Email:

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): JO Pavlowsky

Purchase Order #:

DW PWS ID #:

Collected by (signature):

Quote #:

DW Location Code #:

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive [ ] Hold

Turnaround Date Required: Standard

Immediately Packed on Ice? [ ] Yes [ ] No

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: DOC

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

(3)	U	U	I	D	D	U	U	2	4,5

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Project Manager: Rm

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	X	N	NA
Samples in holding time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	8260 Full List VOCs	Volatile Fatty Acids	Dissolved Organic Carbon	Iron (mg/L) TOTAL METALS (mg/L)	Mn, E, E	Mn, E, E, A	Sulfate, nitrate	Sulfate, nitrate, chloride	TOTAL Organic carbon	Sulfide
MW-23-201811	GW	G	11-16-18	0955				3	X									
DUP-03-201811				0955				3	X									
EB-08-201811				1030				3	X									
EB-02-201811				1053				3	X									
Trip Blank				-				2	X									
MW-86-201811				0940				10	X			X		X	X		X	X
MW-25-201811				0925				10	X			X		X	X		X	X
MW-16-201811				1025				12	X	X	X	X	X			X	X	
MW-32-201811				0935				12	X	X	X	X	X			X	X	
MW-89-201811	GW	G		1218				3						X				

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

(3)DG9H (3)DG9Q AG3S BP3U BP3Z BP3N (2)DG9H (3)DG9Q

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [X] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used:

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: 301

Cooler Temp Upon Receipt: 4.9 oC

Cooler Therm Corr. Factor: 0.0 oC

Cooler Temp Corrected: 4.9 oC

Comments:

Trip Blank Received: Y (N) N/A HCL MeOH TSP Other

NonConformance(s): YES / NO

Page: of

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JO Pavlowsky / REM	11/16/18 1300		11/17/18 0980
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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F-ALL-C-010-rev.00, 05Jul2018

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller (see page 1)

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected: PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: D U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: MEA, nydrogen

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in holding time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	MEA	nydrogen	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-50R-20181l	GW	G	11-16-18	1210				3	X		(3)D6Q
MW-87-20181l	A	G	11-15-18	1320				1		X	
MW-86-20181l	A	G	11-16-18	0940				1		X	OTHR
MW-25-20181l	A	G	11-16-18					1		X	
RW-69-20181l	GW	G	11-16-18	1315				3	X		
MW-73-20181l	GW	G	11-16-18	1320				3	X		

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet (Blue) [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used:

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier [ ]

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	11/17 0900
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

(see page 1)

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: 301

Cooler Temp Upon Receipt: 9.0 oC

Cooler Therm Corr. Factor: 0.0 oC

Cooler Temp Corrected: 9.0 oC

Comments: _____

Trip Blank Received: Y (N) N/A
HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Report To (optional)		Bill To (optional)	
Contact:	nzurweller@rampoll.com	Contact:	
Company:		Company:	
Address:		Address:	
Address:		Address:	
Phone:	314-833-7325	Phone:	
Fax:		Fax:	
E-Mail:	jpavlowsky@rampoll.com	PO#/Reference#	

Lab Job #: _____

Chain of Custody Number: _____

Page _____ of _____

Temperature °C of Cooler: _____

Client	Client Project #	Preservative	8									
Rampoll	169001033											
Project Name		Parameter	Hydrogen									
Whirlpool Annual												
Project Location/State	Lab Project #											
Fort Smith, AR	(see page 1)											
Sampler	Lab PM											
Johanna Pavlowsky	Richard Mannz											

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	Hydrogen								Comments
		IW-73-201811	11-14-18	1510	1	A	X			THE					
		MW-58R-201811	11-15-18	1400	1										
		RW-69-201811	11-14-18	1230											
		MW-95-201811	11-15-18												
		IMW-9-201811	11-15-18	1520											
		MW-38-201811	11-15-18	0955											
		MW-89-201811	11-14-18	1010											
		MW-50R-201811	11-13-18	1410											
		TMW-11-201811	11-13-18	1645											
		TMW-10-201811	11-13-18	1655	↓	↓	↓			↓					

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days) Standard

___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other

Requested Due Date _____

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
J Pavlowsky	REH	B30 11/16/18				11/17	0900
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier _____

Shipped _____

Hand Delivered _____

Matrix Key

WW – Wastewater	SE – Sediment
W – Water	SO – Soil
S – Solid	L – Leachate
SL – Sludge	WI – Wipe
MS – Miscellaneous	DW – Drinking Water
OL – Oil	O – Other
A – Air	

Client Comments

Lab Comments:

TAL-4124-500 (1209)

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

Date: 11/17	Evaluated by: JDB
Client: Campbell	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

	Collection date/time missing or incorrect		Analyses or analytes: missing or clarification needed		Samples listed on COC do not match samples received (missing, additional, etc.)
	Sample IDs on COC do not match sample labels		Required trip blanks were not received	X	Required signatures are missing

Comments/Details/Other Issues not listed above: No Trip Blanks received, listed on COC

3. Sample integrity issues: check applicable issues below and add details where appropriate:

	Samples: Past holding time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samples: Not field filtered		Containers: Broken or compromised		Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temperature: Samples arrived frozen
	Samples: Cooler damaged or compromised		Custody Seals: Missing or compromised on samples, trip blanks or coolers		Vials received with improper headspace
	Samples: contain chlorine or sulfides		Packing Material: Insufficient/Improper		Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:	
PM Initials:	Date/Time:	

Client Comments/Instructions:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

December 4, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60287140**

Pace Workorder: 28771

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, November 20, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 12/04/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287710001	MW-86-201811	Water	11/16/2018 09:40	11/20/2018 11:45
287710002	MW-25-201811	Water	11/16/2018 09:25	11/20/2018 11:45
287710003	MW-89-201811	Water	11/16/2018 09:35	11/20/2018 11:45
287710004	MW-50R-201811	Water	11/16/2018 12:10	11/20/2018 11:45
287710005	RW-69-201811	Water	11/16/2018 13:15	11/20/2018 11:45
287710006	MW-73-201811	Water	11/16/2018 13:20	11/20/2018 11:45
287710007	TMW-16-201811	Water	11/16/2018 10:25	11/20/2018 11:45
287710008	TMW-32-201811	Water	11/16/2018 09:35	11/20/2018 11:45
287710009	MW-87-201811	Bubble Strip	11/15/2018 13:30	11/20/2018 11:45
287710010	MW-86-201811	Bubble Strip	11/16/2018 09:40	11/20/2018 11:45
287710011	MW-25-201811	Bubble Strip	11/16/2018 08:00	11/20/2018 11:45
287710012	IW-73-201811	Bubble Strip	11/14/2018 15:10	11/20/2018 11:45
287710013	MW-58R-201811	Bubble Strip	11/15/2018 14:00	11/20/2018 11:45
287710014	RW-69-201811	Bubble Strip	11/14/2018 12:30	11/20/2018 11:45
287710015	MW-95-201811	Bubble Strip	11/15/2018 08:00	11/20/2018 11:45
287710016	ITMW-9-201811	Bubble Strip	11/15/2018 15:20	11/20/2018 11:45
287710017	MW-38-201811	Bubble Strip	11/15/2018 09:55	11/20/2018 11:45
287710018	MW-89-201811	Bubble Strip	11/14/2018 10:10	11/20/2018 11:45
287710019	MW-50R-201811	Bubble Strip	11/13/2018 14:10	11/20/2018 11:45
287710020	TMW-11-201811	Bubble Strip	11/13/2018 16:45	11/20/2018 11:45
287710021	TMW-10-201811	Bubble Strip	11/13/2018 16:55	11/20/2018 11:45

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PROJECT SUMMARY

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Workorder Comments

The container pH for samples 28771 (0001, 0007) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Sample Comments

Lab ID: 287710013 **Sample ID:** MW-58R-201811 **Sample Type:** N

Sample headspace vial not sufficiently pressurized for analysis. Vial pressurized with an equal volume of UHP Nitrogen and analyzed. Results reported at a dilution.

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

Batch: DISG/7239 - AM20GAX Bubble Strip QC

The percent recovery for the closing calibration verification analysis was above laboratory control limits. Analytes Hydrogen. Results associated to the analytes in samples may be biased high; affected samples flagged accordingly.

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710001** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-86-201811** Date Collected: 11/16/2018 09:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**61**	ug/l	0.50	0.014	1	11/29/2018 08:16	BW	n
Ethane	**9.6**	ug/l	0.10	0.0070	1	11/29/2018 08:16	BW	n
Ethene	**0.78**	ug/l	0.10	0.0050	1	11/29/2018 08:16	BW	n
Acetylene	**3.6**	ug/l	0.50	0.034	1	11/29/2018 08:16	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710002** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-25-201811** Date Collected: 11/16/2018 09:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**72**	ug/l	0.50	0.014	1	11/29/2018 08:28	BW	n
Ethane	**16**	ug/l	0.10	0.0070	1	11/29/2018 08:28	BW	n
Ethene	**1.7**	ug/l	0.10	0.0050	1	11/29/2018 08:28	BW	n
Acetylene	**6.0**	ug/l	0.50	0.034	1	11/29/2018 08:28	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710003** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-89-201811** Date Collected: 11/16/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**12**	ug/l	0.50	0.014	1	11/29/2018 08:46	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 08:46	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 08:46	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 08:46	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710004** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-50R-201811** Date Collected: 11/16/2018 12:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**280**	ug/l	0.50	0.014	1	11/29/2018 08:58	BW	n
Ethane	**0.18**	ug/l	0.10	0.0070	1	11/29/2018 08:58	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 08:58	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 08:58	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710005** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **RW-69-201811** Date Collected: 11/16/2018 13:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**47**	ug/l	0.50	0.014	1	11/29/2018 09:10	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 09:10	BW	n
Ethene	**0.16**	ug/l	0.10	0.0050	1	11/29/2018 09:10	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 09:10	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710006** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-73-201811** Date Collected: 11/16/2018 13:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**5.8**	ug/l	0.50	0.014	1	11/29/2018 09:23	BW	n
Ethane	**0.13**	ug/l	0.10	0.0070	1	11/29/2018 09:23	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 09:23	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 09:23	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710007** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-16-201811** Date Collected: 11/16/2018 10:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<20**	mg/l	20	1.4	100	11/26/2018 23:13	KB	d
Acetic Acid	**1400**	mg/l	100	24	1000	11/27/2018 00:09	KB	d,B
Propionic Acid	**4500**	mg/l	100	4.4	1000	11/27/2018 00:09	KB	d,B
Butyric Acid	**190**	mg/l	100	4.7	1000	11/27/2018 00:09	KB	d,B
Pyruvic Acid	**17**	mg/l	10	0.57	100	11/26/2018 23:13	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**10000**	ug/l	0.50	0.014	1	11/29/2018 09:36	BW	n
Ethane	**5.3**	ug/l	0.10	0.0070	1	11/29/2018 09:36	BW	n
Ethene	**18**	ug/l	0.10	0.0050	1	11/29/2018 09:36	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710008** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-32-201811** Date Collected: 11/16/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/22/2018 04:22	KB	d
Acetic Acid	**4.0**	mg/l	1.0	0.24	10	11/22/2018 04:22	KB	d,M3,B,M5
Propionic Acid	**15**	mg/l	1.0	0.044	10	11/22/2018 04:22	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/22/2018 04:22	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/22/2018 04:22	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**410**	ug/l	0.50	0.014	1	11/30/2018 08:59	BW	n
Ethane	**0.31**	ug/l	0.10	0.0070	1	11/30/2018 08:59	BW	n
Ethene	**0.75**	ug/l	0.10	0.0050	1	11/30/2018 08:59	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710009** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-87-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**4.7**	nM	1.0	0.65	1	11/27/2018 16:31	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710010** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-86-201811** Date Collected: 11/16/2018 09:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**130**	nM	20	13	20	11/29/2018 14:28	MM	d,M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710011** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-25-201811** Date Collected: 11/16/2018 08:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**10**	nM	1.0	0.65	1	11/27/2018 17:09	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710012** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **IW-73-201811** Date Collected: 11/14/2018 15:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**2.6**	nM	1.0	0.65	1	11/27/2018 15:16	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710013** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-58R-201811** Date Collected: 11/15/2018 14:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.6**	nM	2.0	1.3	2	11/29/2018 15:01	MM	d,M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710014** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **RW-69-201811** Date Collected: 11/14/2018 12:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**2.6**	nM	1.0	0.65	1	11/27/2018 15:29	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710015** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-95-201811** Date Collected: 11/15/2018 08:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.0**	nM	1.0	0.65	1	11/29/2018 15:14	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710016** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **ITMW-9-201811** Date Collected: 11/15/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**4.4**	nM	1.0	0.65	1	11/29/2018 15:31	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710017** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-38-201811** Date Collected: 11/15/2018 09:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.5**	nM	1.0	0.65	1	11/29/2018 15:44	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710018** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-89-201811** Date Collected: 11/14/2018 10:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**6.3**	nM	1.0	0.65	1	11/27/2018 15:41	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710019** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-50R-201811** Date Collected: 11/13/2018 14:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**3.3**	nM	1.0	0.65	1	11/27/2018 15:53	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710020** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **TMW-11-201811** Date Collected: 11/13/2018 16:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**6.7**	nM	1.0	0.65	1	11/27/2018 16:06	MM	n

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Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710021** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **TMW-10-201811** Date Collected: 11/13/2018 16:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**11**	nM	1.0	0.65	1	11/27/2018 16:19	MM	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
M1	The continuing calibration verification recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
M3	The matrix spike sample recovery was outside laboratory control limits.

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287710008

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.25	0.10	M3,B,M5
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	110	70-130	
Acetic Acid	mg/l	2	2.3	114	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.1	105	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.036	20	21	21	107	106	70-130	1.2	30	d
Acetic Acid	mg/l	120	20	150	150	145	150	70-130	0.67	30	d,M3,B,M5
Propionic Acid	mg/l	73	20	87	88	70	73	70-130	0.5	30	d,B
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
Pyruvic Acid	mg/l	1	20	21	21	100	99	70-130	0.28	30	d

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7234 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710009, 287710011, 287710012, 287710014, 287710018, 287710019, 287710020, 287710021

METHOD BLANK: 58669

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 58671 58673

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Hydrogen	nM	24	25	26	103	107	80-120	3.5	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7237 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710001, 287710002, 287710003, 287710004, 287710005, 287710006, 287710007

METHOD BLANK: 58691

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58692 58693

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	97	96	80-120	0.86	20	n
Ethane	ug/l	38	41	41	108	109	80-120	0.88	20	n
Ethene	ug/l	35	38	39	109	109	80-120	0.49	20	n
Acetylene	ug/l	33	37	37	113	114	80-120	1.3	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287710007

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	109	70-130	
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7238 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710008

METHOD BLANK: 58700

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 58701 58702

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	730	710	97	95	80-120	2.5	20	n
Ethane	ug/l	38	40	40	106	105	80-120	1.5	20	n
Ethene	ug/l	35	38	37	106	104	80-120	2.4	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58713 58714 Original: 287680007

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	210	750	840	850	85	86	70-130	0.97	20	n
Ethane	ug/l	1.3	38	37	36	94	93	70-130	1.4	20	n
Ethene	ug/l	1.1	35	34	33	93	91	70-130	2.9	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58719 58720 Original: 288320003

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	300	750	930	970	84	89	70-130	4.3	20	n
Ethane	ug/l	7.4	38	49	50	110	111	70-130	1.2	20	n
Ethene	ug/l	17	35	55	56	108	109	70-130	0.36	20	n

nelac

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7239 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710010, 287710013, 287710015, 287710016, 287710017

METHOD BLANK: 58707

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 58708 58709

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Hydrogen	nM	12	13	13	109	109	80-120	0.27	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
M3	The matrix spike sample recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287710008	TMW-32-201811			AM23G	EDON/3943
287710009	MW-87-201811			AM20GAX	DISG/7234
287710011	MW-25-201811			AM20GAX	DISG/7234
287710012	IW-73-201811			AM20GAX	DISG/7234
287710014	RW-69-201811			AM20GAX	DISG/7234
287710018	MW-89-201811			AM20GAX	DISG/7234
287710019	MW-50R-201811			AM20GAX	DISG/7234
287710020	TMW-11-201811			AM20GAX	DISG/7234
287710021	TMW-10-201811			AM20GAX	DISG/7234
287710001	MW-86-201811			AM20GAX	DISG/7237
287710002	MW-25-201811			AM20GAX	DISG/7237
287710003	MW-89-201811			AM20GAX	DISG/7237
287710004	MW-50R-201811			AM20GAX	DISG/7237
287710005	RW-69-201811			AM20GAX	DISG/7237
287710006	MW-73-201811			AM20GAX	DISG/7237
287710007	TMW-16-201811			AM20GAX	DISG/7237
287710007	TMW-16-201811			AM23G	EDON/3944
287710008	TMW-32-201811			AM20GAX	DISG/7238
287710010	MW-86-201811			AM20GAX	DISG/7239
287710013	MW-58R-201811			AM20GAX	DISG/7239
287710015	MW-95-201811			AM20GAX	DISG/7239
287710016	ITMW-9-201811			AM20GAX	DISG/7239
287710017	MW-38-201811			AM20GAX	DISG/7239

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Chain of Custody

28771

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Workorder: 60287140 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 12/3/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9572

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers						Requested Analysis												LAB USE ONLY
					Unpreserved	TSP	Other				M,E,A	Hydrogen		Volatile Fatty Acids		Methane, Ethane, Ethene							
1	MW-86-201811	11/16/2018 09:40	60287140005	Water		3					X												
2	MW-25-201811	11/16/2018 09:25	60287140006	Water		3					X												
3	MW-89-201811	11/16/2018 09:35	60287140009	Water		3					X												
4	MW-50R-201811	11/16/2018 12:10	60287140010	Water		3					X												
5	RW-69-201811	11/16/2018 13:15	60287140014	Water		3					X												
6	MW-73-201811	11/16/2018 13:20	60287140015	Water		3					X												
7	TMW-16-201811	11/16/2018 10:25	60287140007	Water	2	3								X		X							
8	TMW-32-201811	11/16/2018 09:35	60287140008	Water	2	3								X		X							
9	MW-87-201811	11/15/2018 13:30	60287140011	Air			1					X											
10	MW-86-201811	11/16/2018 09:40	60287140012	Air			1					X											
11	MW-25-201811	11/16/2018 08:00	60287140013	Air			1					X											
12	IW-73-201811	11/14/2018 15:10	60287140016	Air			1					X											
13	MW-58R-201811	11/15/2018 14:00	60287140017	Air			1					X											
14	RW-69-201811	11/14/2018 12:30	60287140018	Air			1					X											
15	MW-95-201811	11/15/2018 08:00	60287140019	Air			1					X											
16	ITMW-9-201811	11/15/2018 15:20	60287140020	Air			1					X											
17	MW-38-201811	11/15/2018 09:55	60287140021	Air			1					X											
18	MW-89-201811	11/14/2018 10:10	60287140022	Air			1					X											
19	MW-50R-201811	11/13/2018 14:10	60287140023	Air			1					X											
20	TMW-11-201811	11/13/2018 16:45	60287140024	Air			1					X											
21	TMW-10-201811	11/13/2018 16:55	60287140025	Air			1					X											

28771

					Comments
Transfers	Released By	Date/Time	Received By	Date/Time	
1	Holly Fowler PASI	11/18 1800	[illegible] PASI	11.20.18	1145
2					
3					

Cooler Temperature on Receipt 2 °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N

Cooler Receipt Form

Client Name: Pace **Project:** Whirlpool Annual **Lab Work Order:** 28771

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227864392

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : LY **Date:** 11-20-18

Project Manager Review : ERJ **Date:** 11-20-18

F-PAE-Q-009-rev.01, 3Oct2017

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Nick Zurweller
Ramboll Environ
1807 Park 270 Drive
Suite 450
St. Louis, MO 63146

Phone: 314-590-2977

Fax:

Identifier: 050PK **Date Rec:** 11/14/2018 **Report Date:** 11/21/2018

Client Project #: 1690010633 **Client Project Name:** Whirlpool Fort Smith

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

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CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**TMW-10-201811**	**TMW-11-201811**	**MW-50R-201811**	**RW-69-201811**	**IW-73-201811**
Sample Date:		11/13/2018	11/13/2018	11/13/2018	11/14/2018	11/14/2018
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	<2.00E+00	<2.00E+00	<5.00E-01	**2.00E-01 (J)**	**2.10E+00**
tceA Reductase	TCE	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	**3.00E-01 (J)**
Vinyl Chloride Reductase	VCR	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**MW-89-201811**	**MW-58R-201811**	**MW-95-201811**	**MW-38-201811**	**MW-87-201811**
Sample Date:		11/14/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	<5.00E-01	**2.67E+01**	<5.00E-01
tceA Reductase	TCE	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01	**3.00E+01**	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**ITMW-9-201811**	**MW-25-201811**	**MW-86-201811**
Sample Date:		11/15/2018	11/16/2018	11/16/2018
Units:		cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS
Dechlorinating Bacteria				
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	<5.00E-01
tceA Reductase	TCE	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **11/14/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/14/2018	11/20/2018	1 °C	112%	non-detect	non-detect
BVC	11/14/2018	11/20/2018	1 °C	102%	non-detect	non-detect
TCE	11/14/2018	11/20/2018	1 °C	101%	non-detect	non-detect
VCR	11/14/2018	11/20/2018	1 °C	97%	non-detect	non-detect

Samples Received **11/15/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/15/2018	11/20/2018	0 °C	98%	non-detect	non-detect
BVC	11/15/2018	11/20/2018	0 °C	102%	non-detect	non-detect
TCE	11/15/2018	11/20/2018	0 °C	101%	non-detect	non-detect
VCR	11/15/2018	11/20/2018	0 °C	97%	non-detect	non-detect

Samples Received **11/16/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/16/2018	11/20/2018	1 °C	103%	non-detect	non-detect
BVC	11/16/2018	11/20/2018	1 °C	101%	non-detect	non-detect
TCE	11/16/2018	11/20/2018	1 °C	100%	non-detect	non-detect
VCR	11/16/2018	11/20/2018	1 °C	97%	non-detect	non-detect
DHC	11/16/2018	11/20/2018	1 °C	99%	non-detect	non-detect

Samples Received **11/17/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/17/2018	11/20/2018	0 °C	103%	non-detect	non-detect
BVC	11/17/2018	11/20/2018	0 °C	101%	non-detect	non-detect
TCE	11/17/2018	11/20/2018	0 °C	100%	non-detect	non-detect
VCR	11/17/2018	11/20/2018	0 °C	97%	non-detect	non-detect

Attachment D
Data Validation Report

LEVEL II DATA VALIDATION REVIEW

4th Quarter Groundwater Monitoring Event 2018

Whirlpool Corporation

Fort Smith, Arkansas

Laboratory Sample Delivery Groups (SDGs): 10456051, 60286720, 60286849, 60287044, 60287058, and 60287140.

Laboratory: Pace Analytical Services, LLC Lenexa, Kansas; Pittsburgh, Pennsylvania; Minneapolis, Minnesota

Reviewer: Kristin Drucquer

Date Reviewed: January 25, 2018

This data validation report has been prepared by Ramboll US Corporation (Ramboll) to assess the validity and usability of laboratory analytical data generated from samples collected during the 4th quarter groundwater sampling event at the Whirlpool Corporation, Fort Smith, Arkansas Site (the "site") from November 13, 2018 through November 16, 2018.

The analytical data were evaluated for quality assurance and quality control (QA/QC) based on the following document: *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (OSWER 9355.0-136, EPA-540-R-2017-002, January 2017) and *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review* (OSWER 9355.0-135, EPA-540-R-2017-001, January 2017)

This report summarizes the QA/QC evaluation of the data according to precision, accuracy, representativeness, completeness and comparability relative to the project data quality objectives. This report provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability of the data.

Ninety groundwater samples, two air matrix sample, nine blind groundwater field duplicates, six equipment rinsate blanks, and seven trip blanks were analyzed for one or more of the following analyses:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) 8260
- VOCs by USEPA TO-15
- Chloride and sulfate by USEPA 300.0
- Iron USEPA 6010
- Nitrate, nitrite, and nitrogen as nitrite and nitrate by USEPA 353.2
- Sulfide by SM4500S2D
- Total organic carbon (TOC) by SM5310C
- Dissolved gases (methane, ethane, ethene, acetylene, and/or hydrogen) by Pace Method AM20GAX
- Volatile fatty acids by Pace Method AM23G

Pace Analytical Services, LLC (Pace) located in Lenexa, Kansas analyzed all the aqueous samples with the exception of the analyses for dissolved gases and volatile fatty acids. Pace located in Pittsburgh

performed the analyses for dissolved gasses and volatile fatty acids. Pace located in Minneapolis, Minnesota analyzed the air samples for VOCs by Method TO-15.

The table below summarizes the field sample identifications, sample type, laboratory sample identification, and matrix types for the data included in this data set:

Field ID	Sample Type	Lab ID	Matrix
SDG: 10456051			
VP-9-201811	SA	10456051001	Air
VP-9-201811 cert 2132	Blank	10456051002	Air
SDG: 60286720			
MW-175-201811	SA	60286720001	Aqueous
MW-61R-201811	SA	60286720002	Aqueous
TMW-29-201811	SA	60286720003	Aqueous
DUP-01-201811	FD	60286720004	Aqueous
MW-179-201811	SA	60286720005	Aqueous
DUP-06-201811	FD	60286720006	Aqueous
TMW-11-201811	SA	60286720007	Aqueous
TMW-10-201811	SA	60286720008	Aqueous
MW-50R-201811	SA	60286720009	Aqueous
TRIP BLANK-01-20181113	TB	60286720010	Aqueous
TMW-20-201811	SA	60286720011	Aqueous
MW-195-201811	SA	60286720012	Aqueous
MW-196-201811	SA	60286720013	Aqueous
MW-99-201811	SA	60286720014	Aqueous
MW-68-201811	SA	60286720015	Aqueous
ITMW-2-201811	SA	60286720016	Aqueous
MW-28-201811	SA	60286720017	Aqueous
MW-27-201811	SA	60286720018	Aqueous
ITMW-16-201811	SA	60286720019	Aqueous
MW-176-201811	SA	60286720020	Aqueous
TRIP BLANK-02-20181113	TB	60286720021	Aqueous
SDG: 60286849			
MW-188-201811	SA	60286849001	Aqueous
TMW-19-201811	SA	60286849002	Aqueous
TMW-27-201811	SA	60286849003	Aqueous
MW-178-201811	SA	60286849004	Aqueous
MW-84-201811	SA	60286849005	Aqueous
MW-83-201811	SA	60286849006	Aqueous
MW-22-201811	SA	60286849007	Aqueous
MW-56R-201811	SA	60286849008	Aqueous
MW-57R-201811	SA	60286849009	Aqueous
MW-46R-201811	SA	60286849010	Aqueous
MW-60R-201811	SA	60286849011	Aqueous
MW-40R-201811	SA	60286849012	Aqueous
MW-62R-201811	SA	60286849013	Aqueous

Field ID	Sample Type	Lab ID	Matrix
MW-63R-201811	SA	60286849014	Aqueous
MW-26-201811	SA	60286849015	Aqueous
DUP-09-201811	FD	60286849016	Aqueous
ITMW-20-201811	SA	60286849017	Aqueous
EB-03-201811	EB	60286849018	Aqueous
MW-191-201811	SA	60286849019	Aqueous
TMW-14-201811	SA	60286849020	Aqueous
ITMW-10-201811	SA	60286849021	Aqueous
MW-184-201811	SA	60286849022	Aqueous
MW-183R-201811	SA	60286849023	Aqueous
MW-98-201811	SA	60286849024	Aqueous
EB-04-201811	EB	60286849025	Aqueous
MW-186-201811	SA	60286849026	Aqueous
MW-185-201811	SA	60286849027	Aqueous
TMW-34-201811	SA	60286849028	Aqueous
MW-194-201811	SA	60286849029	Aqueous
MW-89-201811	SA	60286849030	Aqueous
IW-73-201811	SA	60286849031	Aqueous
RW-69-201811	SA	60286849032	Aqueous
TMW-30-201811	SA	60286849033	Aqueous
TRIP BLANK-20181114	TB	60286849034	Aqueous
TRIP BLANK 2-20181114	TB	60286849035	Aqueous
EB-05-201811	EB	60286849036	Aqueous
SDG: 60287044			
DUP-07-201811	FD	60287044001	Aqueous
MW-192-201811	SA	60287044002	Aqueous
MW-187-201811	SA	60287044003	Aqueous
ITMW-18-201811	SA	60287044004	Aqueous
MW-96-201811	SA	60287044005	Aqueous
MW-97-201811	SA	60287044006	Aqueous
MW-24-201811	SA	60287044007	Aqueous
DUP-02-201811	FD	60287044008	Aqueous
MW-55R-201811	SA	60287044009	Aqueous
DUP-08-201811	FD	60287044010	Aqueous
IW-77-201811	SA	60287044011	Aqueous
TMW-12-201811	SA	60287044012	Aqueous
DUP-04-201811	FD	60287044013	Aqueous
MW-82-201811	SA	60287044014	Aqueous
ITMW-7-201811	SA	60287044015	Aqueous
ITMW-19-201811	SA	60287044016	Aqueous
MW-93-201811	SA	60287044017	Aqueous
MW-189-201811	SA	60287044018	Aqueous
TRIP BLANK-01-20181115	TB	60287044019	Aqueous
EB-01-201811	EB	60287044020	Aqueous
MW-190-201811	SA	60287044021	Aqueous

Field ID	Sample Type	Lab ID	Matrix
ITMW-21-201811	SA	60287044022	Aqueous
ITMW-1-201811	SA	60287044023	Aqueous
ITMW-5-201811	SA	60287044024	Aqueous
MW-91-201811	SA	60287044025	Aqueous
MW-29-201811	SA	60287044026	Aqueous
MW-39R-201811	SA	60287044027	Aqueous
MW-182-201811	SA	60287044028	Aqueous
IW-78-201811	SA	60287044029	Aqueous
TMW-24-201811	SA	60287044030	Aqueous
TMW-26-201811	SA	60287044031	Aqueous
TMW-25-201811	SA	60287044032	Aqueous
TMW-21-201811	SA	60287044033	Aqueous
TMW-22R-201811	SA	60287044034	Aqueous
MW-58R-201811	SA	60287044035	Aqueous
DUP-05-201811	FD	60287044036	Aqueous
MW-95-201811	SA	60287044037	Aqueous
ITMW-9-201811	SA	60287044038	Aqueous
MW-87-201811	SA	60287044039	Aqueous
MW-38-201811	SA	60287044040	Aqueous
TRIP BLANK-02-20181115	TB	60287044041	Aqueous
TRIP BLANK-03-20181115	TB	60287044042	Aqueous
SDG: 60287058			
VP-7-201811	SA	60287058001	Aqueous
VP-8-201811	SA	60287058002	Aqueous
VP-10-201811	SA	60287058003	Aqueous
VP-12-201811	SA	60287058004	Aqueous
VP-14-201811	SA	60287058005	Aqueous
SDG: 60287140			
TMW-23-201811	SA	60287140001	Aqueous
DUP-03-201811	FD	60287140002	Aqueous
EB-08-201811	EB	60287140003	Aqueous
EB-02-201811	EB	60287140004	Aqueous
MW-86-201811	SA	60287140005	Aqueous
MW-25-201811	SA	60287140006	Aqueous
TMW-16-201811	SA	60287140007	Aqueous
TMW-32-201811	SA	60287140008	Aqueous

Sample Type: SA = Sample TB = Trip Blank FD = Field Duplicate EB = Equipment Blank

The laboratory reports were evaluated for the following QC elements:

- Data Package Completeness,
- Sample Preservation and Holding Times,
- Blanks,

- Surrogate Compound Recoveries,
- Laboratory Control Sample (LCS),
- Matrix Spike/Matrix Spike Duplicates (MS/MSD),
- Laboratory and Field Precision,
- Overall Assessment of Data.

General Overall Assessment:

_____ Data are usable without qualification.

__X__ Data are usable with qualification (noted below).

_____ Some or all data are unusable for any purpose (detailed below).

Case Narrative Comments: Any case narrative comments concerning data qualification were noted below.

1.0 Data Package Completeness

Were all items delivered as specified on the COC and is the data package complete?

Yes, the analysis was performed as requested on the chain-of-custody records. All samples were received by the laboratory and analyzed properly with appropriate corrective actions taken when appropriate. Four results for nitrite/nitrate analysis by Method 353.2 were rejected for hold time exceedances, as discussed in Section 3.0. The percent data completeness for Method 353.2 is 94%. The percent completeness for all other methods is 100%, with no additional data rejected as a result of the data validation.

2.0 Laboratory Case Narrative, Sample Preservation and Cooler Receipt Form

Were issues noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narratives indicated the following:

- **SDG: 10456051 –** No exceptions were noted in the case narrative.
- **SDG 60286720 –** The laboratory indicated that 1,2-dichloroethane was detected in two method blanks. In addition, the recovery for chloride was above the laboratory control limits in the MS sample. See Sections 4.0 and 8.0 for further details.
- **SDG 60286849** – The case narratives stated that the pH measurements for samples MW-186-201811 and TMW-30-201811 were above the preservation requirement of 2. The laboratory indicated that 1,2-dichloroethane was detected in two method blanks. See Section 4.0 for further discussion. The laboratory indicated that the recovery for trichloroethane (TCE) in the LCS and MS were above QC limits. See Sections 7.0 and 8.0 for further discussion. The case narratives indicated that samples MW-194-201811 was analyzed outside the hold time for chloride, sulfate, nitrate, and nitrite. Sample MW-186-201811 was analyzed outside the hold time for nitrate and nitrite. The hold time exceedances are discussed in Section 3.0.
- **SDG 60287044** – The case narratives stated that the pH measurements for samples TMW-21-201811, TMW-25-201811, and TMW-26-201811 were above the preservation requirement of 2. The exceedances are discussed in Section 3.0. The laboratory also

indicated that 1,2-dichloroethane was detected in two method blanks. See Section 4.0 for further discussion. One surrogate was outside laboratory acceptance criteria for sample TRIP BLANK-02-20181115. LCS recoveries for TCE and carbon disulfide were outside laboratory acceptance criteria. See Section 7.0 for further discussion. The laboratory also noted that recoveries for sulfate, nitrate; and nitrogen, as nitrite and nitrate, were outside the laboratory control limits in the MS samples. See Section 8.0 for further details.

- **SDG 60287058** - The laboratory indicated that 1,2-dichloroethane was detected in an associated method blank. See Section 4.0 for further discussion.
- **SDG 60287140** – The laboratory indicated that the recovery for carbon disulfide in the LCS was below the QC limit. See Section 7.0 for further discussion.

Samples were received at the laboratories in good condition and at proper temperature <6 degrees Celsius (°C), when required.

3.0 Technical Holding Times

Were samples extracted/analysed within method specific holding time requirements?

No. The pH for samples TMW-26-201811, TMW-25-201811, TMW-21-201811, MW-186-201811, and TMW-30-201811 was measured between 3.0 and 6.0 at the time of analysis for VOCs, which is above the pH preservation of 2.0. The samples TMW-26-201811, TMW-25-201811, and TMW-21-201811 were analyzed outside the seven-day holding time for unpreserved samples. Results were qualified "J-" as estimated with a low bias or "UJ" as estimated non-detect in the samples. Results that were already qualified "J" remained qualified "J". Sample MW-186-201811 and TMW-30-201811 were anlayzed within seven days and no results were qualified.

Samples MW-186-201811 and MW-194-201811 were analyzed outside of the 48-hour hold time for nitrate and nitrite. The samples were analyzed significantly past the hold; therefore, non-detect results for nitrate, nitrite, and nitrate/nitrite were rejected for sample MW-194-201811; and the result for nitrate was rejected for sample MW-186-201811. The results for nitrite and nitrate/nitrite were qualified "J-" for sample MW-186-201811. The bias flag was removed for the final qualification because the results were further qualified for laboratory duplicate RPD, as discussed in Section 9.0.

The analysis for dissolved gases, chloride, and sulfate for MW-194-201811 were performed outside the required holding time, the results were qualified "J-" as estimated with a potential low bias.

4.0 Blank Contamination

Were any analytes detected in the associated laboratory or field blanks?

Yes. The following table summarizes analytes detected in laboratory method and field blanks collected as part of this data set:

SDG	Blank ID	Blank Type	Analyte	Concentration	Units
60286720	2279341	Method	1,2-Dichloroethane	0.15 J	µg/L
60286720	2281212	Method	1,2-Dichloroethane	0.16 J	µg/L
60286720	2281217	Method	1,2-Dichloroethane	0.19 J	µg/L
60286720	2283187	Method	1,2-Dichloroethane	0.14 J	µg/L

SDG	Blank ID	Blank Type	Analyte	Concentration	Units
60286720	TRIP BLANK-01-20181113	Trip	Acetone	2.6 J	µg/L
60286720	TRIP BLANK-01-20181113	Trip	Methylene Chloride	0.45 J	µg/L
60286720	TRIP BLANK-02-20181113	Trip	Methylene Chloride	0.46 J	µg/L
60286849	2281609	Method	1,2-Dichloroethane	0.16 J	µg/L
60286849	2281617	Method	1,2-Dichloroethane	0.18 J	µg/L
60286849	2296207	Method	Chloride	0.48 J	mg/L
60286849	58618	Method	Acetic acid	0.25	mg/L
60286849	58694	Method	Acetic acid	0.32	mg/L
60286849	EB-03-201811	Equipment	Acetone	2.0 J	µg/L
60286849	EB-03-201811	Equipment	1,2-Dichloroethane	0.12 J	µg/L
60286849	EB-03-201811	Equipment	Methylene Chloride	0.55 J	µg/L
60286849	EB-04-201811	Equipment	Methylene Chloride	0.35 J	µg/L
60286849	TRIP BLANK-20181114	Trip	1,2-Dichloroethane	0.15 J	µg/L
60286849	TRIP BLANK-20181114	Trip	Methylene Chloride	0.47 J	µg/L
60286849	TRIP BLANK 2-20181114	Trip	Acetone	2.7 J	µg/L
60286849	TRIP BLANK 2-20181114	Trip	Methylene Chloride	0.42 J	µg/L
60286849	EB-05-201811	Equipment	Acetone	2.1 J	µg/L
60286849	EB-05-201811	Equipment	1,2-Dichloroethane	0.21 J	µg/L
60286849	EB-05-201811	Equipment	Methylene Chloride	0.29 J	µg/L
60287044	2283209	Method	1,2-Dichloroethane	0.17 J	µg/L
60287044	2284130	Method	1,2-Dichloroethane	0.12 J	µg/L
60287044	2284790	Method	TCE	0.19 J	µg/L
60287044	2287058	Method	Iron	7.4 J	mg/L
60287044	TRIP BLANK-01-20181115	Trip	Methylene Chloride	0.42 J	µg/L
60287044	EB-01-201811	Equipment	Methylene Chloride	0.56 J	µg/L
60287044	TRIP BLANK-02-20181115	Trip	1,2-Dichloroethane	0.15 J	µg/L
60287044	TRIP BLANK-02-20181115	Trip	Methylene Chloride	0.39 J	µg/L
60287044	TRIP BLANK-03-20181115	Trip	Acetone	3.2 J	µg/L
60287044	TRIP BLANK-03-20181115	Trip	Methylene Chloride	0.56 J	µg/L
60287058	2284130	Method	1,2-Dichloroethane	0.12 J	µg/L
60287140	2286322	Method	TCE	0.39 J	µg/L
60287140	227263	Method	TCE	0.43 J	µg/L
60287140	58618	Method	Acetic Acid	0.25	mg/L
60287140	58618	Method	Acetic Acid	0.32	mg/L
60287140	EB-08-201811	Equipment	Acetone	1.9 J	µg/L
60287140	EB-08-201811	Equipment	Methylene Chloride	0.55 J	µg/L
60287140	EB-08-201811	Equipment	TCE	0.83 J	µg/L
60287140	EB-02-201811	Equipment	Methylene Chloride	0.58 J	µg/L
60287140	EB-02-201811	Equipment	TCE	0.54 J	µg/L

ID = Identification µg/L = micrograms per liter J = result was detected between the method detection limit and reporting limit and is considered estimated

Analytical data that were reported non-detect or at concentrations greater than five times (5X) the associated blank concentration for organics and 10X for common laboratory contaminants or inorganics did not require qualification. Results that are qualified due to blank contamination are summarized in the table below.

SDG	Field ID	Analyte	Qualification
60286720	MW-175-201811	Acetone	**U**
60286720	MW-175-201811	1,2-Dichloroethane	**U**
60286720	MW-61R-201811	Acetone	**U**
60286720	MW-61R-201811	1,2-Dichloroethane	**U**
60286720	DUP-01-201811	1,2-Dichloroethane	**U**
60286720	MW-179-201811	1,2-Dichloroethane	**U**
60286720	DUP-06-201811	1,2-Dichloroethane	**U**
60286720	DUP-06-201811	Acetone	**U**
60286720	TMW-11-201811	Acetone	**U**
60286720	TMW-11-201811	1,2-Dichloroethane	**U**
60286720	TMW-10-201811	1,2-Dichloroethane	**U**
60286720	MW-50R-201811	1,2-Dichloroethane	**U**
60286720	MW-50R-201811	Acetone	**U**
60286720	TMW-20-201811	1,2-Dichloroethane	**U**
60286720	MW-195-201811	Acetone	**U**
60286720	MW-196-201811	1,2-Dichloroethane	**U**
60286720	MW-99-201811	Acetone	**U**
60286720	MW-99-201811	1,2-Dichloroethane	**U**
60286720	MW-68-201811	1,2-Dichloroethane	**U**
60286720	ITMW-2-201811	1,2-Dichloroethane	**U**
60286720	ITMW-2-201811	Acetone	**U**
60286720	MW-28-201811	Acetone	**U**
60286720	MW-27-201811	Acetone	**U**
60286720	MW-27-201811	1,2-Dichloroethane	**U**
60286720	ITMW-16-201811	Acetone	**U**
60286720	MW-176-201811	1,2-Dichloroethane	**U**
60286720	MW-176-201811	Acetone	**U**
60286849	TMW-19-201811	Acetone	**U**
60286849	TMW-27-201811	1,2-Dichloroethane	**U**
60286849	TMW-27-201811	Acetone	**U**
60286849	MW-178-201811	1,2-Dichloroethane	**U**
60286849	MW-83-201811	Acetone	**U**
60286849	MW-83-201811	1,2-Dichloroethane	**U**
60286849	MW-22-201811	Acetone	**U**
60286849	MW-56R-201811	Acetone	**U**
60286849	MW-57R-201811	Acetone	**U**
60286849	MW-57R-201811	1,2-Dichloroethane	**U**
60286849	MW-46R-201811	1,2-Dichloroethane	**U**
60286849	MW-46R-201811	Acetone	**U**
60286849	MW-40R-201811	Acetone	**U**
60286849	MW-62R-201811	1,2-Dichloroethane	**U**
60286849	MW-62R-201811	Acetone	**U**
60286849	MW-26-201811	Acetone	**U**
60286849	DUP-09-201811	1,2-Dichloroethane	**U**
60286849	DUP-09-201811	Acetone	**U**
60286849	EB-03-201811	1,2-Dichloroethane	**U**
60286849	MW-191-201811	Acetone	**U**
60286849	TMW-14-201811	1,2-Dichloroethane	**U**

SDG	Field ID	Analyte	Qualification
60286849	TMW-14-201811	Acetone	**U**
60286849	ITMW-10-201811	1,2-Dichloroethane	**U**
60286849	MW-184-201811	Acetone	**U**
60286849	MW-183R-201811	1,2-Dichloroethane	**U**
60286849	MW-183R-201811	Acetone	**U**
60286849	MW-98-201811	1,2-Dichloroethane	**U**
60286849	MW-98-201811	Acetone	**U**
60286849	MW-185-201811	Acetone	**U**
60286849	MW-185-201811	1,2-Dichloroethane	**U**
60286849	TMW-34-201811	Acetone	**U**
60286849	TMW-34-201811	1,2-Dichloroethane	**U**
60286849	MW-89-201811	Acetone	**U**
60286849	IW-73-201811	1,2-Dichloroethane	**U**
60286849	RW-69-201811	Acetone	**U**
60286849	TMW-30-201811	1,2-Dichloroethane	**U**
60287044	MW-95-201811	Iron	**U**
60287044	ITMW-9-201811	Iron	**U**
60287044	MW-87-201811	Iron	**U**
60287044	ITMW-18-201811	Methylene Chloride	**U**
60287044	MW-96-201811	Acetone	**U**
60287044	MW-97-201811	Acetone	**U**
60287044	MW-97-201811	1,2-Dichloroethane	**U**
60287044	MW-55R-201811	Acetone	**U**
60287044	DUP-08-201811	Acetone	**U**
60287044	IW-77-201811	Acetone	**U**
60287044	DUP-04-201811	Acetone	**U**
60287044	ITMW-7-201811	Acetone	**U**
60287044	ITMW-19-201811	Methylene Chloride	**U**
60287044	MW-93-201811	Methylene Chloride	**J+**
60287044	MW-93-201811	Acetone	**U**
60287044	MW-190-201811	Acetone	**U**
60287044	ITMW-5-201811	1,2-Dichloroethane	**U**
60287044	ITMW-5-201811	Acetone	**U**
60287044	MW-39R-201811	Acetone	**U**
60287044	MW-182-201811	Acetone	**U**
60287044	TMW-24-201811	Acetone	**U**
60287044	MW-58R-201811	Acetone	**U**
60287044	DUP-05-201811	Acetone	**U**
60287044	MW-95-201811	Acetone	**U**
60287044	MW-95-201811	Methylene Chloride	**J+**
60287044	ITMW-9-201811	Methylene Chloride	**U**
60287044	ITMW-9-201811	1,2-Dichloroethane	**U**
60287044	MW-87-201811	Acetone	**U**
60287044	MW-38-201811	Acetone	**U**
60287044	TRIP BLANK-02-20181115	1,2-Dichloroethane	**U**
60287058	VP-7-201811	1,2-Dichloroethane	**U**
60287058	VP-8-201811	1,2-Dichloroethane	**U**
60287140	TMW-23-201811	Acetone	**J+**
60287140	TMW-23-201811	Methylene Chloride	**U**
60287140	DUP-03-201811	Acetone	**U**
60287140	TMW-16-201811	Methylene Chloride	**U**
60287140	TMW-32-201811	Acetone	**U**

ID = Identification U = Non-detect J+ = Estimated with a high bias

5.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

No. Three surrogates (4-bromofluorobenzene, 1,2-dichloroethane-d4, and toluene-d8) were added to each sample analyzed for VOCs to evaluate the laboratory performance on individual samples. Percent recoveries (%R) for all volatile surrogates in all samples analyzed for VOCs were within the laboratory acceptance limits, with one exception. The surrogate 1,2-dichloroethane-d4 was above the control limit in sample TRIP BLANK-02-20181115. 1,2-Dichloroethane and methylene chloride were detected in this sample below the RL and are already qualified "J" as estimated.

6.0 Internal Standards

Were the Internal standard areas within control limits and was the retention time criteria met?

Yes. Internal standards indicate whether GC/MS sensitivity and response were stable during each analysis. The laboratory reported that all criteria were within method requirements.

7.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No. The LCS provides information on the accuracy of the analytical method and on the laboratory performance. The following table summarizes the LCS results that were outside the acceptance limits.

SDG	LCS ID	Analyte	LCS (%)	LCS Criteria (Recovery %)
60286849	2281618	TCE	**121**	82-120
60287044	2283212	TCE	**122**	82-120
60287140	2286313	Carbon disulfide	**78**	85-124

ID = Identification LCS = Laboratory Control Sample RPD = Relative Percent Difference
% = Percent

Non-detect results associated with high LCS recoveries were not qualified. TCE was detected in samples DUP-09-201811, TMW-14-201811, MW-98-201811, and IW-78-201811 below the laboratory RL and the results were already qualified "J" as estimated. Carbon disulfide was detected in one sample, DUP-03-201811, below the laboratory RL and the results were already qualified "J" as estimated. Carbon disulfide was not detected in samples MW-93-201811, MW-95-201811, TMW-23-201811, EB-08-201811, and EB-02-201811. The results were qualified "UJ" as estimated non-detect for a potential low bias.

8.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples reported as part of these SDGs?

Yes. MS/MSD data are used to assess long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery at the time of sample analysis.

Were MS/MSD recoveries within evaluation criteria?

No. MS/MSD recoveries which were outside acceptance evaluation criteria are summarized in the table below.

SDG	Sample ID	Analyte	MS/MSD Recovery (%)	MS/MSD Recovery / RPD Criteria (%)
60286720	TMW-10-201811	Chloride	**119**	90-110
60286849	RW-69-201811	TCE	**138 /**130	66-136
60287044	TMW-26-201811	Sulfate	**148 / 166**	90-110
60287044	TMW-26-201811	Nitrate	**39**	70-130
60287044	TMW-26-201811	Nitrate/Nitrite	**71**	90-110
60287044	TMW-21-201811	Sulfate	**44 / 76**	90-110
60287044	ITMW-9-201811	Sulfate	**267**	90-110

MS = Matrix Spike MSD = Matrix Spike Duplicate NA = Not Applicable
% = Percent

Only the parent samples spiked were evaluated for qualification. Non-detect results associated with recoveries with a high bias were not qualified. MS/MSD recoveries for non-project samples were not evaluated.

Results that are qualified due to MS/MSD recoveries are summarized in the table below.

SDG	Field ID	Analyte	Qualification
60286720	TMW-10-201811	Chloride	J+
60286849	RW-69-201811	Trichloroethene	J+
60287044	TMW-26-201811	Nitrogen, Nitrate (As N)	J-
60287044	TMW-26-201811	Nitrate/Nitrite	J-
60287044	TMW-26-201811	Sulfate	J+
60287044	TMW-21-201811	Sulfate	J-
60287044	ITMW-9-201811	Sulfate	J+

ID = Identification J+ = Estimated with a high bias J- = Estimated with a low bias

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples performed as part of this SDG?

Yes, laboratory duplicates, when required by the method were analyzed. The RPDs were within acceptance criteria, with two exception. The RPDs for nitrite and nitrate/nitrite were above the acceptance criteria in sample MW-186-201811. The results were qualified "J" as estimated.

10.0 Field Duplicate Results (Field Precision)

Were field duplicate samples collected as part of the evaluated SDGs?

Yes. The table below summarizes field duplicate pairs.

SDG	Field ID	Field Duplicate ID

60286720	TMW-20-201811	DUP-01-201811
60287044	MW-24-201811	DUP-02-201811
60287140	TMW-23-201811	DUP-03-201811
60287044	TMW-12-201811	DUP-04-201811
60287044	MW-58R-201811	DUP-05-201811
60286720	MW-61R-201811	DUP-06-201811
60287044	MW-192-201811	DUP-07-201811
60287044	MW-55R-201811	DUP-08-201811
60286849	MW-26-201811	DUP-09-201811

ID = Identification

Were field duplicates within evaluation criteria?

No. RPD values were less than the control limit of <30% for all compounds with concentrations reported above the reporting limit.

11.0 Detects and Calibration Range

For samples that were diluted and nondetect, were undiluted results also reported?

No. All samples collected as part of this data set and analyzed with dilutions had detections.

For samples that were not diluted and detected, were the results within calibration range?

Yes. Results reported between the laboratory method detection limit (MDL) and RL were flagged "J" as estimated by the laboratory.

12.0 Additional Qualifications

Were additional qualifications applied?

No.

13.0 Overall Data Assessment

The data are usable for its intended purpose based on an evaluation of the QC parameters discussed in this report. Some data are qualified as estimated due to the inability to meet all QC criteria. The table below summarizes the final qualifications for the analytical data.

Data Qualifier Summary:

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
60286720	TMW-10-201811	Chloride	J+	MS recovery high
60286720	TMW-10-201811	Sulfide (total)	J	Concentration is between the MDL and RL
60286720	MW-61R-201811	Organic Carbon (total)	J	Concentration is between the MDL and RL
60286720	MW-61R-201811	Organic Carbon (total)	J	Concentration is between the MDL and RL
60286720	MW-175-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60286720	MW-175-201811	Acetone	U	Trip blank contamination, result

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				qualified non-detect at reporting limit
60286720	MW-175-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60286720	MW-175-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-61R-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-61R-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	DUP-01-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-179-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	DUP-06-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	DUP-06-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	TMW-11-201811	Benzene	J	Concentration is between the MDL and RL
60286720	TMW-11-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	TMW-11-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286720	TMW-11-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60286720	TMW-11-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	TMW-11-201811	Trichloroethene	J	Concentration is between the MDL and RL
60286720	TMW-10-201811	Benzene	J	Concentration is between the MDL and RL
60286720	TMW-10-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	TMW-10-201811	4-Methyl-2-pentanone	J	Concentration is between the MDL and RL
60286720	TMW-10-201811	2-Hexanone	J	Concentration is between the MDL and RL
60286720	TMW-10-201811	Toluene	J	Concentration is between the MDL and RL
60286720	TMW-10-201811	Carbon Disulfide	J	Concentration is between the MDL and RL
60286720	TMW-10-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60286720	MW-50R-201811	Trichloroethene	J	Concentration is between the MDL and RL

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
60286720	MW-50R-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-50R-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	TRIP BLANK-01-20181113	Acetone	J	Concentration is between the MDL and RL
60286720	TRIP BLANK-01-20181113	Methylene Chloride	J	Concentration is between the MDL and RL
60286720	TMW-20-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-195-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-196-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-99-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-99-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286720	MW-99-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-68-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	ITMW-2-201811	Trichloroethene	J	Concentration is between the MDL and RL
60286720	ITMW-2-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	ITMW-2-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60286720	ITMW-2-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286720	ITMW-2-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-28-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-27-201811	Trichloroethene	J	Concentration is between the MDL and RL
60286720	MW-27-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286720	MW-27-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-27-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	ITMW-16-	Acetone	U	Trip blank contamination, result

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
	201811			qualified non-detect at reporting limit
60286720	MW-176-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286720	MW-176-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60286720	MW-176-201811	Benzene	J	Concentration is between the MDL and RL
60286720	TRIP BLANK-02-20181113	Methylene Chloride	J	Concentration is between the MDL and RL
60286849	MW-186-201811	Nitrogen, Nitrate (As N)	R	Hold time grossly exceeded
60286849	MW-186-201811	Nitrogen, Nitrite	J	Hold time grossly exceeded; laboratory duplicate RPD high
60286849	MW-186-201811	Nitrate/Nitrite	J	Hold time grossly exceeded; laboratory duplicate RPD high
60286849	IW-73-201811	Nitrate/Nitrite	J	Concentration is between the MDL and RL
60286849	IW-73-201811	Nitrogen, Nitrate (As N)	J	Concentration is between the MDL and RL
60286849	TMW-34-201811	Organic Carbon (total)	J	Concentration is between the MDL and RL
60286849	TMW-34-201811	Organic Carbon (total)	J	Concentration is between the MDL and RL
60286849	MW-185-201811	Iron	J	Concentration is between the MDL and RL
60286849	MW-89-201811	Iron	J	Concentration is between the MDL and RL
60286849	TMW-19-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	TMW-19-201811	Trichloroethene	J	Concentration is between the MDL and RL
60286849	TMW-19-201811	Chloroform	J	Concentration is between the MDL and RL
60286849	TMW-19-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	TMW-27-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	TMW-27-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-178-201811	Benzene	J	Concentration is between the MDL and RL
60286849	MW-178-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-84-201811	Dibromochloromethane	J	Concentration is between the MDL and RL
60286849	MW-83-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-83-201811	1,2-Dichloroethane	U	Method blank contamination,

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				result qualified non-detect at reporting limit
60286849	MW-83-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-22-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-56R-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-56R-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60286849	MW-56R-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-57R-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-57R-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-57R-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-57R-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60286849	MW-46R-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-46R-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-46R-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-40R-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-62R-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-62R-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-63R-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-26-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	DUP-09-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	DUP-09-201811	Trichloroethene	J	Concentration is between the MDL and RL; LCS recovery above control limit
60286849	DUP-09-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	EB-03-201811	Methylene Chloride	J	Concentration is between the

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				MDL and RL
60286849	EB-03-201811	Acetone	J	Concentration is between the MDL and RL
60286849	EB-03-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-191-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	TMW-14-201811	Trichloroethene	J	Concentration is between the MDL and RL; LCS recovery above control limit
60286849	TMW-14-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	TMW-14-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	ITMW-10-201811	1,1-Dichloroethane	J	Concentration is between the MDL and RL
60286849	ITMW-10-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60286849	ITMW-10-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	ITMW-10-201811	Toluene	J	Concentration is between the MDL and RL
60286849	ITMW-10-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60286849	MW-184-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-183R-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-183R-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-98-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-98-201811	Trichloroethene	J	Concentration is between the MDL and RL; LCS recovery above control limit
60286849	MW-98-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	EB-04-201811	Methylene Chloride	J	Concentration is between the MDL and RL
60286849	MW-185-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-185-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-185-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				reporting limit
60286849	TMW-34-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	TMW-34-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	MW-194-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	MW-89-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	MW-89-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60286849	IW-73-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60286849	IW-73-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	RW-69-201811	Acetone	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60286849	RW-69-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60286849	RW-69-201811	Trichloroethene	J+	MS recovery high
60286849	TMW-30-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60286849	TRIP BLANK-20181114	Methylene Chloride	J	Concentration is between the MDL and RL
60286849	TRIP BLANK-20181114	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60286849	TRIP BLANK 2-20181114	Acetone	J	Concentration is between the MDL and RL
60286849	TRIP BLANK 2-20181114	Methylene Chloride	J	Concentration is between the MDL and RL
60286849	EB-05-201811	Acetone	J	Concentration is between the MDL and RL
60286849	EB-05-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60286849	EB-05-201811	Methylene Chloride	J	Concentration is between the MDL and RL
60287044	TMW-26-201811	Nitrogen, Nitrate (As N)	J-	MS recovery low
60287044	TMW-26-201811	Nitrate/Nitrite	J-	MS recovery low
60287044	MW-38-201811	Nitrate/Nitrite	J	Concentration is between the MDL and RL
60287044	TMW-26-201811	Sulfate	J+	MS and MSD recoveries high
60287044	TMW-21-201811	Sulfate	J-	MS and MSD recoveries low
60287044	ITMW-9-201811	Sulfate	J+	MS recovery high
60287044	MW-87-201811	Organic Carbon (total)	J	Concentration is between the MDL and RL
60287044	MW-95-201811	Iron	U	Method blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-9-201811	Iron	U	Method blank contamination,

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				result qualified non-detect at reporting limit
60287044	MW-87-201811	Iron	U	Method blank contamination, result qualified non-detect at reporting limit
60287044	MW-192-201811	Acetone	J	Concentration is between the MDL and RL
60287044	MW-192-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-187-201811	Trichloroethene	J	Concentration is between the MDL and RL
60287044	MW-187-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-187-201811	Acetone	J	Concentration is between the MDL and RL
60287044	MW-187-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	ITMW-18-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	ITMW-18-201811	Methylene Chloride	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-18-201811	Acetone	J	Concentration is between the MDL and RL
60287044	ITMW-18-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60287044	MW-96-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-97-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-97-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60287044	MW-55R-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	MW-55R-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60287044	MW-55R-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	DUP-08-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	DUP-08-201811	cis-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	DUP-08-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60287044	IW-77-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60287044	IW-77-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	IW-77-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
60287044	IW-77-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	IW-77-201811	Benzene	J	Concentration is between the MDL and RL
60287044	TMW-12-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	DUP-04-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	DUP-04-201811	2-Butanone	J	Concentration is between the MDL and RL
60287044	DUP-04-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	DUP-04-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-82-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-82-201811	Chloromethane	J	Concentration is between the MDL and RL
60287044	MW-82-201811	Benzene	J	Concentration is between the MDL and RL
60287044	ITMW-7-201811	Benzene	J	Concentration is between the MDL and RL
60287044	ITMW-7-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-19-201811	Chloromethane	J	Concentration is between the MDL and RL
60287044	ITMW-19-201811	Methylene Chloride	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-19-201811	Dibromochloromethane	J	Concentration is between the MDL and RL
60287044	ITMW-19-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60287044	ITMW-19-201811	1,1,2,2-Tetrachloroethane	J	Concentration is between the MDL and RL
60287044	MW-93-201811	Bromoform	J	Concentration is between the MDL and RL
60287044	MW-93-201811	Benzene	J	Concentration is between the MDL and RL
60287044	MW-93-201811	1,1,1-Trichloroethane	J	Concentration is between the MDL and RL
60287044	MW-93-201811	Carbon Disulfide	UJ	LCS recovery low
60287044	MW-93-201811	1,1,2-Trichloroethane	J	Concentration is between the MDL and RL
60287044	MW-93-201811	1,1-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-93-201811	Toluene	J	Concentration is between the MDL and RL
60287044	MW-93-201811	Methylene Chloride	J+	Trip and Equipment blank contamination
60287044	MW-93-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-93-201811	1,1,2,2-	J	Concentration is between the

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
		Tetrachloroethane		MDL and RL
60287044	MW-189-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	MW-189-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	MW-189-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60287044	MW-189-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	TRIP BLANK-01-20181115	Methylene Chloride	J	Concentration is between the MDL and RL
60287044	EB-01-201811	Methylene Chloride	J	Concentration is between the MDL and RL
60287044	MW-190-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-190-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-1-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	ITMW-5-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-5-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	ITMW-5-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-5-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	MW-91-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	MW-91-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	MW-91-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	MW-91-201811	1,2-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-39R-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-182-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-182-201811	Benzene	J	Concentration is between the MDL and RL
60287044	IW-78-201811	Bromomethane	J	Concentration is between the MDL and RL
60287044	IW-78-201811	Trichloroethene	J	Concentration is between the MDL and RL; LCS recovery above control limit
60287044	TMW-24-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	TMW-24-201811	Vinyl Chloride	J	Concentration is between the MDL and RL

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
60287044	TMW-26-201811	Styrene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Xylenes (total)	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Acetone	J-	Preservation >2; hold time exceeded
60287044	TMW-26-201811	2-Hexanone	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Carbon Tetrachloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,3-Dichloropropene (total)	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	trans-1,2-Dichloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	cis-1,2-Dichloroethene	J-	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Dibromochloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Toluene	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-26-201811	4-Methyl-2-pentanone	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,2-Dichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Chloroform	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	cis-1,3-Dichloropropene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Tetrachloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Ethyl Benzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	trans-1,3-Dichloropropene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	2-Butanone	J-	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Chlorobenzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Benzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,1,2,2-Tetrachloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,1,2-Trichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,2-Dichloropropane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,1-Dichloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,1-Dichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Bromodichloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Chloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Bromomethane	UJ	Preservation >2; hold time

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				exceeded
60287044	TMW-26-201811	Trichloroethene	J-	Preservation >2; hold time exceeded
60287044	TMW-26-201811	1,1,1-Trichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Chloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Vinyl Chloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Methylene Chloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Carbon Disulfide	UJ	Preservation >2; hold time exceeded
60287044	TMW-26-201811	Bromoform	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Acetone	J-	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Dibromochloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Carbon Tetrachloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,3-Dichloropropene (total)	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Chloroform	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	trans-1,2-Dichloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	2-Hexanone	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	cis-1,2-Dichloroethene	J-	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Tetrachloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Toluene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Benzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	2-Butanone	J-	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Chlorobenzene	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-25-201811	Xylenes (total)	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,1,1-Trichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Bromomethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Chloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Vinyl Chloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Carbon Disulfide	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Bromoform	UJ	Preservation >2; hold time exceeded

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
60287044	TMW-25-201811	Bromodichloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,1-Dichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,2-Dichloropropane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,1,2-Trichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Trichloroethene	J-	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,1,2,2-Tetrachloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	4-Methyl-2-pentanone	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Chloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,1-Dichloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	trans-1,3-Dichloropropene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	cis-1,3-Dichloropropene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Styrene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Ethyl Benzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	Methylene Chloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-25-201811	1,2-Dichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,1-Dichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,1,1-Trichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Chloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Chloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Vinyl Chloride	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-21-201811	Methylene Chloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Carbon Disulfide	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-21-201811	Chloroform	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Bromodichloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Carbon Tetrachloride	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,1-Dichloroethene	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-21-201811	1,2-Dichloropropane	UJ	Preservation >2; hold time

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				exceeded
60287044	TMW-21-201811	2-Butanone	J-	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,1,2-Trichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Trichloroethene	J-	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Bromoform	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Dibromochloromethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Ethyl Benzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Styrene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	cis-1,3-Dichloropropene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	trans-1,3-Dichloropropene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,2-Dichloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	4-Methyl-2-pentanone	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-21-201811	Acetone	J-	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Chlorobenzene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,1,2,2-Tetrachloroethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Tetrachloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Xylenes (total)	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	cis-1,2-Dichloroethene	J-	Preservation >2; hold time exceeded
60287044	TMW-21-201811	trans-1,2-Dichloroethene	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	1,3-Dichloropropene (total)	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	Bromomethane	UJ	Preservation >2; hold time exceeded
60287044	TMW-21-201811	2-Hexanone	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-21-201811	Toluene	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-21-201811	Benzene	J	Preservation >2; hold time exceeded; concentration is between the MDL and RL
60287044	TMW-22R-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	TMW-22R-201811	Carbon Disulfide	J	Concentration is between the MDL and RL
60287044	TMW-22R-	Benzene	J	Concentration is between the

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
	201811			MDL and RL
60287044	TMW-22R-201811	Ethyl Benzene	J	Concentration is between the MDL and RL
60287044	TMW-22R-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	MW-58R-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60287044	MW-58R-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	MW-58R-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	DUP-05-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	DUP-05-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-95-201811	Benzene	J	Concentration is between the MDL and RL
60287044	MW-95-201811	1,1,1-Trichloroethane	J	Concentration is between the MDL and RL
60287044	MW-95-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-95-201811	Carbon Disulfide	UJ	LCS recovery low
60287044	MW-95-201811	1,1-Dichloroethane	J	Concentration is between the MDL and RL
60287044	MW-95-201811	Methylene Chloride	J+	Trip and Equipment blank contamination
60287044	MW-95-201811	1,1,2,2-Tetrachloroethane	J	Concentration is between the MDL and RL
60287044	ITMW-9-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	ITMW-9-201811	Methylene Chloride	U	Trip and Equipment blank contamination, result qualified non-detect at reporting limit
60287044	ITMW-9-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60287044	MW-87-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287044	MW-87-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-87-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287044	MW-87-201811	Chloroform	J	Concentration is between the MDL and RL
60287044	MW-38-201811	Tetrachloroethene	J	Concentration is between the MDL and RL
60287044	MW-38-201811	Toluene	J	Concentration is between the MDL and RL
60287044	MW-38-201811	Acetone	U	Trip blank contamination, result qualified non-detect at reporting limit
60287044	MW-38-201811	Chloroform	J	Concentration is between the

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				MDL and RL
60287044	MW-38-201811	Chloroethane	J	Concentration is between the MDL and RL
60287044	MW-38-201811	Benzene	J	Concentration is between the MDL and RL
60287044	TRIP BLANK-02-20181115	Methylene Chloride	J	Concentration is between the MDL and RL
60287044	TRIP BLANK-02-20181115	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60287044	TRIP BLANK-03-20181115	Methylene Chloride	J	Concentration is between the MDL and RL
60287044	TRIP BLANK-03-20181115	Acetone	J	Concentration is between the MDL and RL
60287058	VP-7-201811	Chloromethane	J	Concentration is between the MDL and RL
60287058	VP-7-201811	Benzene	J	Concentration is between the MDL and RL
60287058	VP-7-201811	4-Methyl-2-pentanone	J	Concentration is between the MDL and RL
60287058	VP-7-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60287058	VP-7-201811	Toluene	J	Concentration is between the MDL and RL
60287058	VP-8-201811	Chloromethane	J	Concentration is between the MDL and RL
60287058	VP-8-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287058	VP-8-201811	Benzene	J	Concentration is between the MDL and RL
60287058	VP-8-201811	1,2-Dichloroethane	U	Method blank contamination, result qualified non-detect at reporting limit
60287058	VP-8-201811	Toluene	J	Concentration is between the MDL and RL
60287058	VP-8-201811	4-Methyl-2-pentanone	J	Concentration is between the MDL and RL
60287058	VP-10-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287058	VP-10-201811	Methylene Chloride	J	Concentration is between the MDL and RL
60287058	VP-10-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287058	VP-10-201811	Toluene	J	Concentration is between the MDL and RL
60287058	VP-10-201811	Acetone	J	Concentration is between the MDL and RL
60287058	VP-10-201811	Benzene	J	Concentration is between the MDL and RL
60287058	VP-10-201811	Chloroform	J	Concentration is between the MDL and RL
60287058	VP-12-201811	Benzene	J	Concentration is between the MDL and RL
60287058	VP-12-201811	Acetone	J	Concentration is between the MDL and RL

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
60287058	VP-14-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60287058	VP-14-201811	Chloroform	J	Concentration is between the MDL and RL
60287058	VP-14-201811	Benzene	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	Nitrogen, Nitrate (As N)	J	Concentration is between the MDL and RL
60287140	TMW-23-201811	Carbon Disulfide	UJ	LCS recovery low
60287140	TMW-23-201811	Acetone	J+	Equipment blank contamination
60287140	TMW-23-201811	Methylene Chloride	U	Equipment blank contamination, result qualified non-detect at reporting limit
60287140	DUP-03-201811	1,1-Dichloroethene	J	Concentration is between the MDL and RL
60287140	DUP-03-201811	Carbon Disulfide	J	Concentration is between the MDL and RL; LCS recovery below control limit
60287140	DUP-03-201811	Acetone	U	Equipment blank contamination, result qualified non-detect at reporting limit
60287140	EB-08-201811	Carbon Disulfide	UJ	LCS recovery low
60287140	EB-08-201811	Methylene Chloride	J	Concentration is between the MDL and RL
60287140	EB-08-201811	Acetone	J	Concentration is between the MDL and RL
60287140	EB-08-201811	Trichloroethene	J	Concentration is between the MDL and RL
60287140	EB-02-201811	Trichloroethene	J	Concentration is between the MDL and RL
60287140	EB-02-201811	Carbon Disulfide	UJ	LCS recovery low
60287140	EB-02-201811	Methylene Chloride	J	Concentration is between the MDL and RL
60287140	MW-86-201811	Dibromochloromethane	J	Concentration is between the MDL and RL
60287140	MW-86-201811	4-Methyl-2-pentanone	J	Concentration is between the MDL and RL
60287140	MW-86-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287140	MW-86-201811	Benzene	J	Concentration is between the MDL and RL
60287140	MW-86-201811	Bromomethane	J	Concentration is between the MDL and RL
60287140	MW-86-201811	Carbon Tetrachloride	J	Concentration is between the MDL and RL
60287140	MW-86-201811	Carbon Disulfide	J	Concentration is between the MDL and RL
60287140	MW-25-201811	Ethyl Benzene	J	Concentration is between the MDL and RL
60287140	MW-25-201811	4-Methyl-2-pentanone	J	Concentration is between the MDL and RL
60287140	MW-25-201811	Carbon Disulfide	J	Concentration is between the MDL and RL
60287140	MW-25-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287140	MW-25-201811	Benzene	J	Concentration is between the

SDG	Field ID	Analyte	Qualifier	Reason for Qualification
				MDL and RL
60287140	TMW-16-201811	Chlorobenzene	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	trans-1,2-Dichloroethene	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	Carbon Disulfide	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	1,1-Dichloroethane	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	Chloroform	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	Methylene Chloride	U	Equipment blank contamination, result qualified non-detect at reporting limit
60287140	TMW-16-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287140	TMW-16-201811	Benzene	J	Concentration is between the MDL and RL
60287140	TMW-32-201811	Acetone	U	Equipment blank contamination, result qualified non-detect at reporting limit
60287140	TMW-32-201811	Vinyl Chloride	J	Concentration is between the MDL and RL
60287140	TMW-32-201811	Carbon Disulfide	J	Concentration is between the MDL and RL
60287140	TMW-32-201811	1,1,2,2-Tetrachloroethane	J	Concentration is between the MDL and RL
29013	290130001	Methane	J-	Hold time exceeded
29013	290130001	Ethane	J-	Hold time exceeded
29013	290130001	Ethene	J-	Hold time exceeded

Data Validation Qualifier Codes:
U = Non-detect. The compound was analysed for, but not detected.
J = Estimated. The associated numerical value is an estimated quantity. The analyte was detected but the reported value may not be accurate or precise.
J+ = Estimated with a high bias. The associated numerical value is an estimated quantity. The analyte was detected but the reported value may not be accurate or precise.
J- = Estimated with a low bias. The associated numerical value is an estimated quantity. The analyte was detected but the reported value may not be accurate or precise.
UJ = Estimated Non-detect. The analyte was not detected above the method detection limit. However, it is an estimated quantity due to poor accuracy or precision. This qualification is also used to flag possible false negative results in the case where low bias in the analytical system is indicated by low calibration response, surrogate or other spike recovery.
R = Rejected. The sample results are unusable due to the quality of the data generated.

Attachment E
TCE Mass Estimate Calculations

TABLE 1
THICKNESS OF SATURATED SOILS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Ground Elevation	Top of Saturated Soils	Bottom of Saturated Soils	Saturated Soil Interval
North Plume				
IW-72	472.2	450.2	446.4	3.8
IW-73	472.1	NA[2]	NA[2]	NA[2]
IW-74	472.3	454.3	446.3	8.0
IW-75	472.8	NA[2]	NA[2]	NA[2]
IW-76	473.2	NA[2]	NA[2]	NA[2]
IW-77	473.8	454.8	445.8	9.0
IW-78	474.2	NA[2]	NA[2]	NA[2]
IW-79	474.1	NA[2]	NA[2]	NA[2]
IW-80	473.7	454.7	446.7	8.0
MW-23	475.8	453.8	447.8	6.0
MW-24	476.6	453.6	447.1	6.5
MW-27	475.7	451.7	447.4	4.3
MW-28	470.6	447.1	445.9	1.2
MW-31	476.1	448.1	447.1	1.0
MW-32	475.7	NA[2]	NA[2]	NA[2]
MW-33	474.9	NA[2]	NA[2]	NA[2]
MW-35R	474.0	NA[2]	NA[2]	NA[2]
MW-36	473.4	NA[2]	NA[2]	NA[2]
MW-39	475.6	450.1	447.6	2.5
MW-40	473.4	450.1	447.1	3.0
MW-41	472.3	453.3	445.8	7.5
MW-42B	471.8	449.8	446.3	3.5
MW-43	471.0	451.0	446.3	4.7
MW-46R	466.5	450.5	445.8	4.7
MW-50	463.2	451.2	445.6	5.6
MW-55	465.5	447.5	446.8	0.7
MW-56	463.4	445.4	444.9	0.5
MW-57	463.1	447.1	446.5	0.6
MW-58	462.9	446.3	445.9	0.4
MW-60	461.0	447.2	445.6	1.6 [3]
MW-61	459.8	445.5	444.7	0.8 [3]
MW-62	464.5	446.0	444.2	1.8
MW-63	464.0	444.7	444.5	0.2 [3]
MW-65	474.1	453.6	445.7	7.9
MW-66	462.7	450.7	446.5	4.2 [3]
MW-67	459.4	448.4	445.2	3.2 [3]
MW-68	470.0	448.0	446.5	1.5
MW-70	471.7	NA[2]	NA[2]	NA[2]
MW-71	471.5	NA[2]	NA[2]	NA[2]
RW-69	471.5	449.5	445.5	4.0
			Average Thickness (feet)	**3.7**
South Plume				
ITMW-1	474.6	450.6	444.1	6.5
ITMW-10	478.6	451.6	446.1	5.5
ITMW-11	474.0	457.5	444.5	13.0

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TABLE 1
THICKNESS OF SATURATED SOILS
Whirlpool Facility - Fort Smith, Arkansas

Well ID	Ground Elevation	Top of Saturated Soils	Bottom of Saturated Soils	Saturated Soil Interval
ITMW-12	474.7	456.7	444.7	12.0
ITMW-13	475.4	450.4	446.4	4.0
ITMW-14	475.7	455.7	445.7	10.0
ITMW-15	474.8	454.0	444.8	9.2
ITMW-16	476.5	458.5	445.3	13.2
ITMW-17	476.1	454.1	447.1	7.0
ITMW-18	473.9	457.9	444.9	13.0
ITMW-19	474.3	457.8	445.3	12.5
ITMW-2	475.1	457.1	445.6	11.5
ITMW-20	475.7	453.2	447.4	5.8
ITMW-21	474.4	449.4	446.4	3.0
ITMW-3	472.8	451.6	444.6	7.0
ITMW-4	477.6	458.1	447.1	11.0
ITMW-5	476.6	452.1	446.1	6.0
ITMW-6	481.1	455.4	445.6	9.8
ITMW-7	479.7	NA[2]	NA[2]	NA[2]
ITMW-9	479.5	460.2	446.3	13.9
MW-22	473.9	450.9	449.9	1.0
MW-25	474.7	446.7	445.0	1.8
MW-26	476.1	451.1	446.9	4.2
MW-29	475.1	452.1	447.1	5.0
MW-30	479.2	446.7	443.7	3.0
MW-37	474.0	457.0	445.5	11.5
MW-38	474.9	NA[2]	NA[2]	NA[2]
MW-92	473.9	451.9	444.9	7.0
MW-93	478.0	456.0	443.5	12.5
MW-94	478.0	455.0	445.0	10.0
MW-95	478.0	452.0	445.0	7.0
MW-172	473.4	459.4	445.8	13.6
			Average Thickness (feet)	**8.3**
NE Corner Plume				
MW-87	471.0	451.0	447.8	3.2
MW-88	469.1	453.6	449.1	4.5
MW-89	467.1	451.6	449.5	2.1
MW-90	467.0	452.0	447.0	5.0
MW-91	469.2	451.7	449.2	2.5
MW-96	458.3	449.8	444.0	5.8
MW-97	459.9	451.9	445.9	6.0
MW-98	462.0	451.0	444.4	6.6
MW-99	467.1	449.3	445.1	4.2
			Average Thickness (feet)	**4.4**

Notes:

1. Saturated thickness calculated from soil description in boring log.
2. NA - Boring log not available
3. No saturated soil observation recorded in boring log during drilling. Interval inferred based on soil description.

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TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
North Plume												
March 2014 - 5 to 100 µg/L	*246,800*	3.7[1]	0.4	366,251	2,739,559	10,369,231	5	100	0.1	1.0	0.0	0.2
March 2014 - 100 to 1,000 µg/L	*184,500*	3.7[1]	0.4	273,798	2,048,009	7,751,714	100	1,000	0.8	7.8	0.1	1.4
March 2014 - > 1,000 µg/L	*100*	3.7[1]	0.4	148	1,110	4,201	1,000	1,500	0.0	0.0	0.0	0.0
March 2014 Subtotal	431,400								0.8	8.8	0.2	1.6
May 2014 - 5 to 100 µg/L	*279,000*	3.7[1]	0.4	414,036	3,096,989	11,722,104	5	100	0.1	1.2	0.0	0.2
May 2014 - 100 to 1,000 µg/L	*185,110*	3.7[1]	0.4	274,703	2,054,780	7,777,343	100	1,000	0.8	7.8	0.1	1.4
May 2014 - > 1,000 µg/L	*100*	3.7[1]	0.4	148	1,110	4,201	1,000	1,500	0.0	0.0	0.0	0.0
May 2014 Subtotal	464,210								0.8	9.0	0.2	1.6
July 2014 - 5 to 100 µg/L	*294,300*	3.7[1]	0.4	436,741	3,266,824	12,364,930	5	100	0.1	1.2	0.0	0.2
July 2014 - 100 to 1,000 µg/L	*192,500*	3.7[1]	0.4	285,670	2,136,812	8,087,832	100	1,000	0.8	8.1	0.1	1.5
July 2014 - > 1,000 µg/L	*200*	3.7[1]	0.4	297	2,220	8,403	1,000	1,500	0.0	0.0	0.0	0.0
July 2014 Subtotal	487,000								0.9	9.3	0.2	1.7
October 2014 - 5 to 100 µg/L	*299,500*	3.7[1]	0.4	444,458	3,324,546	12,583,406	5	100	0.1	1.3	0.0	0.2
October 2014 - 100 to 1,000 µg/L	*199,900*	3.7[1]	0.4	296,652	2,218,954	8,398,741	100	1,000	0.8	8.4	0.2	1.5
October 2014 - > 1,000 µg/L	*400*	3.7[1]	0.4	594	4,440	16,806	1,000	1,500	0.0	0.0	0.0	0.0
October 2014 Subtotal	499,800								0.9	9.7	0.2	1.8
January 2015 - 5 to 100 µg/L	*296,000*	3.7[1]	0.4	439,264	3,285,695	12,436,355	5	100	0.1	1.2	0.0	0.2
January 2015 - 100 to 1,000 µg/L	*180,466*	3.7[1]	0.4	267,812	2,003,230	7,582,227	100	1,000	0.8	7.6	0.1	1.4
January 2015 - > 1,000 µg/L	*0*	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
January 2015 Subtotal	476,466								0.8	8.8	0.1	1.6
April 2015 - 5 to 100 µg/L	308,950	3.7[1]	0.4	458,482	3,429,444	12,980,445	5	100	0.1	1.3	0.0	0.2
April 2015 - 100 to 1,000 µg/L	177,037	3.7[1]	0.4	262,723	1,965,167	7,438,158	100	1,000	0.7	7.4	0.1	1.3
April 2015 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
April 2015 Subtotal	485,987								0.8	8.7	0.1	1.6

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TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
July 2015 - 5 to 100 µg/L	334,058	3.7[1]	0.4	495,742	3,708,151	14,035,350	5	100	0.1	1.4	0.0	0.3
July 2015 - 100 to 1,000 µg/L	165,146	3.7[1]	0.4	245,077	1,833,173	6,938,561	100	1,000	0.7	6.9	0.1	1.3
July 2015 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
July 2015 Subtotal	499,204								0.8	8.3	0.1	1.5
October 2015 - 5 to 100 µg/L	303,199	3.7[1]	0.4	449,947	3,365,606	12,738,818	5	100	0.1	1.3	0.0	0.2
October 2015 - 100 to 1,000 µg/L	152,180	3.7[1]	0.4	225,835	1,689,247	6,393,799	100	1,000	0.6	6.4	0.1	1.2
October 2015 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
October 2015 Subtotal	455,379								0.7	7.7	0.1	1.4
January 2016 - 5 to 100 µg/L	302,982	3.7[1]	0.4	449,625	3,363,194	12,729,690	5	100	0.1	1.3	0.0	0.2
January 2016 - 100 to 1,000 µg/L	159,991	3.7[1]	0.4	237,427	1,775,954	6,721,985	100	1,000	0.7	6.7	0.1	1.2
January 2016 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
January 2016 Subtotal	462,973								0.7	8.0	0.1	1.4
May 2016 - 5 to 100 µg/L	299,669	3.7[1]	0.4	444,709	3,326,422	12,590,506	5	100	0.1	1.3	0.0	0.2
May 2016 - 100 to 1,000 µg/L	163,732	3.7[1]	0.4	242,978	1,817,478	6,879,153	100	1,000	0.7	6.9	0.1	1.2
May 2016 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
May 2016 Subtotal	463,401								0.8	8.1	0.1	1.5
November 2016 - 5 to 100 µg/L	345,581	3.7[1]	0.4	512,842	3,836,060	14,519,486	5	100	0.1	1.5	0.0	0.3
November - 100 to 1,000 µg/L	151,493	3.7[1]	0.4	224,816	1,681,621	6,364,935	100	1,000	0.6	6.4	0.1	1.2
November 2016 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
November 2016 Subtotal	497,074								0.7	7.8	0.1	1.4
April 2017 - 5 to 100 µg/L	295,575	3.7[1]	0.4	438,634	3,280,980	12,418,509	5	100	0.1	1.2	0.0	0.2
April 2017 - 100 to 1,000 µg/L	206,761	3.7[1]	0.4	306,833	2,295,109	8,686,988	100	1,000	0.9	8.7	0.2	1.6
April 2017 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
April 2017 Subtotal	502,336								0.9	9.9	0.2	1.8

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TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
October 2017 - 5 to 100 µg/L	254,136	3.7[1]	0.4	377,138	2,820,990	10,677,446	5	100	0.1	1.1	0.0	0.2
October 2017 - 100 to 1,000 µg/L	226,195	3.7[1]	0.4	335,673	2,510,837	9,503,520	100	1,000	1.0	9.5	0.2	1.7
October 2017 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
October 2017 Subtotal	480,331								1.0	10.6	0.2	1.9
April 2018 - 5 to 100 µg/L	222,380	3.7[1]	0.4	330,012	2,468,488	9,343,228	5	100	0.0	0.9	0.0	0.2
April 2018 - 100 to 1,000 µg/L	249,941	3.7[1]	0.4	370,913	2,774,429	10,501,215	100	1,000	1.1	10.5	0.2	1.9
April 2018 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
April 2018 Subtotal	472,321								1.1	11.4	0.2	2.1
November 2018 - 5 to 100 µg/L	245,812	3.7[1]	0.4	364,785	2,728,591	10,327,718	5	100	0.1	1.0	0.0	0.2
November 2018 - 100 to 1,000 µg/L	232,887	3.7[1]	0.4	345,604	2,585,118	9,784,672	100	1,000	1.0	9.8	0.2	1.8
November 2018 - > 1,000 µg/L	0	3.7[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
November 2018 Subtotal	478,698.78								1.03	10.82	0.19	1.96
South Plume												
October 2014 - 5 to 100 µg/L	*519,800*	8.3[1]	0.4	1,727,815	12,924,058	48,917,558	5	100	0.2	4.9	0.0	0.9
October 2014 - 100 to 1,000 µg/L	*261,500*	8.3[1]	0.4	869,226	6,501,810	24,609,353	100	1,000	2.5	24.6	0.4	4.5
October 2014 - > 1,000 µg/L	*119,000*	8.3[1]	0.4	395,556	2,958,759	11,198,902	1,000	1,500	11.2	16.8	2.0	3.0
October 2014 Subtotal	900,300								13.9	46.3	2.5	8.4
January 2015 - 5 to 100 µg/L	*442,344*	8.3[1]	0.4	1,470,351	10,998,229	41,628,296	5	100	0.2	4.2	0.0	0.8
January 2015 - 100 to 1,000 µg/L	*324,537*	8.3[1]	0.4	1,078,761	8,069,132	30,541,665	100	1,000	3.1	30.5	0.6	5.5
January 2015 - 1,000 to 10,000 µg/L	*86,311*	8.3[1]	0.4	286,898	2,145,995	8,122,592	1,000	1,500	8.1	12.2	1.5	2.2
January 2015 - > 10,000 µg/L	*16,637*	8.3[1]	0.4	55,301	413,654	1,565,682	10,000	40,000	15.7	62.6	2.8	11.3
January 2015 Subtotal	869,829								27.0	109.5	4.9	19.8

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TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
April 2015 - 5 to 100 µg/L	446,025	8.3[1]	0.4	1,482,587	11,089,752	41,974,709	5	100	0.2	4.2	0.0	0.8
April 2015 - 100 to 1,000 µg/L	320,887	8.3[1]	0.4	1,066,628	7,978,380	30,198,170	100	1,000	3.0	30.2	0.5	5.5
April 2015 - 1,000 to 10,000 µg/L	82,635	8.3[1]	0.4	274,679	2,054,597	7,776,650	1,000	1,500	7.8	11.7	1.4	2.1
April 2015 - > 10,000 µg/L	19,906	8.3[1]	0.4	66,168	494,933	1,873,322	10,000	40,000	18.7	74.9	3.4	13.6
April 2015 Subtotal	869,453								29.7	121.0	5.4	21.9
July 2015 - 5 to 100 µg/L	366,826	8.3[1]	0.4	1,219,330	9,120,586	34,521,416	5	100	0.2	3.5	0.0	0.6
July 2015 - 100 to 1,000 µg/L	439,964	8.3[1]	0.4	1,462,440	10,939,054	41,404,318	100	1,000	4.1	41.4	0.7	7.5
July 2015 - 1,000 to 10,000 µg/L	158,420	8.3[1]	0.4	526,588	3,938,879	14,908,656	1,000	1,500	14.9	22.4	2.7	4.0
July 2015 - > 10,000 µg/L	17,739	8.3[1]	0.4	58,964	441,054	1,669,389	10,000	40,000	16.7	66.8	3.0	12.1
July 2015 Subtotal	982,949								35.9	134.0	6.5	24.3
October 2015 - 5 to 100 µg/L	452,019	8.3[1]	0.4	1,502,511	11,238,783	42,538,795	5	100	0.2	4.3	0.0	0.8
October 2015 - 100 to 1,000 µg/L	410,850	8.3[1]	0.4	1,365,665	10,215,177	38,664,446	100	1,000	3.9	38.7	0.7	7.0
October 2015 - 1,000 to 10,000 µg/L	178,334	8.3[1]	0.4	592,782	4,434,011	16,782,732	1,000	1,500	16.8	25.2	3.0	4.6
October 2015 - > 10,000 µg/L	26,442	8.3[1]	0.4	87,893	657,441	2,488,415	10,000	40,000	24.9	99.5	4.5	18.0
October 2015 Subtotal	1,067,645								45.7	167.6	8.3	30.4
January 2016 - 5 to 100 µg/L	471,252	8.3[1]	0.4	1,566,442	11,716,984	44,348,784	5	100	0.2	4.4	0.0	0.8
January 2016 - 100 to 1,000 µg/L	432,480	8.3[1]	0.4	1,437,562	10,752,966	40,699,976	100	1,000	4.1	40.7	0.7	7.4
January 2016 - 1,000 to 10,000 µg/L	185,422	8.3[1]	0.4	616,344	4,610,254	17,449,810	1,000	1,500	17.4	26.2	3.2	4.7
January 2016 - > 10,000 µg/L	26,570	8.3[1]	0.4	88,320	660,636	2,500,506	10,000	40,000	25.0	100.0	4.5	18.1
January 2016 Subtotal	1,115,725								46.7	171.3	8.5	31.0
May 2016 - 5 to 100 µg/L	500,800	8.3[1]	0.4	1,664,659	12,451,651	47,129,498	5	100	0.2	4.7	0.0	0.9
May 2016 - 100 to 1,000 µg/L	411,507	8.3[1]	0.4	1,367,849	10,231,513	38,726,275	100	1,000	3.9	38.7	0.7	7.0
May 2016 - 1,000 to 10,000 µg/L	182,314	8.3[1]	0.4	606,012	4,532,968	17,157,283	1,000	1,500	17.2	25.7	3.1	4.7
May 2016 - > 10,000 µg/L	26,570	8.3[1]	0.4	88,320	660,636	2,500,506	10,000	40,000	25.0	100.0	4.5	18.1
May 2016 Subtotal	1,121,191								46.3	169.2	8.4	30.6

RAMBOLL

TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
November 2016 - 5 to 100 µg/L	610,474	8.3[1]	0.4	2,029,216	15,178,533	57,450,746	5	100	0.3	5.7	0.1	1.0
November 2016 - 100 to 1,000 µg/L	448,303	8.3[1]	0.4	1,490,159	11,146,391	42,189,088	100	1,000	4.2	42.2	0.8	7.6
November 2016 - 1,000 to 10,000 µg/L	183,846	8.3[1]	0.4	611,104	4,571,059	17,301,457	1,000	1,500	17.3	26.0	3.1	4.7
November 2016 - > 10,000 µg/L	27,485	8.3[1]	0.4	91,360	683,374	2,586,570	10,000	40,000	25.9	103.5	4.7	18.7
November 2016 Subtotal	1,270,108								47.7	177.3	8.6	32.1
April 2017 - 5 to 100 µg/L	491,932	8.3[1]	0.4	1,635,183	12,231,169	46,294,976	5	100	0.2	4.6	0.0	0.8
April 2017 - 100 to 1,000 µg/L	552,838	8.3[1]	0.4	1,837,632	13,745,491	52,026,682	100	1,000	5.2	52.0	0.9	9.4
April 2017 - 1,000 to 10,000 µg/L	179,440	8.3[1]	0.4	596,460	4,461,522	16,886,860	1,000	1,500	16.9	25.3	3.1	4.6
April 2017 - > 10,000 µg/L	29,275	8.3[1]	0.4	97,309	727,869	2,754,983	10,000	40,000	27.5	110.2	5.0	20.0
April 2017 Subtotal	1,253,485								49.9	192.2	9.0	34.8
October 2017 - 5 to 100 µg/L	446,517	8.3[1]	0.4	1,484,222	11,101,980	42,020,996	5	100	0.2	4.2	0.0	0.8
October 2017 - 100 to 1,000 µg/L	494,647	8.3[1]	0.4	1,644,208	12,298,677	46,550,493	100	1,000	4.7	46.6	0.8	8.4
October 2017 - 1,000 to 10,000 µg/L	249,441	8.3[1]	0.4	829,144	6,201,994	23,474,546	1,000	1,500	23.5	35.2	4.3	6.4
October 2017 - > 10,000 µg/L	29,275	8.3[1]	0.4	97,309	727,869	2,754,983	10,000	40,000	27.5	110.2	5.0	20.0
October 2017 Subtotal	1,219,880								55.9	196.2	10.1	35.5
April 2018 - 5 to 100 µg/L	484,216	8.3[1]	0.4	1,609,533	12,039,309	45,568,785	5	100	0.2	4.6	0.0	0.8
April 2018 - 100 to 1,000 µg/L	486,883	8.3[1]	0.4	1,618,398	12,105,614	45,819,749	100	1,000	4.6	45.8	0.8	8.3
April 2018 - 1,000 to 10,000 µg/L	250,959	8.3[1]	0.4	834,187	6,239,719	23,617,338	1,000	1,500	23.6	35.4	4.3	6.4
April 2018 - > 10,000 µg/L	29,275	8.3[1]	0.4	97,309	727,869	2,754,983	10,000	40,000	27.5	110.2	5.0	20.0
April 2018 Subtotal	1,251,332								56.0	196.0	10.1	35.5
November 2018 - 5 to 100 µg/L	560,886	8.3[1]	0.4	1,864,385	13,945,600	52,784,097	5	100	0.3	5.3	0.0	1.0
November 2018 - 100 to 1,000 µg/L	323,024	8.3[1]	0.4	1,073,731	8,031,510	30,399,263	100	1,000	3.0	30.4	0.6	5.5
November 2018 - 1,000 to 10,000 µg/L	313,571	8.3[1]	0.4	1,042,309	7,796,470	29,509,637	1,000	1,500	29.5	44.3	5.3	8.0
November 2018 - > 10,000 µg/L	29,275	8.3[1]	0.4	97,309	727,869	2,754,983	10,000	40,000	27.5	110.2	5.0	20.0
November 2018 Subtotal	1,226,755								60.4	190.1	10.9	34.4

RAMBOLL

TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
Northeast Plume												
October 2014 - 5 to 100 µg/L	*187,600*	4.4[1]	0.4	330,926	2,475,329	9,369,122	5	100	0.0	0.9	0.0	0.2
October 2014 - 100 to 1,000 µg/L	*69,200*	4.4[1]	0.4	122,069	913,075	3,455,987	100	1,000	0.3	3.5	0.1	0.6
October 2014 - > 1,000 µg/L	*0*	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
October 2014 Subtotal	256,800								0.4	4.4	0.1	0.8
January 2015 - 5 to 100 µg/L	*166,439*	4.4[1]	0.4	293,598	2,196,116	8,312,299	5	100	0.0	0.8	0.0	0.2
January 2015 - 100 to 1,000 µg/L	*74,000*	4.4[1]	0.4	130,536	976,409	3,695,709	100	1,000	0.4	3.7	0.1	0.7
January 2015 - > 1,000 µg/L	*0*	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
January 2015 Subtotal	240,439								0.4	4.5	0.1	0.8
April 2015 - 5 to 100 µg/L	183,000	4.4[1]	0.4	322,812	2,414,634	9,139,389	5	100	0.0	0.9	0.0	0.2
April 2015 - 100 to 1,000 µg/L	70,500	4.4[1]	0.4	124,362	930,228	3,520,912	100	1,000	0.4	3.5	0.1	0.6
April 2015 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
April 2015 Subtotal	253,500								0.4	4.4	0.1	0.8
July 2015 - 5 to 100 µg/L	176,731	4.4[1]	0.4	311,753	2,331,916	8,826,302	5	100	0.0	0.9	0.0	0.2
July 2015 - 100 to 1,000 µg/L	76,915	4.4[1]	0.4	135,678	1,014,872	3,841,290	100	1,000	0.4	3.8	0.1	0.7
July 2015 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
July 2015 Subtotal	253,646								0.4	4.7	0.1	0.9
October 2015 - 5 to 100 µg/L	160,153	4.4[1]	0.4	282,510	2,113,174	7,998,364	5	100	0.0	0.8	0.0	0.1
October 2015 - 100 to 1,000 µg/L	77,178	4.4[1]	0.4	136,142	1,018,342	3,854,425	100	1,000	0.4	3.9	0.1	0.7
October 2015 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
October 2015 Subtotal	237,331								0.4	4.7	0.1	0.8
January 2016 - 5 to 100 µg/L	160,000	4.4[1]	0.4	282,240	2,111,156	7,990,726	5	100	0.0	0.8	0.0	0.1
January 2016 - 100 to 1,000 µg/L	80,142	4.4[1]	0.4	141,370	1,057,448	4,002,441	100	1,000	0.4	4.0	0.1	0.7
January 2016 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
January 2016 Subtotal	240,142								0.4	4.8	0.1	0.9

RAMBOLL

TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
May 2016 - 5 to 100 µg/L	160,000	4.4[1]	0.4	282,240	2,111,156	7,990,726	5	100	0.0	0.8	0.0	0.1
May 2016 - 100 to 1,000 µg/L	80,142	4.4[1]	0.4	141,370	1,057,448	4,002,441	100	1,000	0.4	4.0	0.1	0.7
May 2016 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
May 2016 Subtotal	240,142								0.4	4.8	0.1	0.9
November 2016 - 5 to 100 µg/L	189,715	4.4[1]	0.4	334,657	2,503,236	9,474,749	5	100	0.0	0.9	0.0	0.2
November 2016 - 100 to 1,000 µg/L	82,223	4.4[1]	0.4	145,041	1,084,909	4,106,382	100	1,000	0.4	4.1	0.1	0.7
November 2016 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
November 2016 Subtotal	271,938								0.5	5.1	0.1	0.9
April 2017 - 5 to 100 µg/L	188,939	4.4[1]	0.4	333,289	2,493,003	9,436,015	5	100	0.0	0.9	0.0	0.2
April 2017 - 100 to 1,000 µg/L	85,399	4.4[1]	0.4	150,644	1,126,819	4,265,009	100	1,000	0.4	4.3	0.1	0.8
April 2017 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
April 2017 Subtotal	274,339								0.5	5.2	0.1	0.9
October 2017 - 5 to 100 µg/L	185,157	4.4[1]	0.4	326,617	2,443,099	9,247,129	5	100	0.0	0.9	0.0	0.2
October 2017 - 100 to 1,000 µg/L	85,517	4.4[1]	0.4	150,853	1,128,378	4,270,911	100	1,000	0.4	4.3	0.1	0.8
October 2017 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
October 2017 Subtotal	270,675								0.5	5.2	0.1	0.9
April 2018 - 5 to 100 µg/L	161,368	4.4[1]	0.4	284,653	2,129,204	8,059,037	5	100	0.0	0.8	0.0	0.1
April 2018 - 100 to 1,000 µg/L	85,517	4.4[1]	0.4	150,853	1,128,378	4,270,911	100	1,000	0.4	4.3	0.1	0.8
April 2018 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
April 2018 Subtotal	246,885								0.5	5.1	0.1	0.9

RAMBOLL

TABLE 2
ESTIMATED QUANTITY OF TCE IN GROUNDWATER
Whirlpool Facility - Fort Smith, Arkansas

GROUNDWATER	Volume of Water						TCE Concentration		Mass of TCE		Volume of TCE	
Date	Plume Area (Square Feet)	Saturated Thickness (Feet)	Total Porosity[2]	Plume Area (Cubic Feet)	Gallons	Liters	Estimated Avg. Min. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Estimated Avg. Max. Concentration Assumed to be Present Throughout the Respective Section of Plume (µg/L)	Min. Kg.	Max. Kg.	Min. Vol. (Gallons)	Max. Vol. (Gallons)
November 2018 - 5 to 100 µg/L	174,355	4.4[1]	0.4	307,562	2,300,565	8,707,637	5	100	0.0	0.9	0.0	0.2
November 2018 - 100 to 1,000 µg/L	85,517	4.4[1]	0.4	150,853	1,128,378	4,270,911	100	1,000	0.4	4.3	0.1	0.8
November 2018 - > 1,000 µg/L	0	4.4[1]	0.4	0	0	0	1,000	1,500	0.0	0.0	0.0	0.0
November 2018 Subtotal	259,872								0.5	5.1	0.1	0.9

Notes:
1: Saturated thickness estimated from 4th Quarter 2014 RADD sampled wells and new 4th Quarter well completions (see Table 1).
2: Total porosity estimated from Freeze and Cherry (1979).
TCE: Trichloroethylene
µg/L: Micrograms per liter

Attachment F
Well Construction Logs

RAMBOLL

1807 Park 270 Drive Suite 450, St. Louis, MO 63146

Site ID: TMW-22R		Date(s): **11/6/2018**	
Location: **Fort Smith, Arkansas**			
Logged By: **N. Zurweller, RG**		Checked By: **M. Wilson, PG**	
Contractor: **McCray Drilling, LLC**		Purpose: **Temporary Monitoring Well**	
Drilling Method: **Hollow Stem Auger/Direct Push**		GS Elevation: **461.15**	TOC Elevation: **460.71 ft amsl**
Sampling Method: **Direct Push**		North: **369989.89**	East: **591991.97**
Well Construction:		Borehole Dia.: **8.25 inches**	Total Depth: **18.5 feet**
Blank Casing: Sch. 40 PVC 2 Inch	0 FT to 13.5 FT	Project Number: **1690007742**	
Screen: Sch. 40 2 Inch 0.010 PVC	13.5 FT to 18.5 FT	Project Name: **Whirlpool Corporation**	
Annular Fill: Cement Grout	0 FT to 10.5 FT	Remarks:	
Bentonite	10.5 FT to 11.5 FT		
Sand	11.5 FT to 13.5 FT		

Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code	Material Description	Water Level	Temporary Well Construction
460		2.5		3.1			Topsoil, dark brown, with light brown, trace root hairs, cohesive, wet		
				5.0		CL	Silty Clay, orange brown, with gravel, fine, subrounded, plastic, stiff, dry		
	5	4		10.3			Silty Clay, orange brown, with gray mottling, trace black, plastic, stiff, dry		
455				4.7			Sandy Clay, orange brown, fine to coarse, trace gravel, subrounded, crumbles, stiff, dry		
				23.4			Silty Clay, red brown, with gray, trace black, trace sand, coarse and medium, slightly plastic, stiff, dry, increasing fines with depth		
	10	4		4.8			Silty Clay, orange brown and gray, slightly plastic, stiff, moist		
450				13.1		GC	Clayey Gravel, orange brown, trace gray, trace black, with sand, fine to coarse, gravel, fine to coarse, subrounded, slightly cohesive, ISCR odor, slight black staining		
	15	3.5		5.6					
445		2.5		3.3		MH	Clayey Silt, orange brown, trace gray, laminated, very stiff, dry		
				3.9			Shale, dark gray and brown, laminated, crumbles, very stiff, dry		
	20								
440									
	25								
435									

1 pipe, in bentonite/cement (volclay/enviroplug)

1 pipe, in bentonite pellets

1 pipe, in filter sand

1 pipe, slotted

Report: WELL_LOG_REV_MKE; File: WHIRLPOOL_LOGS (JH_EDITS).GPJ; 12/14/18

RAMBOLL

1807 Park 270 Drive Suite 450, St. Louis, MO 63146

Site ID: TMW-34		Date(s): **11/7/2018**	
Location: **Fort Smith, Arkansas**			
Logged By: **N. Zurweller, RG**		Checked By: **M. Wilson, PG**	
Contractor: **McCray Drilling, LLC**		Purpose: **Temporary Monitoring Well**	
Drilling Method: **Hollow Stem Auger/Direct Push**		GS Elevation: **471.64**	TOC Elevation: **471.37 ft amsl**
Sampling Method: **Direct Push**		North: **368003.10**	East: **592334.32**
Well Construction:		Borehole Dia.: **8.25 inches**	Total Depth: **26.0 feet**
Blank Casing: Sch. 40 PVC 2 Inch	0 FT to 21 FT	Project Number: **1690007742**	
Screen: Sch. 40 2 Inch 0.010 PVC	21 FT to 26 FT	Project Name: **Whirlpool Corporation**	
Annular Fill: Cement Grout	0 FT to 18 FT	Remarks:	
Bentonite	18 FT to 19 FT		
Sand	19 FT to 21 FT		

Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code	Material Description	Water Level	Temporary Well Construction
470		2		1.8		CL	Topsoil, dark brown, with orange brown, trace root hairs, wet Silty Clay, orange brown, with gray, trace red, plastic, stiff, wet		
				5.0					
	5	2.5		5.8			Silty Clay, orange brown, with gray, trace red, trace sand, coarse, trace gravel, fine, subangular, wet Silty Clay, orange brown, with gray, with black nodules, slightly plastic, very stiff, dry, increasing fines with depth		
465				2.9					
				4.0					
	10	4		4.8					
460				2.5			Silty Clay, orange brown, with gray, with black nodules, with sand, very fine, slightly plastic, stiff, slightly moist		
		4		5.0			Sandy Clay, orange brown and gray, with silty clay, very fine, plastic, slightly stiff, moist		
	15								
455				4.9					
		4		4.9					
	20					GC	Clayey Gravel, dark orange brown, with sand, fine to coarse, gravel, fine to coarse, subrounded, slightly cohesive, wet		
450		3		5.1					
				5.0					
		1		5.0					
	25						Shale, very dark gray, laminated, hard, dry		
445									

1 pipe, in bentonite/cement (volclay/enviroplug)

1 pipe, in bentonite pellets

1 pipe, in filter sand

1 pipe, slotted

Report: WELL_LOG_REV_MKE; File: WHIRLPOOL_LOGS (JH_EDITS).GPJ; 12/14/18

RAMBOLL

1807 Park 270 Drive Suite 450, St. Louis, MO 63146

Site ID: MW-183R		Date(s): **11/6/2018**	
Location: **Fort Smith, Arkansas**			
Logged By: **N. Zurweller, RG**		Checked By: **M. Wilson, PG**	
Contractor: **McCray Drilling, LLC**		Purpose: **Temporary Monitoring Well**	
Drilling Method: **Hollow Stem Auger/Direct Push**		GS Elevation: **462.67**	TOC Elevation: **462.43 ft amsl**
Sampling Method: **Direct Push**		North: **369247.88**	East: **592672.16**
Well Construction:		Borehole Dia.: **8.25 inches**	Total Depth: **18.0 feet**
Blank Casing: Sch. 40 PVC 2 Inch	0 FT to 13 FT	Project Number: **1690007742**	
Screen: Sch. 40 2 Inch 0.010 PVC	13 FT to 18 FT	Project Name: **Whirlpool Corporation**	
Annular Fill: Cement Grout	0 FT to 10 FT	Remarks:	
Bentonite	10 FT to 11 FT		
Sand	11 FT to 13 FT		

Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code	Material Description	Water Level	Temporary Well Construction
				2.7		MH	Topsoil, dark brown, trace black, moist Clayey Silt, orange brown, with gray, with black nodules, with sand, medium to coarse, crumbles, dry		
460		2.5		3.8					
	5			1.3			Clayey Silt, as above, red brown, stiff		
		4				CL	Silty Clay, red brown, trace black nodules, slightly plastic, stiff, dry		
455				3.8			Sandy Clay, red brown, fine to coarse, trace gravel, fine, subrounded, slightly cohesive, dry		
				3.3		SC	Clayey Sand, dark red brown, trace gray, fine, slightly cohesive, moist		
	10	4		4.5		GC	Clayey Gravel, dark red brown, with black nodules, with sand, fine to coarse, gravel, fine, subrounded, moist		
450				4.6			Clayey Gravel, red and orange brown, with sand, fine to coarse, gravel, fine to coarse, subrounded, cohesive, moist		
		4							
	15			4.7					
		2		3.6		MH	Clayey Silt, orange brown, slightly plastic, stiff, slightly laminated, slightly moist		
445							Shale, very dark gray, very stiff, crumbles, laminated, dry		
	20								
440									
	25								
435									

1 pipe, in bentonite/cement (volclay/enviroplug)

1 pipe, in bentonite pellets

1 pipe, in filter sand

1 pipe, slotted

Report: WELL_LOG_REV_MKE; File: WHIRLPOOL_LOGS (JH_EDITS).GPJ; 12/14/18

Attachment G
Well Rehabilitation Photolog

Photo 1: ITMW-4 before lock replacement facing north

Photo 2: ITMW-4 after lock replacement facing north

Photo 3: ITMW-5 before concrete pad replacement and lid adjustment facing north

Photo 4: ITMW-5 after concrete pad replacement and lid adjustment facing north

Photo 5: ITMW-9 before lock replacement facing south

Photo 6: ITMW-9 after lock replacement facing south

Photo 7: ITMW-14 before concrete pad replacement and lid adjustment facing south

Photo 8: ITMW-14 after concrete pad replacement and lid adjustment facing south

Photo 9: ITMW-15 before well cover replacement facing north

Photo 10: ITMW-15 after well cover replacement

Photo 11: ITMW-17 after lock replacement facing north

Photo 12: ITMW-19 after lock replacement facing north

Photo 13: ITMW-21 after lock replacement facing west

Photo 14: MW-172 after bolt replacements

Photo 15: MW-183 before

Photo 16: MW-183R (replacement well for MW-183) facing north

Photo 17: MW-185 before bolt replacement facing north

Photo 18: MW-185 after bolt replacement facing north

Photo 19: TMW-12 before concrete pad and protective cover replacement facing north

Photo 20: TMW-12 after concrete pad and protective cover replacement facing south

Photo 21: TMW-16 before concrete pad and protective cover replacement

Photo 22: TMW-16 after concrete pad and protective cover replacement

Photo 23: TMW-22 damage on well pipe observed during abandonment

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Photo 26: TMW-23 after concrete pad repair

Photo 27: TMW-24 before concrete pad and protective replacement facing west

Photo 28: TMW-24 after concrete pad and protective cover replacement facing west

Photo 29: TMW-29 before concrete pad and protective cover replacement facing south

Photo 30: TMW-29 after concrete pad and protective cover replacement

Photo 31: ITMW-20 after temporary lid attachment facing east

Photo 32: TMW-19 before concrete pad and protective cover replacement facing north

Photo 33: TMW-19 after concrete pad and protective cover replacement facing north

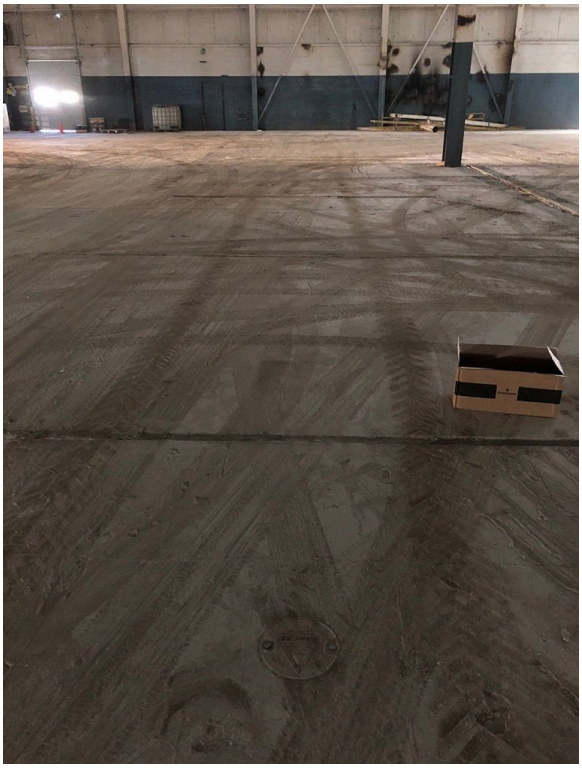

Photo 34: MW-95 after bolt replacement facing north

Attachment H
2018 In-Situ Chemical Reduction Report

ATTACHMENT H

2018 In-situ Chemical Reduction Event Report

Whirlpool Corporation
Fort Smith, Arkansas

Prepared for:
Whirlpool Corporation

Prepared by:
Ramboll US Corporation

Date:
February 2019

Project Number:
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1 Introduction

An in-situ chemical reduction (ISCR) injection event was performed at the Whirlpool site on Jenny Lind Road in Fort Smith, Arkansas, between July 30 and August 22, 2018. This ISCR injection event was performed in accordance with the Work Plan for In-situ Chemical Reduction, Whirlpool Corporation Facility, Fort Smith, Arkansas, May 11, 2018 (Work Plan).

The Arkansas Department of Environmental Quality (ADEQ) previously reviewed the Inventory Requirements for "Authorized By Rule" Class V Wells, Whirlpool Corporation, Fort Smith, Arkansas, prepared by Ramboll dated August 31, 2015. ADEQ determined that the described injection activities would be "authorized by rule" as described in 40 CFR 144.84 and summarized in a letter from ADEQ dated September 14, 2015. Ramboll requested approval for the Work Plan from the ADEQ from the Underground Injection Control (UIC) Program and received approval for the injections on July 27, 2018. ADEQ's Technical Branch provided comments on the Work Plan on June 18, 2018, and Ramboll responded to ADEQ comments on the Work Plan on August 2, 2018. ADEQ provided oversight during the injections on August 14, 2018.

During this event, the ISCR reagent consisting of ProvectIR™ (antimethanogenic ISCR Reagent), zero-valent iron (ZVI), nutrient, hydrolyzed kelp, calcium propionate, sodium sulfite, yeast extract, vitamins and red yeast rice was injected into the contaminated groundwater bearing zone at the northeast portion of the North Plume, along the southwest and southeast portions of the South Plume and supplemental injections near MW-61R (i.e. the area of the 2015 ISCR pilot test).

The ISCR technology during this supplemental event and the previous 2015 pilot event combines abiotic chemical reduction and anaerobic bioremediation for the treatment of chlorinated volatile organic compounds (VOCs) in groundwater. These physical, chemical and biological processes combine to produce a reducing environment in the saturated zone stimulating chemical and microbiological dechlorination of trichloroethene (TCE). ISCR reagents are typically effective for timeframes of years; therefore, the evaluation of data associated with this supplemental injection is anticipated to continue for a similar period of time.

The total injected ISCR reagent contained 18,254 pounds of ZVI, 1,310 pounds of nutrient, 8,266 pounds of hydrolyzed kelp, 25,882 pounds of calcium propionate, 1,310 pounds of sodium sulfite, 34,184 pounds of Provect-IR, 1,310 pounds of yeast extract, 2,176 grams of Vitamin B12, 15,155 grams of Vitamin B2 and 32,250 grams of red yeast rice suspended in water to create approximately 21,874 gallons of treatment solution consisting of ISCR reagent and potable water (municipal source for water) that was injected into the saturated zone at 133 temporary injection points (65 in the northeast, 64 in the southwest and four in the southeast).

Innovative Environmental Technologies, Inc. (IET), 6071 Easton Road, Pipersville, Pennsylvania, provided materials, equipment and personnel necessary to inject the ISCR reagent into the subsurface environment at the selected locations and assisted Ramboll personnel in monitoring the progress of the injection event. This report summarizes the activities

performed during the injection event and the data collected prior to, during and after ISCR reagent injection.

2 Injection Activities

2.1 Temporary Injection Point Installation

The permeable reactive barrier (PRB) treatment zones were established in the following locations:

- Northeast portion of the North Plume (Figure 1);
- Supplemental injections in the vicinity of MW-61R in the northern plume pilot area (Figure 1);
- Southwest portion of the South Plume (Figure 2); and
- Southeast portion of the South Plume in the vicinity of MW-185 (Figure 3);

The temporary injection points for the PRBs were installed by IET using direct push (AMS Power Probe 9500-VTR) equipment.

Prior to injection activities, Arkansas One-Call Utility Locating Services were notified and a private utility locator was contracted to identify underground utilities and other potential obstructions in the injection areas.

The direct push drill string utilized a specialized stainless steel screen assembly designed to facilitate horizontal injection for top down injections. In general, the two foot injection screen was advanced to depths targeting intervals within the upper shallow moist to wet clayey sand and the underlying saturated clayey sand to clayey gravel. Each PRB zone consisted of two to three rows of injection points spaced approximately 15 feet apart and offset laterally by 7.5 feet so that the injection points between rows were centered to optimize groundwater contact with the ISCR reagent as it flows through the treatment zone (a radius of influence of 10 feet or greater has been observed during ISCR and in-situ chemical oxidation (ISCO) events in 2014 and 2015). The spacing of the injection points within each PRB required field modification due to utilities, vicinity to residential homes and subsurface conditions. At several locations multiple attempts, sometimes requiring off-set or additional locations, were required to complete the injection due to tight soils or issues with surface leakage. Additional details for each injection point location are described in the IET report provided in Appendix A.

2.2 Mobilization and ISCR Reagent Preparation

The specialized injection equipment systems were contained in custom box trailers and transported to the site by the injection contractor IET. The ISCR reagent material was delivered by common carrier. Potable water used during the injection event was obtained from a fire hydrant near the intersection of Jenny Lind Place and Ingersoll Avenue (i.e. municipal water). Supplies were staged in the soutwest parking area at Whirlpool. The reagent mixing and preparation took place within the self-contained systems in the box trailers mobilized to the site by IET. Material safety data sheets (MSDSs) for the reagents are provided in Appendix B. Safety procedures outlined in the site-specific Health and Safety Plan (HASP) were followed during reagent preparation.

2.3 ISCR Reagent Injection

The ISCR reagent was prepared as a slurry (using potable water) and delivered into the subsurface using compressed nitrogen and pneumatic diaphragm pumps or hydraulically using a chemgrout pump. Compressed nitrogen is used for subsurface pathway development and as a carrier for the ISCR reagents as opposed to compressed air to avoid introducing oxygen into the subsurface. The chemgrout pump was utilized in areas near residential homes and areas where surfacing of material was an issue. During injection the instantaneous flow rate and pressure at the injection pump (pneumatic pump only) was monitored and recorded for each injection point. The monitoring data for each point and a detailed description of the injection process is described in detail in Appendix A. The following is a generalized summary of the injection activities:

2.3.1 North Plume

In the northeast portion of the north plume 56 temporary injection points were installed in four PRB locations positioned generally perpendicular to groundwater flow in this area and located down-gradient of the leading edge of the groundwater plume (42 at PRB-N1, eight at PRB-N2 and six at PRB-N3) as depicted on Figure 1. Nine additional temporary injection points were located within the previous MW-61R pilot test area north and south of TMW-10 (61R-Ph II) which is immediately up-gradient of MW-61R to supplement the reductive conditions in this area to continue and expand the degradation of TCE in groundwater in this area. In total, 10,245 gallons of treatment solution consisting of ISCR reagent and potable water was injected into two separate depth intervals within the saturated zone consisting of approximately 8 to 13 feet below ground surface (bgs) and 12 to 18 feet bgs (overlap in the injection intervals occurs due to the specific injection locations) (see Table 4 for depth intervals for injections at specific locations). The injections were completed to serve as a permeable reactive barrier treatment zone.

2.3.2 South Plume

In the southwest portion of the south plume 64 temporary injection points were installed in four PRB locations (21 at PRB-S1, 24 at PRB-S2, 15 at PRB-S3 and four at TMW-25) positioned generally perpendicular to groundwater flow in this area and located at and up-gradient of the west property boundary as depicted on Figure 2. In total, 10,429 gallons of treatment solution consisting of ISCR reagent and potable water was injected in up to three separate depth intervals within the saturated zone consisting of approximately 19 to 23 feet bgs, 23 to 29 feet bgs and 25.5 to 30 feet bgs (overlap in the injection intervals occurs due to the specific injection locations) (see Table 4 for depth intervals for injections at specific locations)..

2.3.3 Southeastern Plume

In the southeast portion of the south plume four temporary injection points were installed in one PRB location positioned generally perpendicular to groundwater flow in this area and located at and up-gradient of the east property boundary (PRB-SE1) as depicted on Figure 3. In total,

1,200 gallons of treatment solution consisting of ISCR reagent and potable water was injected into three separate depth intervals within the saturated zone consisting of approximately 19 to 23 feet bgs, 21 to 25 feet bgs and 24 to 27.5 feet bgs (overlap in the injection intervals occurs due to the specific injection locations) (see Table 4 for depth intervals for injections at specific locations). The injections were completed to serve as a permeable reactive barrier treatment zone near the site property boundary down-gradient of MW-185.

Site conditions in the northeast and southwest injection areas required the injection program to be modified. In several instances, where surfacing of injection material was an issue the number of vertical injection intervals was reduced to the deeper injection interval only. In addition, injection point spacing, pumping method (hydraulic instead of pneumatic injection) and volume of injectate were adjusted in several instances to reduce surfacing. In order to apply the same or similar total poundage of reagent over a reduced vertical zone and available pore space, the quantity of water was also reduced to decrease the total injectate volume resulting in an increase in the slurry viscosity. Injection points were also added to make up for lost volume due to the reduced vertical zones. Table 4 provides of summary of injection details for specific injection points.

Immediately following injection, each injection point was sealed with hydrated bentonite.

Water generated from decontamination, purging and sampling activities was and containerized in 55 gallon drums and staged within roll-off boxes on the former Whirlpool manufacturing facility property. ISCR reagent slurry generated from surfacing in the residential area was also containerized in 55 gallon drums for disposal.

4 Monitoring

Monitoring included baseline groundwater monitoring for select wells in the respective injection areas and injection monitoring consisting of monitoring of injection pressures and injection volumes during the injection process as well as monitoring water quality parameters in nearby wells to assess the radius of influence during the injection process.

4.1 Baseline Groundwater Monitoring

Baseline groundwater monitoring was conducted July 31 – August 3, 2018, at existing monitoring wells located in the treatment zones and included the following:

- Measuring and recording the depth to water (DTW).
- Conducting low flow sampling while monitoring field parameters, including water level, temperature, pH, specific conductivity, dissolved oxygen (DO) and oxidation reduction potential (ORP). The field parameters were stabilized prior to collectiing a groundwater sample.
- Measuring ferrous iron following field parameter stabilization.
- Collecting groundwater samples and submitting the samples to PACE Analytical Laboratory for analysis of VOCs, anions (chloride, sulfate, nitrate), total organic carbon (TOC), dissolved organic carbon (DOC), iron (total and ferric), dissolved gasses (ethene, ethane, methane) and volatile fatty acids (VFAs).

Baseline monitoring was conducted at the following locations:

- North Plume (Arrays PRB-N1, PRB-N2, PRB-N3 and 61R Ph II): TMW-10, TMW-21, TMW-22, MW-61R and MW-194;
- South Plume (Arrays PRB-S1, PRB-S2, PRB-S3 and TMW-25): TMW-16, TMW-26, MW-186 and TMW-32; and
- Southeast Plume (Arrays PRB-SE1): MW-185.

4.2 Hydraulic Conductivity Testing

Single well aquifer hydraulic testing (slug testing) was completed during the week of July 30, 2018, at TMW-10 and TMW-11. Slug tests were conducted at each well by quickly lowering (falling head test) or removing (rising head test) the slug into or out of the well, resulting in an instantaneous change in water level. Water levels were monitored using a Level TROLL 700 transducer with an integral data logger. The transducer were securely deployed below the static water level in the well below the maximum depth of slug travel by a direct-read cable allowing real-time viewing of data. Manual water level measurements were recorded using an electronic water level indicator to the nearest 0.01 foot before testing to determine the static water level. The observed initial water level displacement was compared to the expected initial displacement based on the volume of the slug used. Data logging generally continued until the groundwater level in the well stabilized.

TMW-10 and TMW-11 are each constructed with 10 foot screened intervals.

The response data from the respective slug tests were used to estimate hydraulic conductivity (K) using the Bouwer-Rice curve fitting method as implemented by AQTESOLV software (HydroSOLVE, Inc.). Graphic output results are included in Appendix D. For this method, the saturated thickness of the aquifer at each well location is assumed to be equal to the column of water measured in the well at the time of the test (the difference between the depth to water measured from the top of the well casing to the total depth of the well measured from the top of the well casing). The aquifer was assumed to be confined and unconfined, isotropic and of uniform thickness at each well (TMW-10 and TMW-11).

Other input parameters required for each analysis included the casing radius, position of the screened interval and the effective radius of the well, which was set to the outer radius of the filter pack, as recommended by Butler (1998). Using the Bouwer-Rice method, data was fit to data in the recommended normalized head range (20–30% recovery) to reduce effects resulting from the filter pack material (Butler 1998).

Recovery from the falling-head test occurred within a reasonable time frame and the rising head test was initiated upon achieving close to full recovery from the falling head test, for all wells.

The test data for TMW-10 and TMW-11 was analyzed using the Bouwer-Rice curve fitting methods for both the falling and rising head data sets for confined and unconfined aquifers. The average K results are consistent using both unconfined and confined methods. The average K estimates for the unconfined analysis for the two wells range from 0.02 feet/day [(5.61E-06 centimeters per second (cm/s)] in TMW-11 to 0.07 feet/day (2.54E-05 cm/s) in TMW-10. The average K estimates for the confined analysis for the two wells tested range from 0.02 feet/day (5.31E-06 cm/s) at TMW-11 to 0.07 feet/day (2.36E-05 cm/s) at TMW-10.

Slug testing conducted at TMW-10 and TMW-11 in October 2015 (just prior to the ISCR pilot injections) indicated average K estimates for TMW-10 and TMW-11 (confined aquifer method) were 0.45 feet/day (1.57E-04 cm/s) and 0.52 feet/day (2.52E-04 cm/s), respectively. Slug testing data from October 2015 is discussed in Attachment A of the Ramboll Fourth Quarter 2015 Progress Report, dated February 2016. Table 5 presents the results of the 2018 slug tests.

Comparison of the hydraulic conductivity data sets for a confined aquifer indicates the permeability of the aquifer may have been reduced from approximately 0.5 feet/day (2.5E-04 cm/s) (i.e. 2015 data) to approximately 0.02 feet/day (5.6E-06 cm/s). This apparent change in hydraulic conductivity will be assessed again during the 2019 semi-annual groundwater monitoring event to see if the changes in hydraulic conductivity remain consistent.

4.2 Injection Monitoring

Injection pressures, ISCR reagent slurry volumes and delivery times were monitored and recorded at the injection system for each of the injections completed for all injection points. This information is included in Appendix A. During injection, field water quality parameters were

collected periodically from the monitoring wells listed above. The field water quality data included water levels, temperature, conductivity, DO, pH and ORP. Groundwater samples for field water quality parameters were collected using a peristaltic pump and a flow though cell. The water quality instrumentation was calibrated daily per the manufactures specifications.

5 Results

The field water quality parameter measurements are presented in Table 1. A summary of the baseline groundwater monitoring laboratory analytical results is presented in Table 2 and Table 3. Associated laboratory analytical reports are provided in Appendix C.

A comparison of baseline groundwater monitoring results with 90 day post injection groundwater monitoring results from select wells are presented in Section 5.2; however, the 90 day post injection groundwater monitoring results are presented in the 2018 Annual Report. The 2018 Annual Report groundwater data are not presented in this report.

5.1 Potentiometric Surface

Baseline water levels for the north plume, southwest plume and southeast plume were measured and recorded prior to ISCR reagent injection. North plume wells TMW-10, TMW-21 and MW-194 exhibited a brief rise in groundwater elevations ranging from a few inches to 4.3 feet during the injection activities. South plume wells MW-186, TMW-16, TMW-25 and TMW-26 exhibited a brief rise in groundwater elevations ranging form 0.5 to 1.4 feet during the injection activities. Southeast plume well MW-185 exhibited a brief rise in groundwater elevation up to 0.6 feet during injections.

5.2 Field Water Quality Parameters

Field water quality parameters were measured and recorded periodically from monitoring wells within the injection areas to assess radius of influence during injections. Field water quality parameters during the ISCR reagent injections are presented in Table 1. Notable observations regarding the data collected during injection are as follows:

North Plume PRB Treatment Zone

- ORP measured values shifted from positive (oxidative) to negative (reductive) during injection activity (compared to baseline measurements) in north plume wells located at PRB N1 TMW-21 and TMW-22 [e.g. at TMW22 the ORP changed from 231.6 millivolt (mV) to -487.8 mV]. Specific conductivity values increased during injection activity compared to baseline measurements in TMW-21 and TMW-22 [e.g. at TMW21 the specific conductivity increased by 11,070 micro siemens per centimeter (µS/cm)].

MW-61R PRB Treatment Zone

- ORP measured values increased in TMW-10 from 32.5 mV to 166.5 mV and ORP values remained negative in TMW-10 and MW-61R. Specific conductivity values increased during injection activit compared to baseline measurement in TMW-10 and TMW-11 (e.g. net change of 2,300 µS/cm in TMW-10).

South Plume PRB Treatment Zone

- ORP measured values shifted from positive to negative during injection activity in the south plume at wells MW-186 (PRB S2), TMW-26 (PRB S2) and TMW-16 (PRB S3).

Specific conductivity values increased during injection activity compared to baseline measurements in TMW-16, TMW-26, TMW-30 and MW-186.

Southeast Plume PRB Treatment Zone

- MW-185 is located approximately 60 feet up-gradient from the southeast plume PRB SE1. At this location no groundwater quality changes were expected. Baseline ORP values were positive, specific conductivity values low (313 µS/cm)and DO very low at <0.5 milligrams per liter (mg/L). Generally, conditions in this area should be conducive to the reductive process.
- TMW-34 was installed approximately 15 feet down-gradient from PRB SE1 and will provide performance monitoring data.

In addition to the field water quality information summarized above, additional indications of the initial delivery of the ISCR reagent into the impacted Basal Transmissive Zone included changes in water levels, turbulence observed at the monitoring wells (positive pressure when removing j-plugs and bubbling) and observed color changes in the wells during injection activity.

Field water quality parameters were measured and recorded at 90 days post ISCR reagent injection in accordance to the Work Plan, during the 2018 Annual Sampling Event (November 2018). Observations regarding the data collected at this time are as follows:

North Plume PRB Treatment Zone

- ORP measured values were negative in all ISCR monitoring wells (e.g. -61 mV at MW-194 to -105 mV at TMW-22R). Specific conductivity increases over baseline value continued to be observed in all wells included in the ISCR monitoring plan, TMW-16, TMW-21 TMW-22R, TMW-25, TMW-26, TMW-30 and MW-186. DO measurements in all the monitoring wells were very low, measuring at <0.5 mg/L.

MW-61R PRB Treatment Zone

- ORP measured values were negative in all ISCR monitoring wells (e.g. -108.9 mV at MW-61R to -162.1 mV at TMW-11) and decreased in TMW-10 from positive to negative compared to baseline (166.5 mV to -127.6 mV). Elevated specific conductivity values continued to be observed in MW-61R, TMW-10 and TMW-11. DO measurements in all the wells were very low, measuring at <0.5 mg/L.

South Plume PRB Treatment Zone

- ORP measured values were negative in all ISCR wells (e.g. -97 mV at MW-194 to -556 mV at TMW-30). Specific conductivity increases over baseline meaurements observed in all wells included in the ISCR monitoring plan. DO readings all very low (0.5 mg/L) except at MW-194 where the reading was 1.10 mg/L.

Southeast Plume PRB Treatment Zone

- Field groundwater water quality changes were not expected at up-gradient well MW-185. ORP measured values were positive, specific conductivity values were low (252 µS/cm and DO was low at 0.53 mg/L). TMW-34 was installed November 5, 2018, a few days before site monitoring took place at this location November 14, 2018. The groundwater is not strongly indicative of reducing conditions at this time; however, the DO is very low at 0.07 mg/L and the conductivity is substantially higher than the up-gradient well MW-185.
- General observations during monitoring indicated that the groundwater exhibited a slight to strong odor and discoloration was observed in the majority of the monitoring wells.

5.3 Laboratory Analytical Results

Table 2 presents the laboratory analytical results for VOCs and various natural attenuation parameters for select wells in the vicinity of ISCR reagent injections. The results in Table 2 indicate that the ISCR reagent injection promoted a significant increase in total iron, sulfate, TOC, DOC, methane and VFA (acetate, propionate, butyrate and pyruvate) in comparison to the baseline data collected during the 2018 ISCR injection event. The increases in total iron, ferric iron and ferrous iron were associated with the ZVI and ProvectIR™ products. Likewise, the ISCR reagent injection also resulted in a significant increase in TOC, which was subsequently utilized by the indigenous microbial populations to produce VFA. In addition, dissolved gases concentrations of methane, ethane and ethene are present at concentrations indicating geochemistry is ideal for the reductive process to continue.

Table 3 compares July 2018 baseline TCE concentrations to TCE concentrations 90 days following injection of the ISCR reagents (2018 Annual Event data are presented in the 2018 Annual Report). The percent reduction in TCE concentrations was calculated for individual wells where ISCR reagent injections occurred. The following results indicate TCE concentration decreases in the majority of monitoring wells:

- In the MW-61R Treatment Zone, the TCE concentration decreased from 91.1 micrograms per liter (µg/L) to 14.3 µg/L at TMW-10, which was an 84% decrease in concentration. However, the TCEconcentration increased marginally at MW-61R from 7.0 µg/L to 7.7 µg/L. MW-61R is located outside the estimated radius of the injected ISCR reagent . The increased reductive conditions now present up-gradient of MW-61R are anticipated to reduce TCE concentrations in MW-61R during the spring 2019 monitoring event .
- In the North Plume Treatment Zone, TCE concentration decreases ranged from 20% at MW-194 to 96% atTMW-21. The sum of TCE concentrations in TMW-21, TMW-22 and MW-194 decreased from an approximate baseline of 1,037 µg/L to approximately 380 µg/L in this zone, which represents approximately a 63% decrease in concentration.
- In the South Plume Treatment Zone decreases in TCE concentrations ranged from 42% in MW-186 to 81% in TMW-32. The sum of TCE concentrations in TMW-16, TMW-26, TMW-32 and MW-186 decreased from an approximate baseline of 1,185 µg/L to

approximately 450 µg/L in this zone, which represents approximately a 62% decrease in concentration.

- In the Southeast Treatment Zone TCE concentrations at MW-185 were 11.7 µg/L during baseline and during the post 90 day sampling events. TMW-34 was not installed during baseline sampling. ISCR reagent injections occurred approximately 60 feet down-gradient of MW-185 and approximately 15 feet up-gradient of TMW-34. Continued monitoring will occur at these locations.

Increases in cis-1,2-dichloroethene (cis-1,2-DCE) concentrations in TMW-10 at the MW-61R Treatment Zone; TMW-21 and TMW-22/TMW-22R in the North Plume Treatment Zone; TMW-16 and TMW-26 in the South Plume Treatment Zone; and MW-185 at the Southeast Treatment Zone were observed in comparison to baseline levels indicating that the ISCR reagent injections enhanced reductive dechlorination in the radius of treatment.

6 Summary

From July 30, 2018 through August 22, 2018, 21,874 gallons of solution containing the ISCR reagent consisting of ProvectIR™ (antimethanogenic ISCR Reagent), ZVI, nutrient, hydrolyzed kelp, calcium propionate, sodium sulfite, yeast extract, vitamins and red yeast rice were injected into the contaminated groundwater bearing zone in the northeast portion of the North Plume, along the southwest and southeast portions of the South Plume and supplemental injections near MW-61R (i.e. the area of the 2015 ISCR pilot test). The ISCR technology combines abiotic chemical reduction and anaerobic bioremediation for the treatment of chlorinated volatile organic compounds (cVOCs) in groundwater. These physical, chemical and biological processes combine to produce a reducing environment in the saturated zone stimulating chemical and microbiological dechlorination of TCE. ISCR reagents are typically effective for timeframes of years; therefore, the evaluation of data associated with this supplemental injection is anticipated to continue for a similar period of time.

A summary of the field and analytical monitoring data are discussed below:

- Field water quality parameters, field observations and analytical data indicate that the ISCR reagent injections impactedthe majority of monitoring wells within the radius of influence of the ISCR reagent injections as indicated during injection activities and the 90 days following ISCR injections.
- During injection activites the ORP measured values decreased and specific conductivity levels increased at the majority of the wells monitored. Both of these changes indicate the ISCR reajent reached or impacted the groundwater at the respective monitoring wells.
- At the majority of the wells monitored for ISCR injection at 90 days following the injection activities, the ORP measured values became more reducing (more negative), the DO measured values remained within the reducing range and specific conductivity levels remained elevated. This indicates the geochemistry is ideal for the reductive process to continue.
- Significant increases in concentrations of total iron, sulfate, TOC, DOC, methane and VFA (acetate, propionate, butyrate and pyruvate) occurred in the ISCR monitoring wells (directly affected by the injections) 90 days following ISCR injections compared to the baseline data collected during the 2018 ISCR reagent injection event indicating geochemistry is ideal for the reductive process to continue.
- The increase in cis-1,2-DCE concentrations in the majority of monitoring wells in comparison to baseline levels indicate that the ISCR injection enhanced reductive dechlorination in the groundwater.
- In the MW-61R Treatment Zone, the TCE concentration decreased from 91.1 µg/L to 14.3 µg/L at TMW-10, which was an (84% decrease in concentration. MW-61R was the only monitoring well that had a marginal increase in TCE concentration 90 days after ISCR injections; however, the increased reductive conditions now present up-gradient of

MW-61R are anticipated to reduce TCE concentrations in MW-61R during the next monitoring event in the spring of2019).

- TCE concentration reductions in the North Plume Treatment Zone ranged from 20-96%, 90 days after ISCR reagent injections which is indicative of enhanced reductive dechlorination in the groundwater. The sum of TCE concentrations decreased in the wells monitored by 63% in this area 90 days after ISCR reagent injections compared to baseline concentrations.
- TCE concentration reductions in the South Plume Treatment Zone ranged from 42-81%, 90 days after ISCR reagent injections which is indicative of enhanced reductive dechlorination in the groundwater. The sum of TCE concentrations decreased in the wells monitored by 62% in this area 90 days after ISCR injections compared to baseline concentrations.
- The success of the ISCR injection efforts are anticipated to be further evident after receipt and assessment of the 2019 Semi-Annual Event groundwater monitoring data Additional information regarding the southeast plume area reductive conditions will be available from the new well installed down-gradient of the treatment zone, TMW-34, just prior to the 90 day monitoring event.

Tables

TABLE 1
SUMMARY OF WATER QUALITY PARAMETERS
2018 ISCR Event
Whirlpool Facility - Fort Smith, Arkansas

Well	Time - Time Stamp	Static Depth to Water (feet)	Groundwater Elevation (feet)	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Fe(II) (mg/L)	Notes
MW-61R Phase II Treatment Area										
MW-61R	9/18/2015 15:07	4.50	454.81	25.09	687	0.38	6.22	-147.3	ND	2015 Pilot pre-injection baseline
	1/8/2016 8:30	7.10	452.21	16.18	1,207	0.21	6.82	-117.3	>3.00	90 days post pilot injection
	5/3/2016 12:10	6.40	452.91	18.18	1,250	0.17	6.79	-124.8	>3.00	2nd Quarter 2016 Event, slightly yellow
	10/23/2017 16:52	6.53	452.78	23.90	1,204	0.18	6.95	-119.3	>3.00	2017 Annual Event, max Fe(II) reading
	4/17/2018 14:00	7.05	452.26	17.86	1,077	0.12	6.89	-125.5	>3.00	2018 Semi-Annual Event, max Fe(II) reading
	7/31/2018 11:15	5.75	453.56	24.30	915	0.07	6.78	-87.4	>3.00	Pre-Injection Baseline, max Fe(II) reading
	11/13/2018 14:20	6.85	452.46	19.75	951	0.12	6.54	-108.9	1.15	90 days post injection (annual monitoring event)
TMW-10	9/18/2015 13:40	4.20	456.55	23.96	932	0.78	6.31	-183.9	ND	2015 Pilot pre-injection baseline
	1/8/2016 8:40	5.00	455.75	16.94	822	2.17	6.19	209.8	0.14	90 days post pilot injection
	5/4/2016 10:10	5.70	455.05	17.10	869	1.12	6.40	135.5	0.13	2nd Quarter 2016 Event, light yellow brown
	10/24/2017 14:50	4.93	455.82	21.59	904	0.18	6.33	55.1	0.08	2017 Annual Event
	4/17/2018 13:10	7.30	453.45	18.36	864	0.11	6.33	155.8	0.03	2018 Semi-Annual Event
	7/31/2018 17:20	4.70	456.05	21.75	833	0.03	6.22	32.5	0.05	Pre-Injection Baseline
	8/2/2018 8:37	0.37	460.38	21.11	1,202	--**	6.03	166.5	--	During injection, issue with DO sensor
	11/13/2018 16:55	5.69	455.06	16.46	3,499	0.47	6.63	-127.6	>3.00	90 days post injection (annual monitoring event), max Fe (II) reading, light brown/gray, ISCR odor
TMW-11	9/18/2015 10:05	3.49	456.71	23.93	1,005	3.07	6.52	12.4	ND	2015 Pilot pre-injection baseline
	1/8/2016 8:53	4.43	455.77	15.83	3,793	0.16	7.19	-128.0	>3.00	90 days post pilot injection
	5/3/2016 15:10	4.96	455.24	18.93	2,512	0.15	7.17	-153.8	NM	2nd Quarter 2016 Event, light gray brown
	10/23/2017 16:00	4.00	456.20	22.99	1,510	0.07	7.07	-137.9	>3.00	2017 Annual Event, light gray tint, max Fe(II) reading
	4/17/2018 12:50	6.58	453.62	19.29	1,332	0.06	7.16	-130.9	>3.00	2018 Semi-Annual Event, clear, slight organic odor, max Fe(II) reading
	8/2/2018 11:00	1.72	458.48	22.40	5,132	--**	6.39	-138.1	--	During injection, issue with DO sensor
	11/13/2018 16:45	5.34	454.86	16.96	2,157	0.05	6.98	-162.1	1.91	90 days post injection (annual monitoring event), light yellow/gray, slight odor
North Plume Permeable Reactive Barrier Treatment Zone										
TMW-21	10/24/2017 14:26	3.36	456.65	19.93	810	0.60	6.12	22.4	--	2017 Annual Event
	4/19/2018 10:48	2.84	457.17	14.30	873	0.56	6.15	118.1	0.02	2018 Semi-Annual Event
	7/31/2018 16:00	3.50	456.51	22.04	774	0.03	5.97	45.3	ND	Pre-Injection Baseline
	8/3/2018 9:13	3.39	456.62	21.58	772	0.32	6.06	159.0	--	During injection
	8/7/2018 12:55	6.00	454.01	25.67	11,844	0.34	6.48	-183.0	--	During injection
	11/15/2018 15:15	2.60	457.41	18.47	6,574	0.05	6.45	-101.8	>3.00	90 days post injection (annual monitoring event), max Fe (II) reading, strong odor, yellow/gray
TMW-22	10/24/2017 16:50	4.35	456.47	19.88	932	1.35	6.33	-62.0	--	2017 Annual Event
	4/18/2018 14:50	3.34	457.48	18.40	986	0.41	6.59	231.6	ND	2018 Semi-Annual Event
	8/1/2018 10:10	4.93	455.89	20.52	832	0.28	6.11	130.0	0.38	Pre-Injection Baseline
	8/6/2018 9:15	--	--	21.43	6,174	0.44	6.34	-487.8	--	During injection, well integrity compromised due to damage during injection event, uppermost PVC riser cracked/bent, unable to take water level readings, bentonite observed on water level meter, replaced durring 2018 Annual Event
TMW-22R	11/15/18 16:50	3.30	457.41	18.55	1,478	0.04	7.08	-105.0	1.20	90 days post injection (annual monitoring event), replacement well for TMW-22, pale yellow, slight odor
MW-194	10/23/2017 16:12	4.41	458.06	23.58	660	0.15	5.90	53.7	--	2017 Annual Event
	4/17/2018 16:00	5.00	457.47	19.16	721	0.19	5.89	119.6	ND	2018 Semi-Annual Event
	7/31/2018 14:45	4.45	458.02	24.22	692	0.08	5.67	56.2	0.49	Pre-Injection Baseline
	8/9/2018 12:15	2.88	459.59	24.00	814	0.14	6.01	67.1	--	During injection, light yellow, inoculant/yeasty odor
	11/14/2018 17:20	4.50	457.97	19.91	865	0.05	5.76	-61.3	0.61	90 days post injection (annual monitoring event)

RAMBOLL

TABLE 1
SUMMARY OF WATER QUALITY PARAMETERS
2018 ISCR Event
Whirlpool Facility - Fort Smith, Arkansas

Well	Time - Time Stamp	Static Depth to Water (feet)	Groundwater Elevation (feet)	Temperature (°C)	Specific Conductivity (µS/cm)	DO (mg/L)	pH (SU)	ORP (mV)	Fe(II) (mg/L)	Notes
South Plume Permeable Reactive Barrier Treatment Zone										
MW-186	10/24/2017 10:40	14.12	455.68	17.75	777	0.26	6.00	53.8	--	2017 Annual Event
	4/19/2018 10:35	13.93	455.87	16.00	789	0.26	6.03	149.7	ND	2018 Semi-Annual Event
	8/3/2018 16:10	14.02	455.78	21.32	807	0.23	5.71	168.0	0.01	Pre-Injection Baseline, pale yellow
	8/13/2018 10:15	13.42	456.38	20.85	6,841	0.09	6.45	-24.2	--	During injection, light yellow brown, inoculant/yeasty odor
	11/14/2018 10:05	14.02	455.78	15.22	11,567	0.07	6.38	-172.2	>3.00	90 days post injection (annual monitoring event), max Fe (II) reading, strong odor, light yellow
TMW-16	10/24/2017 10:58	13.23	456.64	18.07	2,258	0.19	5.84	117.7	--	2017 Annual Event
	4/19/2018 15:30	12.99	456.88	17.67	2,134	0.07	5.89	294.6	ND	2018 Semi-Annual Event
	8/2/2018 15:19	13.02	456.85	20.87	1,982	0.19	5.84	296.3	ND	Pre-Injection Baseline
	8/19/2018 10:02	11.87	458.00	20.46	5,719	0.12	6.09	32.5	--	During injection, slight light brown
	11/16/2018 10:25	12.91	456.96	15.39	2,739	1.10	6.62	-97.4	>3.00	90 days post injection (annual monitoring event), max Fe (II) reading, ISCR odor, light gray brown
TMW-25	10/25/2017 16:45	16.18	456.96	19.13	1,049	0.13	5.96	134.2	--	2017 Annual Event
	4/19/2018 14:10	16.30	456.84	17.61	1,022	0.14	5.89	440.7	0.22	2018 Semi-Annual Event
	11/15/2018 13:30	15.55	457.59	17.46	13,954	0.02	6.61	-169.8	>3.00	90 days post injection (annual monitoring event), max Fe (II) reading, strong odor, yellow/gray
TMW-26	10/24/2017 12:48	16.84	455.26	19.27	983	0.24	6.17	13.8	--	2017 Annual Event
	4/19/2018 13:00	16.23	455.87	16.26	941	0.08	6.05	328.8	0.01	2018 Semi-Annual Event
	8/2/2018 16:45	16.30	455.8	21.75	1,055	0.20	5.95	174.8	ND	Pre-Injection Baseline
	8/21/2018 10:39	14.73	457.37	20.12	8,942	0.17	6.05	-112.2	--	During injection
	11/15/2018 11:15	16.10	456.00	15.34	14,751	0.04	6.47	-162.9	>3.00	90 days post injection (annual monitoring event), max Fe (II) reading, strong odor, brown/black, froth observed on top of water surface
TMW-30	10/24/2017 16:58	13.95	455.42	17.54	909	0.32	6.93	-379.5	--	2017 Annual Event, slightly brown cloudy
	--	--	--	--	--	--	--	--	--	2018 Semi-Annual Event
	8/11/2018 13:52	14.02	455.35	22.87	637	0.12	5.32	169.3	0.02	Pre-Injection Baseline (field parameters only, no samples collected)
	8/13/2018 9:05	13.99	455.38	20.49	1,738	0.14	6.32	131.8	--	Prior to day 3 of injections, light yellow brown
	11/14/2018 13:30	14.11	455.26	13.40	20,404	0.16	6.76	-555.7	0.98	90 days post injection (annual monitoring event), ISCR odor, black
TMW-32	--	--	--	--	--	--	--	--	--	2017 Annual Event
	4/18/2018 16:30	10.81	456.09	17.75	653	0.11	5.58	173.8	ND	2018 Semi-Annual Event
	8/3/2018 12:50	11.33	455.57	22.87	637	0.12	5.32	169.3	0.02	Pre-Injection Baseline
	11/16/2018 9:35	10.93	455.97	17.71	934	0.08	6.66	-138.6	0.50	90 days post injection (annual monitoring event)
Southeast Plume Permeable Reactive Barrier Treatment Zone										
MW-185*	10/24/2017 15:20	14.72	459.14	23.90	246	0.61	6.16	60.6	--	2017 Annual Event
	4/19/2018 12:55	15.36	458.5	20.56	245	0.54	6.23	146.0	ND	2018 Semi-Annual Event
	7/31/2018 13:05	14.77	459.09	28.10	313	0.59	5.74	37.8	0.18	Pre-Injection Baseline
	11/14/2018 11:40	14.83	459.03	21.57	252	0.53	5.69	52.2	0.02	90 days post injection (annual monitoring event)
TMW-34	11/14/2018 15:00	12.54	458.83	22.60	427	0.07	6.26	95.1	ND	90 days post injection (annual monitoring event)

Notes:

µS/cm = MicroSiemens per centimeter
mg/L = Milligrams per liter
ND = Not Detected
NA = Not Available
TOC = Top of casing
DO = Dissolved oxygen
ORP = Oxidation reduction potential
mV = Millivolts
SU = Standard Units
-- = Not Measured
* MW-185 located up groundwater gradient from SE injection area.
** DO sensor malfunction, no measurement

RAMBOLL

TABLE 2
LABORATORY ANALYTICAL RESULTS - PRB TREATMENT AREAS
ISCR MONITORING (JULY 2018 - NOVEMBER 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location	Remedial Action Levels per ADEQ RADD Issued Dec 2013	TMW-10		TMW-11*		TMW-16		TMW-21		TMW-22		TMW-25**		TMW-26		TMW-32	
Field Sample ID		TMW-10-201807	TMW-10-201811	TMW-11-201710	TMW-11-201811	TMW-16-201807	TMW-16-201811	TMW-21-201807	TMW-21-201811	TMW-22-201807	TMW-22R-201811	TMW-25-201804	TMW-25-201811	TMW-26-201807	TMW-26-201811	TMW-32-201807	TMW-32-201811
Lab Sample ID(s)		60276306005	60286720008	60243014009	60286720007	60276564001	60287140007	60206665004	60287044033	60276523001	60287044034	60268614014	60287044032	60276564002	60287044031	60276630001	60287140008
Sample Date		7/31/2018	11/13/2018	10/23/2017	11/13/2018	8/2/2018	11/16/2018	7/31/2018	11/15/2018	8/1/2018	11/15/2018	04/19/2018	11/15/2018	8/2/2018	11/15/2018	8/3/2018	11/17/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments		PRB Pilot Area (North Plume)				PRB S3 (South Plume)		PRB N1 (North Plume)				PRB TMW-25 (South Plume)		PRB S2 (South Plume)			
Volatile Organic Compounds																	
Acetone	12000	2.8 J (1.9)	128 (1.9)	U (1.9)	5.9 J (1.9)	4.0 J (1.9)	146 (1.9)	2.4 J (1.9)	331 (1.9)	U (1.9)	32.8 (1.9)	2.0 J (1.9)	193 (9.4)	3.6 J (1.9)	242 (9.4)	3.8 J (1.9)	6.6 J (1.9)
Benzene	5	U (0.060)	0.10 J (0.060)	0.11 J (0.060)	0.11 J (0.060)	U (0.060)	0.13 J (0.060)	U (0.060)	0.11 J (0.060)	U (0.060)	0.10 J (0.060)	0.11 J (0.060)	U (0.30)	U (0.060)	U (0.30)	0.14 J (0.060)	U (0.060)
Bromomethane	7	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.80)	1.6 J (0.16)	U (0.80)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	307 (0.59)	U (0.59)	U (0.59)	U (0.59)	1090 (5.9)	U (0.59)	760 (0.59)	U (0.59)	20.5 (0.59)	U (0.59)	328 (3.0)	U (0.59)	1460 (3.0)	U (0.59)	21.4 (0.59)
Carbon Disulfide	720	U (0.12)	0.56 J (0.12)	U (0.12)	U (0.12)	U (0.12)	0.97 J (0.12)	U (0.12)	0.78 J (0.12)	U (0.12)	1.3 J (0.12)	U (0.12)	U (0.60)	U (0.12)	U (0.60)	U (0.12)	1.2 J (0.12)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	0.55 J (0.21)	0.33 J (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	3.5 (0.21)	2.9 J (1.0)	U (0.21)	U (1.0)	4.5 (0.21)	1.9 (0.21)
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	1.5 (0.14)	0.15 J (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	0.26 J (0.14)	U (0.70)	0.21 J (0.14)	U (0.70)	U (0.15)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.40)	2.5 (0.080)	U (0.40)	U (0.15)	U (0.080)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	0.31 J (0.050)	0.25 J (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.25)	0.27 J (0.050)	U (0.25)	U (0.15)	U (0.050)
1,2-Dichloroethane	5	0.14 J B (0.12)	0.16 J B (0.12)	U (0.12)	0.18 J B (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	0.19 J B (0.12)	U (0.12)	U (0.12)	U (0.60)	U (0.12)	U (0.60)	0.15 J B (0.12)	U (0.12)
1,1-Dichloroethene	7	U (0.20)	0.26 J (0.20)	U (0.20)	U (0.20)	1.4 (0.20)	U (2.0)	1.5 (0.20)	0.21 J (0.20)	0.97 J (0.20)	1.3 (0.20)	0.31 J (0.20)	U (1.0)	0.36 J (0.20)	U (1.0)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	5.9 (0.080)	15.0 (0.080)	1.7 (0.080)	0.73 J (0.080)	15.1 (0.080)	29.1 (0.80)	12.6 (0.080)	86.3 (0.080)	28.7 (0.080)	71.2 (0.080)	10.9 (0.080)	11.0 (0.40)	2.5 (0.080)	11.1 (0.40)	3.4 (0.20)	1.9 (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	6.8 J (2.0)	U (0.20)	U (0.20)	U (0.20)	0.51 J (0.20)	U (0.20)	U (0.60)	U (0.20)	U (0.60)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	0.36 J (0.18)	U (0.18)	U (0.90)	U (0.18)	U (0.90)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	3.7 J (1.2)	U (1.2)	U (1.2)	U (1.2)	22.0 (1.2)	U (1.2)	6.5 J (1.2)	U (1.2)	U (1.2)	U (1.2)	U (6.0)	U (1.2)	U (6.0)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	1.1 J (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	1.3 J (0.42)	U (0.42)	U (0.42)	U (0.42)	U (2.1)	U (0.42)	U (2.1)	U (0.42)	U (0.42)
Methylene Chloride	5	U (0.15)	U (0.15)	U (0.15)	U (0.15)	0.71 J (0.15)	0.72 J (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.75)	0.27 J (0.15)	U (0.75)	U (0.42)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	1.6 (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.75)	U (0.15)	U (0.75)	U (0.42)	0.41 J (0.15)
Tetrachloroethene	5	U (0.10)	U (0.10)	U (0.10)	U (0.10)	0.38 J (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	0.14 J (0.10)	U (0.50)	U (0.10)	U (0.50)	U (0.42)	U (0.10)
Toluene	1000	U (0.17)	0.25 J (0.17)	0.47 J (0.17)	1.1 (0.17)	U (0.17)	U (0.17)	U (0.17)	0.93 J (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.85)	U (0.17)	1.1 J (0.85)	U (0.42)	U (0.17)
1,1,2-Trichloroethane	5	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (1.0)	U (0.20)	U (1.0)	U (0.20)	U (0.20)
Trichloroethene	5	91.1 (0.17)	14.3 (0.17)	0.62 J (0.17)	0.40 J (0.17)	988 (1.7)	368 (1.7)	564 (1.7)	22.1 (0.17)	460 (3.4)	347 (3.4)	240 (0.85)	58.6 (0.85)	96.1 (0.17)	54.4 (0.85)	83.5 (0.17)	16.0 (0.17)
Vinyl Chloride	2	0.66 J (0.13)	6.2 (0.13)	0.70 J (0.13)	0.46 J (0.13)	0.81 J (0.13)	1.6 J (1.3)	0.31 J (0.13)	0.52 J (0.13)	0.20 J (0.13)	0.16 J (0.13)	0.29 J (0.13)	U (0.65)	0.23 J (0.13)	U (0.65)	U (0.13)	0.35 J (0.13)
Metals																	
Iron	NE	122 B (50.0)	105000 (50.0)	8800 (50.0)	10800 (50.0)	110 (50.0)	186000 (50.0)	81 B (50.0)	131000 (50.0)	694 (50.0)	3510 (50.0)	NM	1410000 (500)	12.6 J (50.0)	1300000 (500)	U D3 (50.0)	7780 (50.0)
Iron, Ferric	NE	72 (50.0)	102000 (50.0)	NM	8890 (50.0)	110 (200)	185700 (50.0)	81 (200)	130700 (50.0)	310 (50.0)	2310 (50.0)	NM	1407000 (500)	U (50.0)	1297000 (500)	U (50.0)	7280 (50.0)
Carbon																	
Organic Carbon (total)	NE	280 J (1000)	2240000 (300000)	3700 (1000)	13200 (2000)	U (1000)	2980000 (500000)	280 J (1000)	2770000 (500000)	U (1000)	161000 (50000)	NM	13000000 (1000000)	U (1000)	11800000 (1000000)	U (1000)	4800 (1000)
Organic Carbon (dissolved)	NE	320 J (1000)	2060000 (500000)	NM	9200 (1000)	U (1000)	5910000 (1000000)	330 J (1000)	2670000 (500000)	U (1000)	U (500000)	NM	11000000 (1000000)	U (1000)	10100000 (1000000)	U (1000)	4600 (1000)
Anions																	
Chloride	NE	170000 (10000)	276000 (50000)	NM	161000 (50000)	250000 (20000)	480000 (50000)	186000 (10000)	281000 (20000)	190000 (20000)	148000 (20000)	NM	441000 (50000)	119000 (10000)	441000 (50000)	119,000 (10000)	98900 (10000)
Nitrogen	NE	U (100)	120 (100)	U H1 (100)	U (100)	96300 (5000)	180 (100)	U (100)	130 (100)	U (100)	U (100)	NM	320 (100)	30700 (2000)	410 M1 (100)	5600 (200)	U (100)
Nitrogen, Nitrate (As N)	NE	U (100)	U (100)	U H1 (100)	U (100)	96300 (5000)	72 J (100)	U (100)	U (100)	U (100)	U (100)	NM	140 (100)	30700 (2000)	160 M1 (100)	5600 (200)	U (100)
Nitrogen, Nitrite	NE	U (100)	110 (100)	65 J H1 B (100)	U (100)	U (5000)	100 (100)	U (100)	190 (100)	U (100)	U (100)	NM	180 (100)	U (100)	250 (100)	U (200)	U (100)
Sulfate	NE	1900 (1000)	10400 (10000)	740 J H1 (1000)	U (1000)	96600 (10000)	10900 (10000)	8200 (1000)	10600 (1000)	5600 (1000)	7300 (1000)	NM	186000 (20000)	100000 (10000)	239000 M1 (20000)	28900 (2000)	22300 (10000)
Gases																	
Acetylene	NE	NM	U (0.50)	NM	U (0.50)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Methane	NE	490 (0.50)	11000 (0.50)	16000 (0.50)	16000 (0.50)	2.0 (0.50)	10000 (0.50)	1.5 (0.50)	15000 (0.50)	14 (0.50)	700 (0.50)	NM	900 (0.50)	8.5 (0.50)	11000 (0.50)	81 (0.50)	410 (0.50)
Ethane	NE	U (0.10)	0.28 (0.10)	0.48 (0.10)	0.58 (0.10)	U (0.10)	5.3 (0.10)	U (0.10)	0.49 (0.10)	1.1 (0.10)	1.6 (0.10)	NM	6.3 (0.10)	0.44 (0.10)	1.5 (0.10)	U (0.10)	0.31 (0.10)
Ethene	NE	0.38 (0.10)	1.8 (0.10)	1.4 (0.10)	0.90 (0.10)	U (0.10)	18 (0.10)	0.39 (0.10)	1.9 (0.10)	0.11 (0.10)	4.2 (0.10)	NM	31 (0.10)	0.15 (0.10)	15 (0.10)	U (0.10)	0.75 (0.10)
Hydrogen (H2) [NM]4*	NE	NM	11 (1.0)	1.7 (0.60)	6.7 (1.0)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Volatile Fatty Acids																	
Acetic Acid	NE	U (5000)	130000 (10000)	NM	2500 (1000)	U (5000)	1400000 (100000)	U (5000)	260000 (10000)	U (5000)	62000 (10000)	NM	3800000 (100000)	U (5000)	4000000 (100000)	U (5000)	4000 (1000)
Butyric Acid	NE	U (5000)	54000 (10000)	NM	U (1000)	U (5000)	190000 (100000)	U (5000)	130000 (10000)	U (5000)	12000 (1000)	NM	1200000 (100000)	U (5000)	1600000 (100000)	U (5000)	U (1000)
Lactic Acid	NE	U (10000)	6800 (2000)	NM	U (2000)	U (10000)	U (20000)	U (10000)	U (20000)	U (10000)	U (2000)	NM	220000 (20000)	U (10000)	U (200000)	U (10000)	U (2000)
Propionic Acid	NE	U (5000)	4100000 (100000)	NM	U (1000)	U (5000)	4500000 (100000)	U (5000)	4600000 (100000)	U (5000)	230000 (10000)	NM	19000000 (1000000)	U (5000)	16000000 (1000000)	U (5000)	15000 (1000)
Pyruvic Acid	NE	U (5000)	43000 (10000)	NM	U (1000)	U (5000)	17000 (10000)	U (5000)	38000 (10000)	U (5000)	2100 (1000)	NM	U (100000)	U (5000)	83000 (10000)	U (5000)	U (1000)

Notes:

1 All concentrations are presented in ug/L except where noted.
2 All compounds are shown.
3 Concentrations that exceed the Remedial Action Levels per ADEQ RADD Issued Dec 2013 are double underlined.
U = Not detected
J = Estimated concentration
d = The analyte concentration was determined from a dilution.
( ) = Method detection limit for VOCs; reporting limit for all other parameters
* = Baseline samples for analytical analysis were not collected at TMW-11. October 2017 annual event analytical data is used for comparison purposes. October 2017 is the most recent event with MNA data collected at TMW-11.
** = Baseline samples for analytical analysis were not collected at TMW-25. April 2018 annual event analytical data is used for comparison purposes. April 2018 is the most recent event with analytical data collected at TMW-25 (previous MNA data not collected at TMW-25).
NM = Not Measured
H1 = Analysis conducted outside the EPA method holding time
B = Analyte was detected in the associated method blank
M1 = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
F1 = The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
D3 = Sample was diluted due to the presence of high levels of non-target analytes or other matrix inteference.

RADD = Remedial action decision document
ADEQ = Arkansas Department of EnviroNMental Quality
µg/L = Micrograms per liter
mL = Milliliters
NE = Not established
NM = Not measured

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TABLE 2
LABORATORY ANALYTICAL RESULTS - PRB TREATMENT AREAS
ISCR MONITORING (JULY 2018 - NOVEMBER 2018)
Whirlpool Facility - Fort Smith, Arkansas

Location	Remedial Action Levels per ADEQ RADD Issued Dec 2013	TMW-34	MW-61R		MW-185		MW-186		MW-194	
Field Sample ID		TMW-34-201811	MW-61R-201807	MW-61R-201811	MW-185-201807	MW-185-201811	MW-186-201807	MW-186-201811	MW-194-201807	MW-194-201811
Lab Sample ID(s)		60286849028	60276306001	60286720002	60276306002	6028684027	60276630002	60286849026	60276306003	60286849029
Sample Date		11/14/2018	7/31/2018	11/13/2018	7/31/2018	11/14/2018	8/3/2018	11/14/2018	7/31/2018	11/14/2018
Sample Method		Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Comments		PRB SE1	PRB Pilot Area (North Plume)		PRB SE1 (South Plume)		PRB S2 (South Plume)		PRB N3 (North Plume)	
Volatile Organic Compounds										
Acetone	12000	6.4 J (1.9)	3.6 J (1.9)	3.7 J (1.9)	3.7 J (1.9)	3.3 J (1.9)	2.8 J (1.9)	276 (9.4)	3.2 J (1.9)	U (1.9)
Benzene	5	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.060)	U (0.30)	U (0.060)	U (0.060)
Bromomethane	7	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.16)	U (0.80)	U (0.16)	U (0.16)
2-Butanone	4900	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	U (0.59)	1250 (3.0)	U (0.59)	U (0.59)
Carbon Disulfide	720	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.12)	U (0.60)	U (0.12)	U (0.12)
Chlorobenzene	100	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (0.21)	U (1.0)	U (0.21)	U (0.21)
Chloroform	80	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.14)	U (0.70)	U (0.14)	U (0.14)
Chloromethane	190	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.080)	U (0.40)	U (0.080)	U (0.080)
1,1-Dichloroethane	2.4	U (0.050)	U (0.050)	U (0.050)	U (0.050)	U (0.050)	1.1 (0.050)	U (0.25)	U (0.050)	U (0.050)
1,2-Dichloroethane	5	0.19 J B (0.12)	U (0.12)	0.17 J B (0.12)	U (0.12)	0.15 J B (0.12)	0.14 J B (0.12)	U (0.60)	U (0.12)	U (0.12)
1,1-Dichloroethene	7	U (0.20)	U (0.20)	U (0.20)	U (0.20)	0.25 J (0.20)	0.54 J (0.20)	U (1.0)	U (0.20)	U (0.20)
cis-1,2-Dichloroethene	70	1.5 (0.080)	1.8 (0.080)	1.9 (0.080)	1.4 (0.080)	2.6 (0.080)	4.5 (0.080)	6.5 (0.40)	0.79 J (0.080)	0.87 J (0.080)
trans-1,2-Dichloroethene	100	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.60)	U (0.20)	U (0.20)
Ethyl Benzene	700	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.18)	U (0.90)	U (0.18)	U (0.18)
2-Hexanone	34	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (1.2)	U (6.0)	U (1.2)	U (1.2)
4-Methyl-2-pentanone	1000	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (0.42)	U (2.1)	U (0.42)	U (0.42)
Methylene Chloride	5	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.42)	U (0.75)	U (0.15)	U (0.15)
1,1,2,2-Tetrachloroethane	0.066	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.15)	U (0.42)	U (0.75)	U (0.15)	U (0.15)
Tetrachloroethene	5	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.10)	U (0.50)	U (0.10)	U (0.10)
Toluene	1000	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.17)	U (0.85)	U (0.17)	U (0.17)
1,1,2-Trichloroethane	5	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (0.20)	U (1.0)	U (0.20)	U (0.20)
Trichloroethene	5	7.4 (0.17)	7.0 (0.17)	7.7 (0.17)	11.7 (0.17)	11.7 (0.17)	17.7 (0.17)	10.2 F1 (0.85)	13.3 (0.17)	10.7 (0.17)
Vinyl Chloride	2	U (0.13)	U (0.13)	U (0.13)	U (0.13)	U (0.13)	0.15 J (0.13)	U (0.65)	U (0.13)	U (0.13)
Metals										
Iron	NE	109 (50.0)	11900 (50.0)	10700 (50.0)	10100 (50.0)	46.0 J (50.0)	127 (50.0)	588000 (250)	19400 (50.0)	8260 (50.0)
Iron, Ferric	NE	U (0.50)	8600 (200)	9550 (0.50)	9900 (50.0)	26 (50.0)	120 (50.0)	585000 (250)	18900 (50.0)	7650 (50.0)
Carbon										
Organic Carbon (total)	NE	720 J (1000)	860 J (1000)	710 J (1000)	370 J (1000)	U (1000)	U (1000)	9150000 (1000000)	260 J (1000)	U (1000)
Organic Carbon (dissolved)	NE	840 J (1000)	830 J (1000)	810 J (1000)	900 J (1000)	U (1000)	U (1000)	8980000 (1000000)	1100 B (1000)	U (1000)
Anions										
Chloride	NE	22400 (5000)	102000 (10000)	120000 (50000)	17100 (10000)	18800 (1000)	92200 (10000)	260000 (20000)	167000 (10000)	150000 H1 (20000)
Nitrogen	NE	U (100)	U (100)	U (100)	820 (100)	5100 (500)	11200 (500)	130 D6 H1 (100)	210 (100)	U H1 (100)
Nitrogen, Nitrate (As N)	NE	U (100)	U (100)	U (100)	210 (100)	5000 (500)	11200 (500)	U H1 (100)	U (100)	U H1 (100)
Nitrogen, Nitrite	NE	U (100)	U (100)	U (100)	610 (100)	U (500)	U (500)	140 D6 H1 (100)	390 (100)	U H1 (100)
Sulfate	NE	9200 (1000)	9100 (1000)	8000 (1000)	8200 (1000)	7700 (1000)	106000 (10000)	1400 (1000)	8900 (1000)	9100 H1 (1000)
Gases										
Acetylene	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM
Methane	NE	4700 (0.50)	8400 (0.50)	6600 (0.50)	0.64 (0.50)	U (0.50)	U (0.50)	14000 (0.50)	U (0.50)	870 H1 (0.50)
Ethane	NE	1.1 (0.10)	0.26 (0.10)	0.70 (0.10)	U (0.10)	U (0.10)	U (0.10)	0.50 (0.10)	U (0.10)	0.26 H1 (0.10)
Ethene	NE	0.73 (0.10)	U (0.10)	U (0.10)	0.17 (0.10)	U (0.10)	U (0.10)	6.6 (0.10)	0.14 (0.10)	0.27 H1 (0.10)
Hydrogen (H2) [NM]4*	NE	NM	NM	NM	NM	NM	NM	NM	NM	NM
Volatile Fatty Acids										
Acetic Acid	NE	1800 (1000)	U (5000)	1900 (1000)	U (5000)	2800 (1000)	U (5000)	3500000 (100000)	U (5000)	2500 (1000)
Butyric Acid	NE	U (1000)	U (5000)	U (1000)	U (5000)	U (1000)	U (5000)	1000000 (100000)	U (5000)	U (1000)
Lactic Acid	NE	NM	U (10000)	U (2000)	U (10000)	NM	U (10000)	NM	U (10000)	NM
Propionic Acid	NE	U (1000)	U (5000)	U (1000)	U (5000)	2500 (1000)	U (5000)	14000000 (1000000)	U (5000)	U (1000)
Pyruvic Acid	NE	NM	U (5000)	U (1000)	U (5000)	NM	U (5000)	NM	U (5000)	NM

TABLE 3
SUMMARY OF TCE CONCENTRATIONS IN ISCR INJECTION AREAS - PRB TREATMENT ZONES
(JULY 2018 - NOVEMBER 2018)
Whirlpool Facility - Fort Smith, Arkansas

MW-61R Phase II Permeable Reactive Barrier Treatment Zone

Sampling Event	Week of Date	MW-61R	TMW-10
Baseline	7/30/2018	7.0	91.1
90 Days After Injection	11/12/2018	7.7	14.3
	Percent Reduction	-10.0%	84.3%

North Plume Permeable Reactive Barrier Treatment Zone

Sampling Event	Week of Date	TMW-21	TMW-22*	MW-194
Baseline	7/30/2018	564	460	13.3
90 Days After Injection	11/12/2018	22.1	347	10.7
	Percent Reduction	96.1%	24.6%	19.5%

South Plume Permeable Reactive Barrier Treatment Zone

Sampling Event	Week of Date	MW-186	TMW-16	TMW-26	TMW-32
Baseline	7/30/2018	17.7	988	96.1	83.5
90 Days After Injection	11/12/2018	10.2	368	54.4	16.0
	Percent Reduction	42.4%	62.8%	43.4%	80.8%

Southeast Permeable Reactive Barrier Treatment Zone

Sampling Event	Week of Date	MW-185*	TMW-34
Baseline	7/30/2018	11.7	NS
90 Days After Injection	11/12/2018	11.7	7.4
	Percent Reduction	0.0%	NA

Notes:

TCE = Trichloroethylene

Concentrations in micrograms per liter (µg/L)

NS = Not Sampled

NA = Not Applicable

*Replacement well TMW-22R installed during week of November 5, 2018.

July 2018 TCE concentrations from original TMW-22.

MW-185 located upgradient from Treatent zone

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TABLE 4
INJECTION EVENT SUMMARY (JULY 31 - AUGUST 21, 2018)
Whirlpool Facility - Fort Smith, Arkansas

Injection Location	Date	Injection Depth(s) (feet bgs)			Total Depth (feet bgs)	Comments
PRB-SE1-1	7/31	19-21	21-23	24-26	27	Injected planned volume, refusal at 27 feet
PRB-SE2-2	7/31	21-23	22.5-24.5	25.5-27.5	28.5	Injected planned volume, refusal at 28.5 feet
PRB-SE3-3	7/31	21-23	23-25	25-27	28	Injected planned volume, refusal at 28 feet
PRB-SE1-4	8/1	21-23	23-25	25-27	28	Injected planned volume
61R-PHII-1	8/1	--	8-10	12-14	15	Injected planned volume
61R-PHII-2	8/1	--	8-10	12-14	15	Injected 75 gallons in each interval
61R-PHII-3	8/1	--	8-10	12-14	15	Injected 75 gallons in each interval
61R-PHII-4	8/1	--	8-10	12-14	15	Injected 75 gallons in each interval
61R-PHII-5	8/1	--	8-10	12-14	15	Injected 75 gallons in each interval
61R-PHII-6	8/1	--	8-10	12-14	15	Injected 75 gallons in each interval
61R-PHII-7	8/2	--	8-10	12-14	15	Injected 50 gallons in each interval, used hydraulic injection method due to proximity to residence
61R-PHII-8	8/2	--	8-10	12-14	15	Injected 50 gallons in each interval, used hydraulic injection method due to proximity to residence
61R-PHII-9	8/2	--	8-10	12-14	15	Injected 50 gallons in each interval, used hydraulic injection method due to proximity to residence
PRB-N1-1	8/1	--	12-14	16-18	19	Injected planned volume
PRB-N1-2	8/3	--	12-14	13-15	17	Injected 85 gallons in each interval, no flow at 11-13 feet bgs, bubbling water observed below TMW-21 well pad coming up around annular bentonite seal
PRB-N1-3	8/3	--	12-14	14-16	17	Injected 85 gallons in each interval, no flow at 11-13 feet bgs
PRB-N1-4	8/3	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-5	8/3	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-6	8/3	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-7	8/3	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-8	8/3	--	11-13	14-16	17	Injected 85 gallons in each interval, no flow at 11-13 feet bgs
PRB-N1-9	8/3	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-10	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-11	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-12	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-13	8/6	--	11-13	14-16	17	Injected 85 gallons in 14-16 feet interval, observed daylighting of approximately 1 gallon of material immediately adjacent to the injection point after injecting 20 gallons
PRB-N1-14	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval, observed daylighting of approximately 5 gallons of material approximately 20 feet northeast of the injection point after injecting all 85 gallons
PRB-N1-15	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-16	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-17	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-18	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-19	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval, during 11-13 feet interval feets injection, large amounts (approximately 250 gallons) of material were observed daylighting approximately 35 feet northeast of the injection point
PRB-N1-20	8/6	--	11-13	14-16	17	Injected 85 gallons in each interval
PRB-N1-21	8/7	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-22	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-23	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-24	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-25	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-26	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-27	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-28	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval

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TABLE 4
INJECTION EVENT SUMMARY (JULY 31 - AUGUST 21, 2018)
Whirlpool Facility - Fort Smith, Arkansas

Injection Location	Date	Injection Depth(s) (feet bgs)			Total Depth (feet bgs)	Comments
PRB-N1-29	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval
PRB-N1-30	8/8	--	12-14	16-18	19	Injected 85 gallons in each interval, large amounts of daylighting approximately 50-60 feet southwest of injection
PRB-N1-31	8/9	--	11-13	14-16	17	Injected 100 gallons in deep interval, began shallow injection and had immediate surfacing within 2 feet of the point, injected double into deep interval of PRB-N1-35 to account for missing volume
PRB-N1-32	8/9	--	11-13	14-16	17	Injected 75 gallons in each interval
PRB-N1-33	8/9	--	11-13	14-16	17	Injected 150 gallons into deep interval to account for daylighting at PRB-N1-13 and 75 into shallow
PRB-N1-34	8/9	--	11-13	14-16	17	Injected 75 gallons in deep interval and 100 in shallow
PRB-N1-35	8/9	--	12-14	14-16	17	Injected 150 gallons into deep interval to account for daylighting at PRB-N1-31 and 75 into shallow, shallow injection caused daylighting at same spot as 8/6/18, likely due to tree root system, refusal at 17.5 feet
PRB-N1-36	8/9	--	12-14	14-16	17	Injected 75 gallons in each interval
PRB-N1-37	8/10	--	NA	15-17	18	Injected 150 gallons into deep interval, no shallow injection
PRB-N1-38	8/10	--	NA	15-18	17	Injected 150 gallons into deep interval, no shallow injection
PRB-N1-39	8/10	--	12-14	16-18	19	Injected 75 gallons in each interval
PRB-N1-40	8/10	--	12-14	16-18	19	Injected 75 gallons in each interval
PRB-N1-41	8/10	--	12-14	16-18	19	Injected 75 gallons in each interval
PRB-N1-42	8/10	--	12-14	16-18	19	Injected 75 gallons in each interval
PRB-N2-1	8/2	--	11-13	14-16	18	Injected 75 gallons in each interval, used hydraulic injection method due to proximity to residence, refusal at 18 feet
PRB-N2-2	8/2	--	11-13	14-16	--	Injected 75 gallons in each interval, used hydraulic injection method due to proximity to residence
PRB-N2-3	8/2	--	11-13	14-16	--	Injected 85 gallons in each interval
PRB-N2-4	8/2	--	11-13	14-16	--	Injected 85 gallons in each interval
PRB-N2-5	8/2	--	11-13	14-16	--	Injected 85 gallons in each interval
PRB-N2-6	8/2	--	11-13	14-16	--	Injected 85 gallons in each interval
PRB-N2-7	8/3	--	11-13	14-16	17	Injected 100 gallons in each interval, used hydraulic injection method due to proximity to residence
PRB-N2-8	8/3	--	11-13	14-16	17	Injected 100 gallons in each interval, used hydraulic injection method due to proximity to residence
PRB-N3-1	8/7	--	12-14	--	15.5	Hit refusal at 15.5 feet, likely a cobble, injected 60 gallons in shallow interval
PRB-N3-2	8/7	--	12-14	16-18	19	Injected 60 gallons in each interval
PRB-N3-3	8/7	--	12-14	16-18	19	Injected 60 gallons in each interval
PRB-N3-4	8/7	--	12-14	16-18	19	Injected 60 gallons in each interval
PRB-N3-5	8/7	--	12-14	16-18	19	As this point is directly north of PRB-N3-1, injected 60 gallons in shallow interval and 120 gallons into deep interval to account for missing the deep injection at PRB-N3-1
PRB-N3-6	8/7	--	12-14	16-18	19	Injected 60 gallons in each interval
PRB-S1-1	8/11	15-17	19-21	21-23	25	Injected planned volume (100 gallons) in 19-21 feet and 21-13 feet interval, during 15-17 feet injection observed daylighting of approximately 25-30 gallons of material along east creek bank 8 feet east of injection point after injecting 75 gallons, attempts to inject 22-24 feet interval were unssuccessful possibly due to tight lithology
PRB-S1-2	8/11	--	19-21	--	25	During 19-21 feet injection observed daylighting of approximately 100 gallons of material near B&M Oil fenceline approximately 15 west of rail line and 35 north of TMW-32 after injecting 200 gallons (double planned volume), attempts to inject 21-25 feet bgs were unssuccessful possibly due to tight lithology
PRB-S2-1	8/12	--	--	23-25	25.5	Injected planned volume, observed approximately 20 gallons of daylighting 2 feet south of injection point following the 23-25 feet injection, did not attempt 19-21 feet interval
PRB-S2-2	8/12	--	19-21	23-25	25.5	Injected planned volume
PRB-S2-3	8/12	--	19-21	23-25	25.5	Injected planned volume

TABLE 4
INJECTION EVENT SUMMARY (JULY 31 - AUGUST 21, 2018)
Whirlpool Facility - Fort Smith, Arkansas

Injection Location	Date	Injection Depth(s) (feet bgs)			Total Depth (feet bgs)	Comments
PRB-S2-4	8/12	--	19-21	23-25	25.5	Injected planned volume
PRB-S2-5	8/12	--	19-21	23-25	25.5	Injected planned volume. Observed approximately 50 gallons of daylighting 12 feet west of TMW-30 following the 19-21 feet injection
PRB-S2-6	8/12	--	--	23-25	25.5	Injected 50 gallons in 23-25 feet interval and stopped injection due to continued daylighting at same location observed after previous injection
PRB-S2-7	8/12	--	19-21	22-24	25.5	Injected planned volume
PRB-S2-8	8/13	--	19-21	23-25	25.5	Injected 75 gallons into deep interval. Injected double volume (150 gallons) to compensate for daylighted material in PRB S2 1
PRB-S2-9	8/13	--	19-21	23-25	25.5	Injected 85 gallons into both intervals
PRB-S2-10	8/13	--	19-21	23-25	25.5	Injected 85 gallons into both intervals
PRB-S2-11	8/13	--	19-21	23-25	25.5	Injected 85 gallons into both intervals, daylighting observed at PRB S2 8 after shallow injection
PRB-S2-12	8/13	--	19-21	23-25	25.5	Injected 85 gallons into deep interval and 45 gallons into shallow interval due to observed daylighting at injection point surface
PRB-S2-13	8/13	--	19-21	23-25	25.5	Injected 85 gallons into deep interval and 60 gallons into shallow interval due to observed daylighting at PRB S2 8
PRB-S2-14	8/13	--	19-21	23-25	25.5	Injected 85 gallons into both intervals
PRB-S2-15	8/13	--	19-21	23-25	26.5	Injected 85 gallons into both intervals
PRB-S3-1	8/14	--	21-23	24-26	26.5	Injected 100 gallons into deep interval and 50 gallons into shallow interval, daylighting observed to SE of point after shallow injection
PRB-S3-2	8/14	--	--	24-26	26.5	Injected 100 gallons into deep interval, daylighting observed around borehole, no shallow injection
PRB-S3-3	8/14	--	21-23	24-26	26.5	Injected 100 gallons into deep interval and 50 gallons into shallow interval
PRB-S3-4	8/14	--	21-23	24-26	26.5	Injected 100 gallons into deep interval, daylighting (approximately 100 gallons) observed at base of nearby tree after deep injection
PRB-S3-5	8/14	--	21-23	24-26	26.5	Injected 100 gallons into deep interval and 50 gallons into shallow interval, daylighting (approximately 55 gallons) observed to NE of point after shallow injection
PRB-S3-6	8/16	--	21-23	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-7	8/16	--	--	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-8	8/16	--	21-23	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-9	8/16	--	21-23	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-10	8/16	--	21-23	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-11	8/16	--	--	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-12	8/16	--	--	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-13	8/16	--	--	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-14	8/16	--	--	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S3-15	8/16	--	--	24-26	26.5	Injected 100 gallons into deep interval, no shallow injection
PRB-S2-16	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-17	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-18	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-19	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-20	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-21	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-22	8/17	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-23	8/18	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection
PRB-S2-24	8/18	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injection

TABLE 4
INJECTION EVENT SUMMARY (JULY 31 - AUGUST 21, 2018)
Whirlpool Facility - Fort Smith, Arkansas

Injection Location	Date	Injection Depth(s) (feet bgs)			Total Depth (feet bgs)	Comments
PRB-S1-3	8/18	--	19-21	23-25	25.5	Injected 150 gallons into deep interval (double volume) and 40 gallons into 19-21 feet interval, no shallow injection, dayligting observed coming up borehole, 3 feet east and 50 feet east after injecting approximately 40 gallons
PRB-S1-4	8/18	--	--	23-25	25.5	Injected 225 gallons into deep interval (triple volume), no shallow injections
PRB-S1-5	8/18	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-6	8/18	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-7	8/18	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-8	8/19	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-9	8/19	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-10	8/19	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections, slight daylighting up borehole due to inadequate seal in annulus, redrilled with better sealing method and no injection issues
PRB-S1-11	8/19	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-12	8/19	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-13	8/19	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-14	8/20	--	--	22-24	24.5	Injected 150 gallons into deep interval (double volume), no shallow injections, 24.5 feet refusal
PRB-S1-15	8/20	--	--	22-24	24.5	Injected 150 gallons into deep interval (double volume), no shallow injections, 24.5 feet refusal
PRB-S1-16	8/20	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-17	8/20	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-18	8/20	--	--	22-24	24.5	Injected 150 gallons into deep interval (double volume), no shallow injections, 24.5 feet refusal
PRB-S1-19	8/20	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-20	8/20	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
PRB-S1-21	8/20	--	--	23-25	25.5	Injected 150 gallons into deep interval (double volume), no shallow injections
TMW-25-1	8/21	--	--	27-29	29.5	Daylighting 3 feet north of point, injected 100 gallons into deep interval prior to daylighting, no shallow injection
TMW-25-2	8/21	--	--	27-29	29.5	Injected 220 gallons into deep interval (double volume plus leftover from TMW-25-1), no shallow injection
TMW-25-3	8/21	--	--	26.5-28.5	29	Injected 160 gallons into deep interval (double volume), no shallow injection, refusal at 29 feet bgs
TMW-25-4	8/21	--	--	27.5-29.5	30	Injected 160 gallons into deep interval (double volume), daylighting observed 30 feet west of TMW-25-1 following injection, no shallow injection, refusal at 30 feet bgs

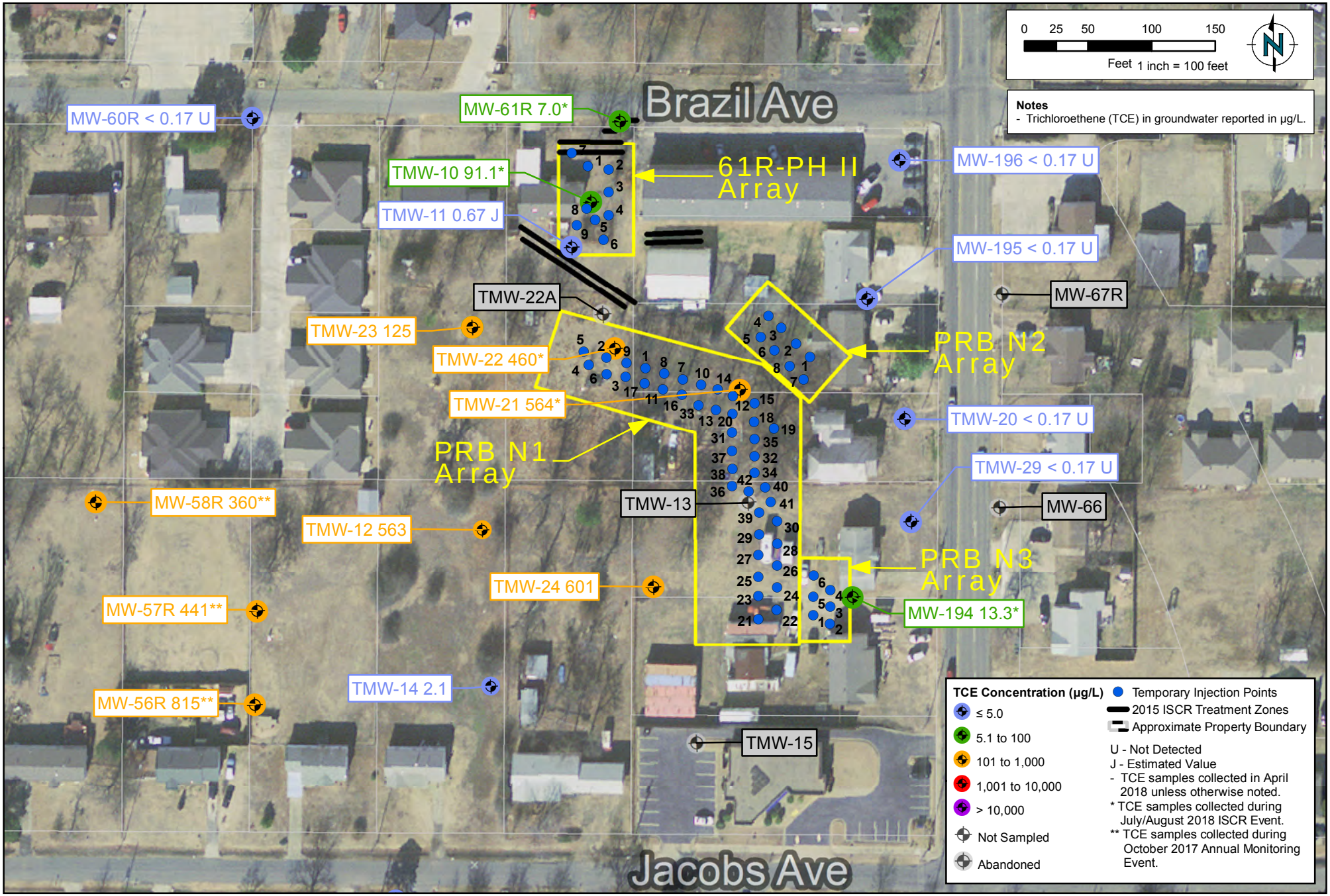
Notes:
feet bgs: Feet below ground surface

TABLE 5
SLUG TEST RESULTS (WEEK OF JULY 30, 2018)
Whirlpool Facility - Fort Smith, Arkansas

Well Name	Manual DTW Reading prior to Test (feet)	Falling /Rising	Initial Displacement (H_0)	Hydraulic Conductivity (ft/d)	Hydraulic Conductivity (cm/s)	Test Method	Average Hydraulic Conductivity (ft/d)	Average Hydraulic Conductivity (ft/d)
TMW-10 (Unconfined)	7.24	Falling	1.30	0.07	2.59E-05	Bouwer-Rice	0.07	2.54E-05
		Rising	1.30	0.07	2.48E-05	Bouwer-Rice		
TMW-10 (Confined)	7.24	Falling	1.30	0.07	2.40E-05	Bouwer-Rice	0.07	2.36E-05
		Rising	1.30	0.07	2.32E-05	Bouwer-Rice		
TMW-11 (Unconfined)	6.59	Falling	1.21	0.02	7.91E-06	Bouwer-Rice	0.02	5.61E-06
		Rising	1.31	0.01	3.31E-06	Bouwer-Rice		
TMW-11 (Confined)	6.59	Falling	1.21	0.02	7.55E-06	Bouwer-Rice	0.02	5.31E-06
		Rising	1.31	0.01	3.07E-06	Bouwer-Rice		

Notes:
The slug dimensions are 2.88 feet x 0.15 feet. There is a 0.15 feet in length cone on the end of the slug. It should displace approximately 0.19 gallons or 1.206 feet of water in a 2 inch diameter well.
ft/d = feet per day
H_0 = Null hypothesis
cm/s = Centimeters per second

Figures



RAMBOLL

DRAFTED BY: FK/WZ | DATE: 01/24/2019

PERMEABLE REACTIVE BARRIER ZONES
AUGUST 2018
NORTH PLUME

Former Whirlpool Facility - Fort Smith, Arkansas

Figure 1

PROJECT: 1690009230

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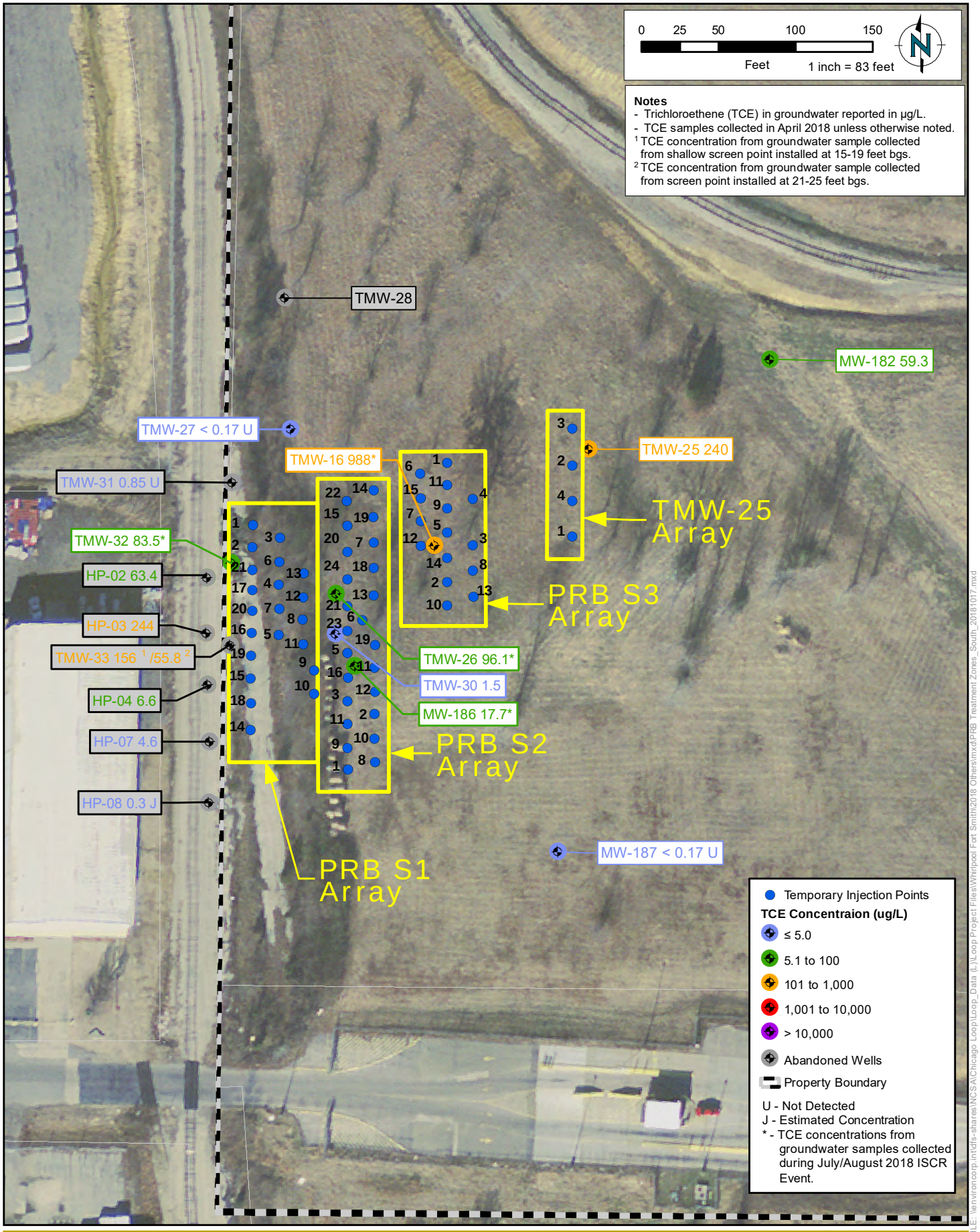

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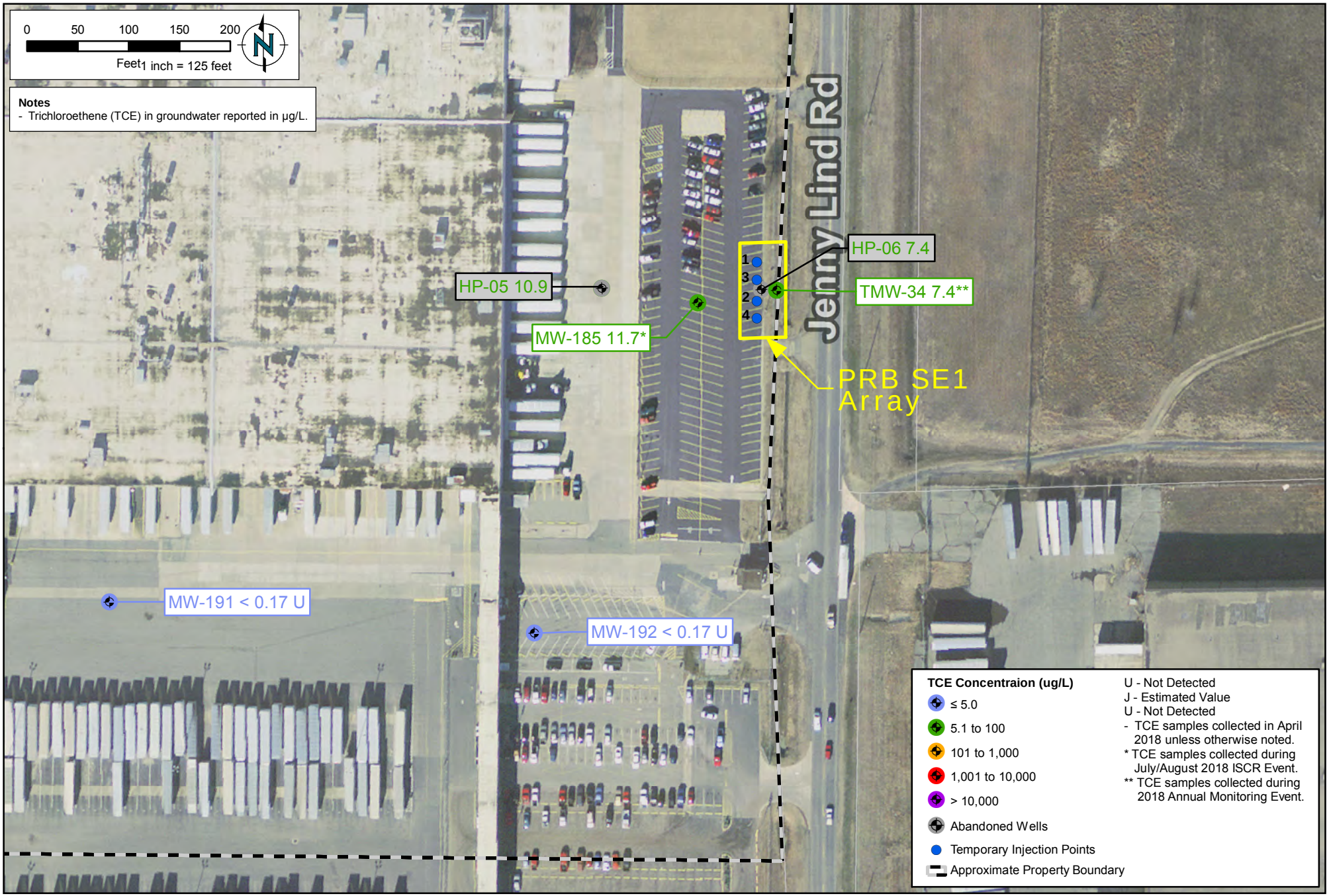
DRAFTED BY: FK/WZ | DATE: 10/17/2018

PERMEABLE REACTIVE BARRIER INJECTION POINTS
AUGUST 2018
SOUTH PLUME

Former Whirlpool Facility - Fort Smith, Arkansas

Figure 2

PROJECT: 1690009230



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DRAFTED BY: FK/WZ | DATE: 01/24/2019

PERMEABLE REACTIVE BARRIER ZONES SOUTHEASTERN PLUME

Former Whirlpool Facility - Fort Smith, Arkansas

Figure 3

PROJECT: 1690009230

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Appendix A
IET Report

Innovative Environmental Technologies, Inc.

Technology Discussion and Field Report

To

Ramboll

For

The Application Of

"In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies"

At

Former Whirlpool Facility
Fort Smith, AR

August 2018

Innovative Environmental Technologies, Inc.
6071 Easton Road
Pipersville, PA 18947
(888) 721-8283
www.iet-inc.net

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PRB-N3 Area 5

Pilot Phase II (MW-61R)-Area 5

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Executive Summary

On behalf of Ramboll, Innovative Environmental Technologies, Inc. (IET) has prepared the following injection report. This report has been prepared to document remediation activities conducted at the site.

The injection program was implemented from July 31st to August 21st, 2018. The remedial approach employed synergistic reductive dechlorination chemistry, utilizing zero valent iron, various organic hydrogen donors, nutrients and vitamins. The integration of both abiotic and biotic remedial compounds allow for rapid dechlorination reactions and long lasting biological attenuation.

The injections were completed in the form of seven permeable reactive barriers transecting the downgradient sections of the plume both at the north and south ends. The total injected reagent contained 18,254 pounds of Zero Valent Iron, 1,310 pounds of Nutrient, 8,266 pounds of Hydrolyzed Kelp, 25,882 pounds of Calcium Propionate, 1,310 pounds of Sodium Sulfite, 34,184 pounds of Provect-IR, 1310 pounds of Yeast Extract, 2,176 grams of Vitamin B12, 15,155 grams of Vitamin B2, and 32,250 grams of Red Yeast Rice suspended in water to create approximately 21,874 gallons of injectant volume. The design was implemented as proposed with some field modifications that were required due to daylighting of remedial material. The layout of some sections of PRBN1, PRBS1, PRBS2 and PRBS3 were adjusted to avoid apparent pathways to the surface such as large tree root systems and/or former structures/utilities. Injection intervals were also adjusted slightly in the field to correlate with the nearest soil profile. The point by point dosages along with any field adjustments and instances of surfacing are also noted in the attached field logs.

Introduction

The former Whirlpool site located in Fort Smith, Arkansas was identified as having soils and groundwater impacted by the historical release of chlorinated solvents. The primary compounds of concern were Trichloroethene (TCE) and its associated daughter products. An injection program was proposed by IET for the remediation of CVOC impacts along the northern and southern edges of the plume utilizing direct push tooling and synergistic reductive dechlorination technologies.

Remediation Implementation

Injection Procedures

IET completed the one-hundred and thirty-three injection locations across nine areas at the site. Details regarding each injection attempt are provided in the field logs in the Appendix.

Direct-Push-Driven Perforated Rod Placement

FIGURE 1: AMS 9500 VTR

An AMS unit comparable to the one pictured in Figure 1, was utilized to drive the injection screen (as seen in Figure 2) to depths ranging from 11 to 30 feet below ground surface (bgs). It is at these depths, that the likelihood exists of being in close proximity to the targeted waters in the more permeable layers that were identified during characterization of the site. These more permeable layers are those believed to have historically provided the preferential pathways taken by the dissolved-phase CVOCs.

Subsurface Pathway Development

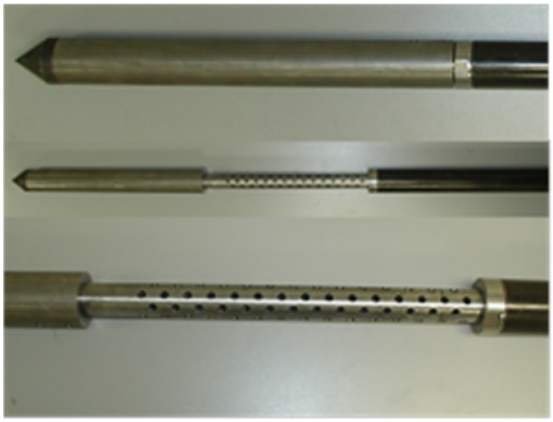


FIGURE 2: RETRACTABLE INJECTION SCREEN

Compressed nitrogen was used to propel injectants into the subsurface. Compressed nitrogen was first injected into the subsurface at approximately 150 pounds per square inch (psi) until a significant pressure drop was observed at the injection pressure vessel. This process is referred to as pathway development. The intent of this step is to open pathways in the subsurface for the injectants to follow. These pathways are believed to be those more permeable pathways along which CVOCs are more likely to have migrated, both in the vadose and saturated zones. Liquid and liquid-entrained injectants are then delivered with pressurized gas to the pathways that were produced during the development step.

Areas PRB S1, PRB S2, PRB S3, PRB N3, and some specific locations within PRB N1, PRB N2 and Pilot Area Phase II did not receive the compressed nitrogen step. These areas were completed using a hydraulic chemgrout pump.

ZVI, Organic Hydrogen, Nutrient and Vitamin Injection

A colloidal suspension of 1-3 micron zero valent iron (ZVI) was immediately injected into the subsurface fractures and voids that were developed during the compressed nitrogen injection step. Immediately following, under constant pressure the injectant slurry was then introduced.

Liquid Rinse

A small amount of water was injected to clear the injection lines of the injectant and promotes mounding of groundwater into the vadose zone.

Post Injection Line Purge

Compressed nitrogen was injected to clear the lines of all material and to force the remedial components further into the formation before moving to the next injection location.

North Plume Site Map

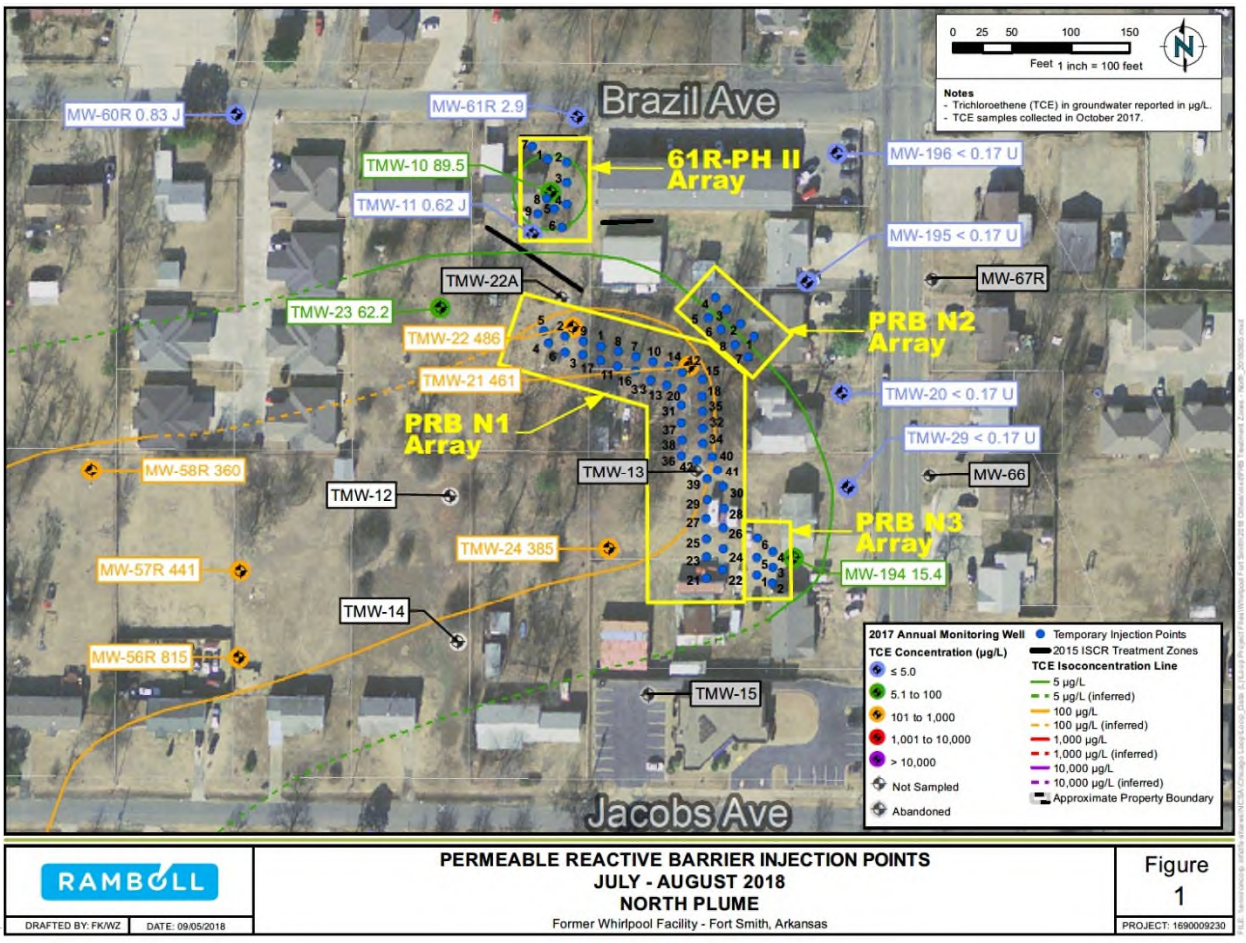


FIGURE 3: NORTH PLUME PRBS – INJECTION LOCATIONS

PRB-N1 Area

This area included 42 injection points targeting an approximate 7,418 sq. ft. area at depths between 11-18' below grade. The PRB consisted of two lines of points installed immediately upgradient of TMW-22, TMW-21 and in line with former TMW-13. This area was completed as proposed with field modifications, such as shifting the locations in between TMW-13 and TMW-21 west to avoid a large tree than was the apparent cause on two instances of daylighting. Proposed injection volumes were also decreased to minimize instances of daylighting. The depths were adjusted across the PRB based off the nearest soil profile available. Notable instances of daylighting occurred 15' north of PRBN1-10, 3' south of PRBN2-7 and 6' south of PRBN1-21. Aside from these instances all the proposed injectant was introduced to the subsurface.

PRB-N2 Area

This area included 8 injection points targeting an approximate 1,413 sq. ft. area at depths between 11-16' below grade. The PRB consisted of two lines of points installed approximately 75' downgradient of MW-195. This area was completed as proposed with field modifications, such as utilizing a hydraulic pump to complete the locations nearest the house and decreasing injection volumes to minimize any instances of daylighting. The depths were adjusted across the PRB based off the nearest soil profile available. No instances of daylighting were observed during the completion of this area and all the proposed injectant was introduced to the subsurface.

PRB-N3 Area

This area included 6 injection points targeting an approximate 1,060 sq. ft. area at depths between 12-18' below grade. The PRB consisted of two lines of points installed immediately downgradient of MW-194. This area was completed as proposed with field modifications, such as utilizing a hydraulic pump to complete the locations nearest the house and decreasing injection volumes to minimize any instances of daylighting. The depths were adjusted across the PRB based off the nearest soil profile available. No instances of daylighting were observed during the completion of this area and all the proposed injectant was introduced to the subsurface.

Pilot Phase II (MW-61R)-Area

This area included 9 injection points targeting an approximate 1,590 sq. ft. area at depths between 8-14' below grade. The area consisted of nine points installed within the vicinity of TMW-10. This area was completed as proposed with field modifications, such as utilizing a hydraulic pump to complete the

locations nearest the house and decreasing injection volumes to minimize any instances of daylighting. Locations within this area were shifted slightly to avoid proximity to the house and TMW-10. No instances of daylighting were observed during the completion of this area and all the proposed injectant was introduced to the subsurface.

South Plume Site Map

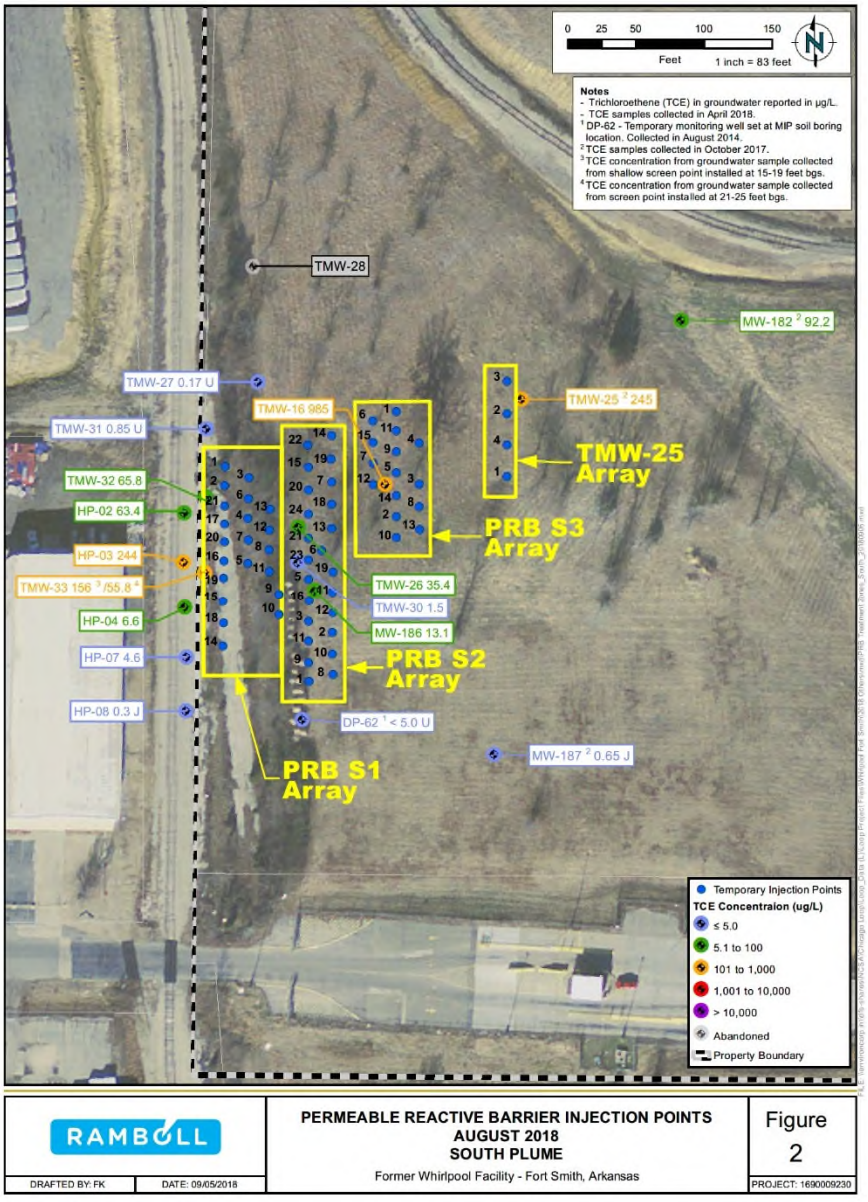


FIGURE 4: SOUTH PLUME PRBS – INJECTION LOCATIONS

PRB-S1 Area

This area included 21 injection points targeting an approximate 3,709 sq. ft. area at depths between 20-25' below grade or the top of bedrock, although the 15-19' zone was attempted at PRBS1-1, PRBS1-2 and PRBS1-3. Daylighting occurred at each of these attempts so the injections were completed only at the deepest depths. The PRB consisted of three lines of points installed upgradient of TMW-32 and TMW-23. This area was completed as proposed with field modifications, such as shifting the locations to avoid both the railroad tracks and the instance of daylighting that occurred along the eastern side of the railroad tracks. Proposed injection volumes were also decreased to minimize instances of daylighting. The materials proposed for the 15-19' zone was added at an additional 5 locations within this area and the remaining materials were added into the TMW-25 Area.

PRB-S2 Area

This area included 24 injection points targeting an approximate 4,239 sq. ft. area at depths between 19-25' below grade. Daylighting occurred on several instances at the 19-21' zone so as a result PRBS2-15 through PRBS2-24 only received injections at the 23-25' zone. The PRB consisted of two lines of points installed immediately upgradient of TMW-26 and TMW-30, the points were installed in line with MW-186. This area was completed as proposed with field modifications, such as omitting the 19-21' injection zone after PRBS2-14. Proposed injection volumes were also decreased to minimize instances of daylighting. The materials proposed for the 19-21' zone were added to the 23-25' zone within PRBS2. The most notable instance of daylighting occurred approximately 5' south of PRBS2-1.

PRB-S3 Area

This area included 15 injection points targeting an approximate 2,649 sq. ft. area at depths between 24-26' below grade, although attempts were made at 20-22' at PRBS3-1 through PRBS3-5. Daylighting occurred on several instances at the 20-22' zone so as a result PRBS3-6 through PRBS3-15 only received injections at the 24-26' zone. The PRB consisted of three lines of points installed within the vicinity of TMW-16. This area was completed as proposed with field modifications, such as omitting the 20-22' injection zone after PRBS3-5. Locations in the proximity of large trees to the east were also moved west of TMW-16. Proposed injection volumes were also decreased to minimize instances of daylighting. The materials proposed for the 20-22' zone were added to the 24-26' zone at three additional locations within PRBS2 as well as at the TMW-25 area.

TMW-25 Area

This area included 4 injection points targeting an approximate 706 sq. ft. area at depths between 26-28' below grade. This was an area added at the end to treat downgradient of TMW-25 and expand the

treatment area using the material from the omitted shallow injection zones in PRBS1 and in parts of PRBS2 and PRBS3. The PRB consisted of one lines of points installed immediately downgradient of TMW-25.

Southeast Plume Site Map

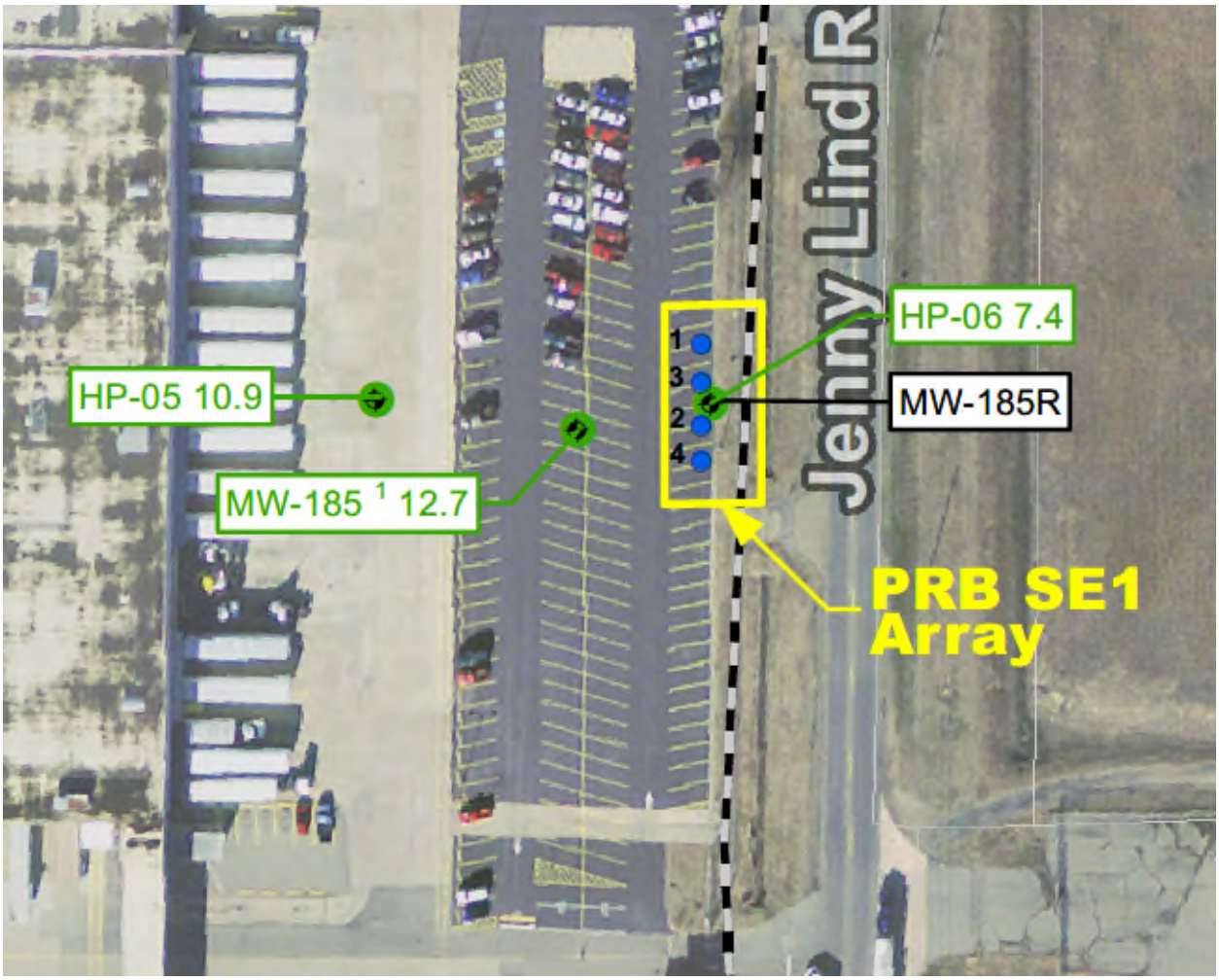


FIGURE 5: SOUTH PLUME PRBS – INJECTION LOCATIONS

Southeast Plume Area

This area included 4 injection points targeting an approximate 706 sq. ft. area at depths between 19-28' below grade. The points were installed immediately upgradient of MW-185R. No daylighting was observed during the injections within this area and the total proposal volume and materials were introduced to the subsurface, minor field modifications were required with regard to the proposed depths due to dpt refusal at the four locations.

Conclusion

The injection program at the former Whirlpool site was implemented based on the proposed design with field modifications that were required due to site conditions. All proposed injectants were ultimately introduced at the depths associated with groundwater flow. Several additional injection points were added within the south plume areas, so a larger footprint is expected to have been treated in the area between TMW-25 and TMW-33, however depths from 15-19' were not completed in these areas. It is expected that the injection event will yield positive results in all nine of the targeted areas and IET looks forward the assessing the data following future sampling events.

Appendix A – Injection Logs

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/1/2018**

	Injection #1		Injection #2		Summary	
Time:	**6:10 PM** to **6:15 PM**		**6:02 PM** to **6:10 PM**			
PRB-N1 1	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**12-14'**	**12-14'**	**16-18'**	**16-18'**	**12-18'**	**12-18'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**120**	**120**	**120**	**120**	**240**	**240**
Vitamin B2 (grams)	**56.4**	**56.4**	**56.4**	**56.4**	**112.8**	**112.8**
Vitamin B12 (grams)	**8.1**	**8.1**	**8.1**	**8.1**	**16.2**	**16.2**
Yeast (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Provect-IR (lbs)	**125**	**125**	**125**	**125**	**250**	**250**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Propionate (lbs)	**100**	**100**	**100**	**100**	**200**	**200**
Kelp (lbs)	**32.0**	**32.0**	**32.0**	**32.0**	**64**	**64**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
ZVI (lbs) 1-3 micron	**38**	**38**	**38**	**38**	**76**	**76**
Mixture Volume (gal)	**100**	**100**	**85**	**100**	**185**	**200**
Line Purge (psi)	**50**	**50**	**50**	**50**		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

	Injection #1	Injection #2
Time:	**12:08 PM** to **12:18 PM**	**11:26 AM** to **11:37 AM**

PRB-N1 2	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	13-15'	16-18'	12-15'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Intervals adjusted based off of local boring logs
Volumes decreased in order to decrease daylighting and thicken injectate

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

Time:	**3:20 PM** to **3:31 PM**	**11:48 AM** to **11:59 AM**

PRB-N1 3	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	14-16'	16-18'	12-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Clogged @ 11-13' no flow. Re-attempted 12-14'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

	Injection #1		Injection #2	
Time:	**12:39 PM** to **12:48 PM**		**12:26 PM** to **12:36 PM**	

PRB-N1 4	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	14-16'	16-18'	12-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

Time:	**1:16 PM** to **1:32 PM**	**1:01 PM** to **1:15 PM**

PRB-N1 5	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	14-16'	16-18'	12-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/3/2018

Time:	2:52 PM to 3:03 PM	2:41 PM to 2:51 PM

PRB-N1 6	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/3/2018

Time:	3:44 PM to 3:52 PM	3:36 PM to 3:44 PM

PRB-N1 7	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

Time: **5:24 PM** to **5:34 PM** **4:00 PM** to **4:15 PM**

PRB-N1 8	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

	Injection #1		Injection #2	
Time:	**4:53 PM** to **5:00 PM**		**4:44 PM** to **4:53 PM**	

PRB-N1 9	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

Time: 10:54 AM to 11:04 AM; 10:42 AM to 10:53 AM

PRB-N1 10	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/6/2018**

	Injection #1		Injection #2	
Time:	**11:21 AM** to **11:30 AM**		**11:10 AM** to **11:20 AM**	

PRB-N1 11	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

Time: 12:00 PM to 12:14 PM 11:41 AM to 11:57 AM

PRB-N1 12	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/6/2018**

	Injection #1		Injection #2		Summary	
Time:	**12:40 PM** to **12:44 PM**		**12:20 PM** to **12:30 PM**			
PRB-N1 13	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**11-13'**	**12-14'**	**14-16'**	**16-18'**	**11-16'**	**12-18'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**0**	**120**	**120**	**120**	**120**	**240**
Vitamin B2 (grams)	**0**	**56.4**	**56.4**	**56.4**	**56.4**	**112.8**
Vitamin B12 (grams)	**0**	**8.1**	**8.1**	**8.1**	**8.1**	**16.2**
Yeast (lbs)	**0**	**5**	**5**	**5**	**5**	**10**
Provect-IR (lbs)	**0**	**125**	**125**	**125**	**125**	**250**
Sulfite (lbs)	**0**	**5**	**5**	**5**	**5**	**10**
Propionate (lbs)	**0**	**100**	**100**	**100**	**100**	**200**
Kelp (lbs)	**0**	**32.0**	**32**	**32.0**	**32**	**64**
Nutrient (lbs)	**0**	**5**	**5**	**5**	**5**	**10**
ZVI (lbs) 1-3 micron	**0**	**38**	**38**	**38**	**38**	**76**
Mixture Volume (gal)	**0**	**100**	**85**	**100**	**85**	**200**
Line Purge (psi)		**50**	**50**	**50**		

Other Field Observations: SSE during 11-13' (roots)
Volume added to N1-33

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/6/2018**

Time: **1:32 PM** to **1:47 PM** **1:02 PM** to **1:12 PM**

PRB-N1	Injection #1		Injection #2		Summary	
14	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Daylighting occurred after post injection line purge (11-13') ~ 30' downgradient

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

	Injection #1		Injection #2		Summary	
Time:	2:18 PM to 2:24 PM		2:06 PM to 2:16 PM			
PRB-N1 15	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

Time: 2:54 PM to 3:04 PM 2:41 PM to 2:52 PM

PRB-N1 16	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

Time: 3:22 PM to 3:32 PM | 3:12 PM to 3:22 PM

PRB-N1 17	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

Time: 4:19 PM to 4:27 PM; 4:07 PM to 4:18 PM

PRB-N1 18	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/6/2018**

Time: **5:20 PM** to **5:30 PM** **5:05 PM** to **5:18 PM**

PRB-N1 19	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-13'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Daylighting after 11-13' inection; a lot, 30' Downgradient

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/6/2018

	Injection #1		Injection #2		Summary	
Time:	5:53 PM to 6:08 PM		5:43 PM to 5:53 PM			
PRB-N1 20	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Lowered pressure; daylighting 35' downgradient.

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

	Injection #1		Injection #2	
Time:	**12:17 PM** to **12:34 PM**		**12:00 PM** to **12:15 PM**	

PRB-N1 21	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)		3		3		
Pathway Development (psi)		150		150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)		50		50		

Other Field Observations: Chem grout used

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/8/2018**

Time: **11:33 AM** to **11:44 AM** **11:12 AM** to **11:31 AM**

PRB-N1 22	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

Time: 12:14 PM to 12:40 PM; 11:56 AM to 12:18 PM

PRB-N1 23	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

Time: 1:44 PM to 2:03 PM (Injection #1); 1:22 PM to 1:43 PM (Injection #2)

PRB-N1 24	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

	Injection #1		Injection #2		Summary	
Time:	2:36 PM to 2:56 PM		2:04 PM to 2:35 PM			
PRB-N1 25	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

Time: 3:13 PM to 3:40 PM 2:58 PM to 3:11 PM

PRB-N1	Injection #1		Injection #2		Summary	
26	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

Time: 4:10 PM to 4:26 PM 3:41 PM to 4:00 PM

PRB-N1 27	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

Time: 4:36 PM to 4:54 PM 4:26 PM to 4:34 PM

PRB-N1	Injection #1		Injection #2		Summary	
28	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/8/2018

	Injection #1		Injection #2		Summary	
Time:	5:09 PM to 5:28 PM		4:55 PM to 5:08 PM			
PRB-N1 29	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/8/2018**

Time: **5:41 PM** to **5:53 PM** **5:29 PM** to **5:42 PM**

PRB-N1	Injection #1		Injection #2		Summary	
30	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Daylighting 15' S of N1-21; 6 drums collected

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/9/2018

Time: 12:08 PM to ; 11:34 AM to 11:56 AM

PRB-N1	Injection #1		Injection #2		Summary	
31	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	14-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	120	120	120	240
Vitamin B2 (grams)	0	56.4	56.4	56.4	56.4	112.8
Vitamin B12 (grams)	0	8.1	8.1	8.1	8.1	16.2
Yeast (lbs)	0	5	5	5	5	10
Provect-IR (lbs)	0	125	125	125	125	250
Sulfite (lbs)	0	5	5	5	5	10
Propionate (lbs)	0	100	100	100	100	200
Kelp (lbs)	0	32.0	32	32.0	32	64
Nutrient (lbs)	0	5	5	5	5	10
ZVI (lbs) 1-3 micron	0	38	38	38	38	76
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	50	50		

Other Field Observations: Daylighting next to point

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/9/2018

	Injection #1		Injection #2	
Time:	12:41 PM to 12:51 PM		12:29 PM to 12:40 PM	

PRB-N1 32	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		100

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/9/2018

Time: 2:25 PM to 2:50 PM 1:14 PM to 1:56 PM

PRB-N1 33	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	240	120	360	240
Vitamin B2 (grams)	56.4	56.4	112.8	56.4	169.2	112.8
Vitamin B12 (grams)	8.1	8.1	16.2	8.1	24.3	16.2
Yeast (lbs)	5	5	10	5	15	10
Provect-IR (lbs)	125	125	250	125	375	250
Sulfite (lbs)	5	5	10	5	15	10
Propionate (lbs)	100	100	200	100	300	200
Kelp (lbs)	32.0	32.0	64	32.0	96	64
Nutrient (lbs)	5	5	10	5	15	10
ZVI (lbs) 1-3 micron	38	38	76	38	114	76
Mixture Volume (gal)	75	100	150	100	225	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Volume from N1-13 added here at 14-16'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/9/2018

Time: 3:16 PM to 3:34 PM; 2:52 PM to 3:15 PM

PRB-N1 34	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	14-16'	16-18'	12-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/9/2018**

	Injection #1		Injection #2		Summary	
Time:	**4:38 PM** to **4:50 PM**		**4:14 PM** to **4:37 PM**			
PRB-N1 35	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**12-14'**	**12-14'**	**14-16'**	**16-18'**	**12-16'**	**12-18'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**120**	**120**	**240**	**120**	**360**	**240**
Vitamin B2 (grams)	**56.4**	**56.4**	**112.8**	**56.4**	**169.2**	**112.8**
Vitamin B12 (grams)	**8.1**	**8.1**	**16.2**	**8.1**	**24.3**	**16.2**
Yeast (lbs)	**5**	**5**	**10**	**5**	**15**	**10**
Provect-IR (lbs)	**125**	**125**	**250**	**125**	**375**	**250**
Sulfite (lbs)	**5**	**5**	**10**	**5**	**15**	**10**
Propionate (lbs)	**100**	**100**	**200**	**100**	**300**	**200**
Kelp (lbs)	**32.0**	**32.0**	**64**	**32.0**	**96**	**64**
Nutrient (lbs)	**5**	**5**	**10**	**5**	**15**	**10**
ZVI (lbs) 1-3 micron	**38**	**38**	**76**	**38**	**114**	**76**
Mixture Volume (gal)	**100**	**100**	**150**	**100**	**250**	**200**
Line Purge (psi)	**50**	**50**	**50**	**50**		

Other Field Observations: 1st attempt-Dpt refusal at 10' (root), point offset 6' W, dpt refusal @ 17.5
Volume from N1-31 added here at 14-16', daylighting occurred during 12-14'
50' NE

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/9/2018

Time: 5:39 PM to 5:54 PM; 5:25 PM to 5:37 PM

PRB-N1	Injection #1		Injection #2		Summary	
36	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	14-16'	16-18'	12-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/10/2018

Time: 10:57 AM to 11:19 AM

PRB-N1 37	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		12-14'	15-17'	16-18'	15-17'	12-18'
Fracture Duration (sec)		3	3	3		
Pathway Development (psi)		150	150	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	125	250	125	250	250
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	100	200	100	200	200
Kelp (lbs)	0	32.0	64	32.0	64	64
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	38	76	38	76	76
Mixture Volume (gal)	0	100	150	100	150	200
Line Purge (psi)		50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/10/2018

Time: 11:21 AM to 11:42 AM

PRB-N1 38	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		12-14'	15-17'	16-18'	15-17'	12-18'
Fracture Duration (sec)		3	3	3		
Pathway Development (psi)		150	150	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	125	250	125	250	250
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	100	200	100	200	200
Kelp (lbs)	0	32.0	64	32.0	64	64
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	38	76	38	76	76
Mixture Volume (gal)	0	100	150	100	150	200
Line Purge (psi)		50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/10/2018

	Injection #1		Injection #2	
Time:	12:33 PM to 12:48 PM		12:19 PM to 12:32 PM	

PRB-N1 39	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/10/2018

Time: 1:07 PM to 1:20 PM — 12:50 PM to 1:05 PM

PRB-N1 40	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/10/2018

	Injection #1		Injection #2		Summary	
Time:	1:39 PM to 1:46 PM		1:25 PM to 1:39 PM			
PRB-N1 41	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/10/2018

Time: 2:19 PM to 2:32 PM | 2:08 PM to 2:18 PM

PRB-N1 42	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	32.0	32.0	32.0	32.0	64	64
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/1-8/10/2018**

PRB-N1 Summary

	Actual	Proposed
Red Yeast Rice (grams)	10080	10080
Vitamin B2 (grams)	4737.6	4737.6
Vitamin B12 (grams)	680.4	680.4
Yeast (lbs)	420	420
Provect-IR (lbs)	10500	10500
Sulfite (lbs)	420	420
Propionate (lbs)	8400	8400
Kelp (lbs)	2688	2688
Nutrient (lbs)	420	420
ZVI (lbs)	3192	3192
Mixture Volume (gal)	6955	8400

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

Time: **3:03 PM** to **3:13 PM** **2:40 PM** to **2:54 PM**

PRB-N2	Injection #1		Injection #2		Summary	
1	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)		3		3		
Pathway Development (psi)		150		150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)		50		50		

Other Field Observations: Chem grout used/building vicinity
Intervals adjusted based on local soil boring log

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

Time: **3:30 PM** to **3:42 PM** **3:15 PM** to **3:27 PM**

PRB-N2 2	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-12'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/2/2018

Time: 4:00 PM to 4:10 PM 3:51 PM to 4:00 PM

PRB-N2 3	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

Time: **4:33 PM** to **4:43 PM** **4:12 PM** to **4:30 PM**

PRB-N2 4	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

Time: **4:57 PM** to **5:05 PM** **4:47 PM** to **4:57 PM**

PRB-N2 5	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

Time: **5:36 PM** to **5:47 PM** **5:14 PM** to **5:35 PM**

PRB-N2 6	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

Time:	**9:37 AM** to **9:52 AM**	**9:21 AM** to **9:36 AM**

PRB-N2 7	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	14-16'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/3/2018**

Time: **10:11 AM** to **10:15 AM** **10:00 AM** to **10:09 AM**

PRB-N2 8	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	11-13'	12-14'	16-18'	16-18'	11-16'	12-18'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	34	34	34	34	68	68
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	38	38	38	38	76	76
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/2-8/3/2018**

PRB N2 Summary

	Actual	Proposed
Red Yeast Rice (grams)	1920	1920
Vitamin B2 (grams)	902.4	902.4
Vitamin B12 (grams)	129.6	129.6
Yeast (lbs)	80	80
Provect-IR (lbs)	2000	2000
Sulfite (lbs)	80	80
Propionate (lbs)	1600	1600
Kelp (lbs)	544	544
Nutrient (lbs)	80	80
ZVI (lbs)	608	608
Mixture Volume (gal)	1320	1600

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

Time: **12:46 PM** to **1:05 PM** ____ to ____

PRB-N3 1	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'		16-18'	12-14'	12-18'
Fracture Duration (sec)	x	3		3		
Pathway Development (psi)	x	150		150		
Estimated ROI (ft)	7.5	7.5		7.5		
Red Yeast Rice (grams)	120	120	0	120	120	240
Vitamin B2 (grams)	56.4	56.4	0	56.4	56.4	112.8
Vitamin B12 (grams)	8.1	8.1	0	8.1	8.1	16.2
Yeast (lbs)	5	5	0	5	5	10
Provect-IR (lbs)	125	125	0	125	125	250
Sulfite (lbs)	5	5	0	5	5	10
Propionate (lbs)	100	100	0	100	100	200
Kelp (lbs)	29	29	0	29	29	58
Nutrient (lbs)	5	5	0	5	5	10
ZVI (lbs) 1-3 micron	34	34	0	34	34	68
Mixture Volume (gal)	60	100	0	100	60	200
Line Purge (psi)	x	50		50		

Other Field Observations: DPT refusal at 15'
Chemgrout pump used due to proximity to building

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

Time: **2:26 PM** to **2:40 PM** **2:12 PM** to **2:23 PM**

PRB-N3 2	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	29	29	29	29	58	58
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	34	34	34	34	68	68
Mixture Volume (gal)	60	100	60	100	120	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

Time: **3:15 PM** to **3:30 PM** **2:54 PM** to **3:12 PM**

PRB-N3 3	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	100	100	100	100	200	200
Kelp (lbs)	29	29	29	29	58	58
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	34	34	34	34	68	68
Mixture Volume (gal)	60	100	60	100	120	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

	Injection #1		Injection #2		Summary	
Time:	**3:49 PM** to **4:10 PM**		**3:35 PM** to **3:47 PM**			
PRB-N3 4	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**12-14'**	**12-14'**	**16-18'**	**16-18'**	**12-18'**	**12-18'**
Fracture Duration (sec)	**x**	**3**	**x**	**3**		
Pathway Development (psi)	**x**	**150**	**x**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**120**	**120**	**120**	**120**	**240**	**240**
Vitamin B2 (grams)	**56.4**	**56.4**	**56.4**	**56.4**	**112.8**	**112.8**
Vitamin B12 (grams)	**8.1**	**8.1**	**8.1**	**8.1**	**16.2**	**16.2**
Yeast (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Provect-IR (lbs)	**125**	**125**	**125**	**125**	**250**	**250**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Propionate (lbs)	**100**	**100**	**100**	**100**	**200**	**200**
Kelp (lbs)	**29**	**29**	**29**	**29**	**58**	**58**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
ZVI (lbs) 1-3 micron	**34**	**34**	**34**	**34**	**68**	**68**
Mixture Volume (gal)	**60**	**100**	**60**	**100**	**120**	**200**
Line Purge (psi)	**x**	**50**	**x**	**50**		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

	Injection #1		Injection #2	
Time:	**4:52 PM** to **5:08 PM**		**4:14 PM** to **4:48 PM**	

PRB-N3 5	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	12-14'	12-14'	16-18'	16-18'	12-18'	12-18'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	240	120	360	240
Vitamin B2 (grams)	56.4	56.4	112.8	56.4	169.2	112.8
Vitamin B12 (grams)	8.1	8.1	16.2	8.1	24.3	16.2
Yeast (lbs)	5	5	10	5	15	10
Provect-IR (lbs)	125	125	250	125	375	250
Sulfite (lbs)	5	5	10	5	15	10
Propionate (lbs)	100	100	200	100	300	200
Kelp (lbs)	29	29	58	29	87	58
Nutrient (lbs)	5	5	10	5	15	10
ZVI (lbs) 1-3 micron	34	34	68	34	102	68
Mixture Volume (gal)	60	100	120	100	180	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: Volume from N3-1 added here at 16-18'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/7/2018**

	Injection #1		Injection #2		Summary	
Time:	**5:30 PM** to **5:50 PM**		**5:17 PM** to **5:30 PM**			
PRB-N3 6	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**12-14'**	**12-14'**	**16-18'**	**16-18'**	**12-18'**	**12-18'**
Fracture Duration (sec)	**x**	**3**	**x**	**3**		
Pathway Development (psi)	**x**	**150**	**x**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**120**	**120**	**120**	**120**	**240**	**240**
Vitamin B2 (grams)	**56.4**	**56.4**	**56.4**	**56.4**	**112.8**	**112.8**
Vitamin B12 (grams)	**8.1**	**8.1**	**8.1**	**8.1**	**16.2**	**16.2**
Yeast (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Provect-IR (lbs)	**125**	**125**	**125**	**125**	**250**	**250**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Propionate (lbs)	**100**	**100**	**100**	**100**	**200**	**200**
Kelp (lbs)	**29**	**29**	**29**	**29**	**58**	**58**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
ZVI (lbs) 1-3 micron	**34**	**34**	**34**	**34**	**68**	**68**
Mixture Volume (gal)	**60**	**100**	**60**	**100**	**120**	**200**
Line Purge (psi)	**x**	**50**	**x**	**50**		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/7/2018**

PRB N3 Summary

	Actual	Proposed
Red Yeast Rice (grams)	1440	1440
Vitamin B2 (grams)	676.8	676.8
Vitamin B12 (grams)	97.2	97.2
Yeast (lbs)	60	60
Provect-IR (lbs)	1500	1500
Sulfite (lbs)	60	60
Propionate (lbs)	1200	1200
Kelp (lbs)	348	348
Nutrient (lbs)	60	60
ZVI (lbs)	408	408
Mixture Volume (gal)	720	1200

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/11/2018**

	Injection #1		Injection #2		Injection #3		Summary	
Time:	**3:53 PM** to **4:00 PM**		**3:38 PM** to **3:50 PM**		**3:24 PM** to **3:37 PM**			
PRB-S1 1	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**15-17'**	**15-17'**	**19-21'**	**19-21'**	**21-23'**	**23-25'**	**15-23'**	**15-25'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**	**3**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**	**175**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**100.125**	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**367.125**	**400.5**
Vitamin B2 (grams)	**47.025**	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**172.425**	**188.1**
Vitamin B12 (grams)	**6.75**	**9.0**	**9**	**9.0**	**9**	**9.0**	**24.75**	**27**
Yeast (lbs)	**3.75**	**5**	**5**	**5**	**5**	**5**	**13.75**	**15**
Provect-IR (lbs)	**112.5**	**150**	**150**	**150**	**150**	**150**	**412.5**	**450**
Sulfite (lbs)	**3.75**	**5**	**5**	**5**	**5**	**5**	**13.75**	**15**
Propionate (lbs)	**75**	**100**	**100**	**100**	**100**	**100**	**275**	**300**
Kelp (lbs)	**18.75**	**25**	**25**	**25**	**25**	**25**	**68.75**	**75**
Nutrient (lbs)	**3.75**	**5**	**5**	**5**	**5**	**5**	**13.75**	**15**
ZVI (lbs) 1-3 micron	**84.75**	**113**	**113**	**113**	**113**	**113**	**310.75**	**339**
Mixture Volume (gal)	**75**	**100**	**100**	**100**	**100**	**100**	**275**	**300**
Line Purge (psi)	**50**	**50**	**50**	**50**	**50**	**50**		

Other Field Observations: no break at 23-25' at 200 psi
Daylighting occurred at 15-17'; 8' E of IP.

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/11/2018**

Time:		**4:29 PM**	
	to	to	to
		5:27 PM	

PRB-S1 2	Injection #1		Injection #2		Injection #3		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'	19-21'	19-21'		23-25'	19-21'	15-25'
Fracture Duration (sec)		3	3	3		3		
Pathway Development (psi)		150	150	150		150		
Estimated ROI (ft)		7.5	7.5	7.5		7.5		
Red Yeast Rice (grams)	0	133.5	267	133.5	0	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	125.4	62.7	0	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	18	9.0	0	9.0	18	27
Yeast (lbs)	0	5	10	5	0	5	10	15
Provect-IR (lbs)	0	150	300	150	0	150	300	450
Sulfite (lbs)	0	5	10	5	0	5	10	15
Propionate (lbs)	0	100	200	100	0	100	200	300
Kelp (lbs)	0	25	50	25	0	25	50	75
Nutrient (lbs)	0	5	10	5	0	5	10	15
ZVI (lbs) 1-3 micron	0	113	226	113	0	113	226	339
Mixture Volume (gal)	0	100	200	100	0	100	200	300
Line Purge (psi)		50	50	50		50		

Other Field Observations: no break at 21-25' at 200 psi
daylighting occurred across RR, a lot (area to be re-assessed)

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/18/2018**

Time:		**12:53 PM**	**12:28 PM**
	to	to	to
		1:04 PM	**12:51 PM**

PRB-S1 3	Injection #1		Injection #2		Injection #3		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'	19-21'	19-21'	23-25'	23-25'	19-25'	15-25'
Fracture Duration (sec)		3	x	3	x	3		
Pathway Development (psi)		150	x	150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	66.75	133.5	267	133.5	333.75	400.5
Vitamin B2 (grams)	0	62.7	31.35	62.7	125.4	62.7	156.75	188.1
Vitamin B12 (grams)	0	9.0	4.5	9.0	18	9.0	22.5	27
Yeast (lbs)	0	5	2.5	5	10	5	12.5	15
Provect-IR (lbs)	0	150	75	150	300	150	375	450
Sulfite (lbs)	0	5	2.5	5	10	5	12.5	15
Propionate (lbs)	0	100	50	100	200	100	250	300
Kelp (lbs)	0	25	12.5	25	50	25	62.5	75
Nutrient (lbs)	0	5	2.5	5	10	5	12.5	15
ZVI (lbs) 1-3 micron	0	113	56.5	113	226	113	282.5	339
Mixture Volume (gal)	0	100	40	100	160	100	200	300
Line Purge (psi)		50	x	50	x	50		

Other Field Observations: Attempted to double deep interval, and single dose 19-21', daylighting occurred during 19-21', both near IP and 40' within PRB-S2, chemgrout pump used

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/18/2018**

Time:			**1:45 PM**
	to	to	to
			2:30 PM

PRB-S1 4	Injection #1		Injection #2		Injection #3		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	400.5	133.5	400.5	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	188.1	62.7	188.1	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	27	9.0	27	27
Yeast (lbs)	0	5	0	5	15	5	15	15
Provect-IR (lbs)	0	150	0	150	450	150	450	450
Sulfite (lbs)	0	5	0	5	15	5	15	15
Propionate (lbs)	0	100	0	100	300	100	300	300
Kelp (lbs)	0	25	0	25	75	25	75	75
Nutrient (lbs)	0	5	0	5	15	5	15	15
ZVI (lbs) 1-3 micron	0	113	0	113	339	113	339	339
Mixture Volume (gal)	0	100	0	100	240	100	240	300
Line Purge (psi)		50		50	x	50		

Other Field Observations: Tripled the deep zone in order to minmize daylighting

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/18/2018**

	Injection #1		Injection #2		Injection #3			
Time:		to		to	**2:42 PM**	to **3:40 PM**		
PRB-S1 5	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone		**15-17'**		**19-21'**	**23-25'**	**23-25'**	**23-25'**	**15-25'**
Fracture Duration (sec)		**3**		**3**	**x**	**3**		
Pathway Development (psi)		**150**		**150**	**x**	**150**		
Estimated ROI (ft)		**7.5**		**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**0**	**133.5**	**0**	**133.5**	**267**	**133.5**	**267**	**400.5**
Vitamin B2 (grams)	**0**	**62.7**	**0**	**62.7**	**125.4**	**62.7**	**125.4**	**188.1**
Vitamin B12 (grams)	**0**	**9.0**	**0**	**9.0**	**18**	**9.0**	**18**	**27**
Yeast (lbs)	**0**	**5**	**0**	**5**	**10**	**5**	**10**	**15**
Provect-IR (lbs)	**0**	**150**	**0**	**150**	**300**	**150**	**300**	**450**
Sulfite (lbs)	**0**	**5**	**0**	**5**	**10**	**5**	**10**	**15**
Propionate (lbs)	**0**	**100**	**0**	**100**	**200**	**100**	**200**	**300**
Kelp (lbs)	**0**	**25**	**0**	**25**	**50**	**25**	**50**	**75**
Nutrient (lbs)	**0**	**5**	**0**	**5**	**10**	**5**	**10**	**15**
ZVI (lbs) 1-3 micron	**0**	**113**	**0**	**113**	**226**	**113**	**226**	**339**
Mixture Volume (gal)	**0**	**100**	**0**	**100**	**160**	**100**	**160**	**300**
Line Purge (psi)		**50**		**50**	**x**	**50**		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/18/2018**

Time:			**3:50 PM**
	to	to	to
			4:20 PM

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
6	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	15-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	160	100	160	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/18/2018**

Time: to to **4:41 PM** to **5:04 PM**

PRB-S1 7	Injection #1		Injection #2		Injection #3		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	160	100	160	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/19/2018**

Time: to to **10:20 AM** to **10:51 AM**

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
8	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	160	100	160	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/19/2018

Time:			**11:30 AM**
	to	to	to
			11:45 AM

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
9	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	160	100	160	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/19/2018**

Time: to _____ to **12:00, 13:10** to **12:05, 13:40**

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
10	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	133.5	133.5	133.5	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	62.7	62.7	62.7	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	9	9.0	9	27
Yeast (lbs)	0	5	0	5	5	5	5	15
Provect-IR (lbs)	0	150	0	150	150	150	150	450
Sulfite (lbs)	0	5	0	5	5	5	5	15
Propionate (lbs)	0	100	0	100	100	100	100	300
Kelp (lbs)	0	25	0	25	25	25	25	75
Nutrient (lbs)	0	5	0	5	5	5	5	15
ZVI (lbs) 1-3 micron	0	113	0	113	113	113	113	339
Mixture Volume (gal)	0	100	0	100	100	100	100	300
Line Purge (psi)		50		50	x	50		

Other Field Observations: 1st attempt; daylighting occurred after 25 gls
2nd attempt; remaining 75 gls added in new location

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/19/2018

Time:			12:17 PM
	to	to	to
			12:46 PM

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
11	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	200	100	200	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/19/2018

Time:

	to		to
			2:35 PM
			to
			3:05 PM

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
12	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	200	100	200	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/19/2018**

Time:			**3:10 PM**
	to	to	to
			3:40 PM

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
13	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	23-25'	23-25'	23-25'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	200	100	200	300
Line Purge (psi)		50		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/20/2018

Time:			**11:02 AM**
	to	to	to
			11:28 AM

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
14	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	20.5-22.5'	23-25'	20.5-22.5'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	200	100	200	300
Line Purge (psi)		50		50	x	50		

Other Field Observations: DPT refusal at 23.5'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/20/2018**

Time: to to **11:29 AM** to **12:00 PM**

PRB-S1	Injection #1		Injection #2		Injection #3		Summary	
15	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		15-17'		19-21'	21-23'	23-25'	21-23'	15-25'
Fracture Duration (sec)		3		3	x	3		
Pathway Development (psi)		150		150	x	150		
Estimated ROI (ft)		7.5		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	133.5	0	133.5	267	133.5	267	400.5
Vitamin B2 (grams)	0	62.7	0	62.7	125.4	62.7	125.4	188.1
Vitamin B12 (grams)	0	9.0	0	9.0	18	9.0	18	27
Yeast (lbs)	0	5	0	5	10	5	10	15
Provect-IR (lbs)	0	150	0	150	300	150	300	450
Sulfite (lbs)	0	5	0	5	10	5	10	15
Propionate (lbs)	0	100	0	100	200	100	200	300
Kelp (lbs)	0	25	0	25	50	25	50	75
Nutrient (lbs)	0	5	0	5	10	5	10	15
ZVI (lbs) 1-3 micron	0	113	0	113	226	113	226	339
Mixture Volume (gal)	0	100	0	100	200	100	200	300
Line Purge (psi)		50		50	x	50		

Other Field Observations: DPT refusal at 24'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/20/2018**

Time:			**12:14 PM**
	to	to	to
			12:45 PM

PRB-S1	**Injection #1**		**Injection #2**		**Injection #3**		**Summary**	
16	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone		**15-17'**		**19-21'**	**23-25'**	**23-25'**	**23-25'**	**15-25'**
Fracture Duration (sec)		**3**		**3**	**x**	**3**		
Pathway Development (psi)		**150**		**150**	**x**	**150**		
Estimated ROI (ft)		**7.5**		**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**0**	**133.5**	**0**	**133.5**	**267**	**133.5**	**267**	**400.5**
Vitamin B2 (grams)	**0**	**62.7**	**0**	**62.7**	**125.4**	**62.7**	**125.4**	**188.1**
Vitamin B12 (grams)	**0**	**9.0**	**0**	**9.0**	**18**	**9.0**	**18**	**27**
Yeast (lbs)	**0**	**5**	**0**	**5**	**10**	**5**	**10**	**15**
Provect-IR (lbs)	**0**	**150**	**0**	**150**	**300**	**150**	**300**	**450**
Sulfite (lbs)	**0**	**5**	**0**	**5**	**10**	**5**	**10**	**15**
Propionate (lbs)	**0**	**100**	**0**	**100**	**200**	**100**	**200**	**300**
Kelp (lbs)	**0**	**25**	**0**	**25**	**50**	**25**	**50**	**75**
Nutrient (lbs)	**0**	**5**	**0**	**5**	**10**	**5**	**10**	**15**
ZVI (lbs) 1-3 micron	**0**	**113**	**0**	**113**	**226**	**113**	**226**	**339**
Mixture Volume (gal)	**0**	**100**	**0**	**100**	**200**	**100**	**200**	**300**
Line Purge (psi)		**50**		**50**	**x**	**50**		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/20/2018**

Time: **1:05 PM** to **1:35 PM**

PRB-S1 17	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'		21-23'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	267		267	
Vitamin B2 (grams)	125.4		125.4	
Vitamin B12 (grams)	18		18	
Yeast (lbs)	10		10	
Provect-IR (lbs)	300		300	
Sulfite (lbs)	10		10	
Propionate (lbs)	200		200	
Kelp (lbs)	50		50	
Nutrient (lbs)	10		10	
ZVI (lbs) 1-3 micron	226		226	
Mixture Volume (gal)	200		200	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 24'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/20/2018**

Time: **1:43 PM** to **2:17 PM**

PRB-S1 18	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'		21-23'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	267		267	
Vitamin B2 (grams)	125.4		125.4	
Vitamin B12 (grams)	18		18	
Yeast (lbs)	10		10	
Provect-IR (lbs)	300		300	
Sulfite (lbs)	10		10	
Propionate (lbs)	200		200	
Kelp (lbs)	50		50	
Nutrient (lbs)	10		10	
ZVI (lbs) 1-3 micron	226		226	
Mixture Volume (gal)	200		200	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 24'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/20/2018**

Time: **2:21 PM** to **2:51 PM**

PRB-S1 19	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'		21-23'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	267		267	
Vitamin B2 (grams)	125.4		125.4	
Vitamin B12 (grams)	18		18	
Yeast (lbs)	10		10	
Provect-IR (lbs)	300		300	
Sulfite (lbs)	10		10	
Propionate (lbs)	200		200	
Kelp (lbs)	50		50	
Nutrient (lbs)	10		10	
ZVI (lbs) 1-3 micron	226		226	
Mixture Volume (gal)	200		200	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 24'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/20/2018**

Time: **2:54 PM** to **3:20 PM**

PRB-S1 20	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'		21-23'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	267		267	
Vitamin B2 (grams)	125.4		125.4	
Vitamin B12 (grams)	18		18	
Yeast (lbs)	10		10	
Provect-IR (lbs)	300		300	
Sulfite (lbs)	10		10	
Propionate (lbs)	200		200	
Kelp (lbs)	50		50	
Nutrient (lbs)	10		10	
ZVI (lbs) 1-3 micron	226		226	
Mixture Volume (gal)	200		200	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 24'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/20/2018**

Time: **3:40 PM** to **4:04 PM**

PRB-S1 21	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'		21-23'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	267		267	
Vitamin B2 (grams)	125.4		125.4	
Vitamin B12 (grams)	18		18	
Yeast (lbs)	10		10	
Provect-IR (lbs)	300		300	
Sulfite (lbs)	10		10	
Propionate (lbs)	200		200	
Kelp (lbs)	50		50	
Nutrient (lbs)	10		10	
ZVI (lbs) 1-3 micron	226		226	
Mixture Volume (gal)	200		200	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 24'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/11-8/20/2018**

PRB S1 Summary

	Actual	Proposed
Red Yeast Rice (grams)	5773.875	6408
Vitamin B2 (grams)	2711.775	3009.6
Vitamin B12 (grams)	389.25	432
Yeast (lbs)	216.25	240
Provect-IR (lbs)	6487.5	7200
Sulfite (lbs)	216.25	240
Propionate (lbs)	4325	4800
Kelp (lbs)	1081.25	1200
Nutrient (lbs)	216.25	240
ZVI (lbs)	4887.25	5424
Mixture Volume (gal)	4015	4800

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/12/2018**

Time: _____ to _____ **12:42 PM** to **12:53 PM**

PRB-S2	Injection #1		Injection #2		Summary	
1	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	3	3		
Pathway Development (psi)		150	150	150		
Estimated ROI (ft)		7.5	8	7.5		
Red Yeast Rice (grams)	0	120	120	120	120	240
Vitamin B2 (grams)	0	56.4	56	56.4	56.4	112.8
Vitamin B12 (grams)	0	8.1	8	8.1	8.1	16.2
Yeast (lbs)	0	5	5	5	5	10
Provect-IR (lbs)	0	150	150	150	150	300
Sulfite (lbs)	0	5	5	5	5	10
Propionate (lbs)	0	113	113	113	113	226
Kelp (lbs)	0	38	38	38	38	76
Nutrient (lbs)	0	5	5	5	5	10
ZVI (lbs) 1-3 micron	0	106	106	106	106	212
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	50	50		

Other Field Observations: Daylighting occurred 5' S of IP

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/12/2018

Time: 1:55 PM to 2:23 PM; 1:18 PM to 1:54 PM

PRB-S2 2	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/12/2018**

Time:	**2:47 PM** to **2:58 PM**	**2:24 PM** to **2:46 PM**

PRB-S2 3	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/12/2018**

Time: **3:27 PM** to **3:59 PM** **4:08 PM** to **3:26 PM**

PRB-S2 4	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/12/2018**

Time: **4:38 PM** to **4:56 PM** **4:19 PM** to **4:37 PM**

PRB-S2 5	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Daylighting occurred after the post injection line purge, 8' W of MW-186

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/12/2018**

Time: to **4:58 PM** to **5:20 PM**

PRB-S2 6	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)		3	3	3		
Pathway Development (psi)		150	150	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	60	120	60	240
Vitamin B2 (grams)	0	56.4	28.2	56.4	28.2	112.8
Vitamin B12 (grams)	0	8.1	4.05	8.1	4.05	16.2
Yeast (lbs)	0	5	2.5	5	2.5	10
Provect-IR (lbs)	0	150	75	150	75	300
Sulfite (lbs)	0	5	2.5	5	2.5	10
Propionate (lbs)	0	113	56.5	113	56.5	226
Kelp (lbs)	0	38	19	38	19	76
Nutrient (lbs)	0	5	2.5	5	2.5	10
ZVI (lbs) 1-3 micron	0	106	53	106	53	212
Mixture Volume (gal)	0	100	50	100	50	200
Line Purge (psi)		50	50	50		

Other Field Observations: Slight surface escapes

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/12/2018**

Time: **6:20 PM** to **6:30 PM** **6:09 PM** to **6:19 PM**

PRB-S2	Injection #1		Injection #2		Summary	
7	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	22-24'	23-25'	19-24'	19-25'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/13/2018**

Time: **12:02 PM** to **12:31 PM** **11:51 AM** to **12:01 PM**

PRB-S2 8	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	240	120	120	120	360	240
Vitamin B2 (grams)	112.8	56.4	56.4	56.4	169.2	112.8
Vitamin B12 (grams)	16.2	8.1	8.1	8.1	24.3	16.2
Yeast (lbs)	10	5	5	5	15	10
Provect-IR (lbs)	300	150	150	150	450	300
Sulfite (lbs)	10	5	5	5	15	10
Propionate (lbs)	226	113	113	113	339	226
Kelp (lbs)	76	38	38	38	114	76
Nutrient (lbs)	10	5	5	5	15	10
ZVI (lbs) 1-3 micron	212	106	106	106	318	212
Mixture Volume (gal)	150	100	75	100	225	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: Switched to chemgrout pump, volume from S2-1 added here

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/13/2018

	Injection #1		Injection #2	
Time:	12:46 PM to 12:58 PM		12:33 PM to 12:46 PM	

PRB-S2 9	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/13/2018**

Time: **1:32 PM** to **1:45 PM** **1:21 PM** to **1:32 PM**

PRB-S2	Injection #1		Injection #2		Summary	
10	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: 1st attempt-DPT refusal at 2', point offset 4' N

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/13/2018**

Time: **2:20 PM** to **2:33 PM** **2:06 PM** to **2:18 PM**

PRB-S2	Injection #1		Injection #2		Summary	
11	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: Daylighting occurred 8' S of S2-8 after injection at 19-21'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/13/2018

Time: 2:56 PM to 3:03 PM; 2:42 PM to 2:55 PM

PRB-S2 12	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	60	120	120	120	180	240
Vitamin B2 (grams)	28.2	56.4	56.4	56.4	84.6	112.8
Vitamin B12 (grams)	4.05	8.1	8.1	8.1	12.15	16.2
Yeast (lbs)	2.5	5	5	5	7.5	10
Provect-IR (lbs)	75	150	150	150	225	300
Sulfite (lbs)	2.5	5	5	5	7.5	10
Propionate (lbs)	56.5	113	113	113	169.5	226
Kelp (lbs)	19	38	38	38	57	76
Nutrient (lbs)	2.5	5	5	5	7.5	10
ZVI (lbs) 1-3 micron	53	106	106	106	159	212
Mixture Volume (gal)	42.5	100	85	100	127.5	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/13/2018

Time: 3:47 PM to 3:54 PM; 3:33 PM to 3:46 PM

PRB-S2 13	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	79.2	120	120.0	120	199.2	240
Vitamin B2 (grams)	37.224	56.4	56.4	56.4	93.624	112.8
Vitamin B12 (grams)	5.346	8.1	8.1	8.1	13.446	16.2
Yeast (lbs)	3.3	5	5.0	5	8.3	10
Provect-IR (lbs)	99	150	150.0	150	249	300
Sulfite (lbs)	3.3	5	5.0	5	8.3	10
Propionate (lbs)	74.58	113	113.0	113	187.58	226
Kelp (lbs)	25.08	38	38.0	38	63.08	76
Nutrient (lbs)	3.3	5	5.0	5	8.3	10
ZVI (lbs) 1-3 micron	69.96	106	106.0	106	175.96	212
Mixture Volume (gal)	60	100	85	100	145	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/13/2018

Time: 5:03 PM to 5:13 PM 4:50 PM to 5:03 PM

PRB-S2	Injection #1		Injection #2		Summary	
14	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/13/2018

Time: 6:05 PM to 6:17 PM 5:50 PM to 6:03 PM

PRB-S2	Injection #1		Injection #2		Summary	
15	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	19-21'	19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	150	150	150	150	300	300
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	113	113	113	113	226	226
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	106	106	106	106	212	212
Mixture Volume (gal)	85	100	85	100	170	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/17/2018**

Time: **1:19 PM** to **1:43 PM**

PRB-S2 16	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	170	100	170	200
Line Purge (psi)		50	x	50		

Other Field Observations: lower interval doubled to reduce instances of daylighting

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/17/2018**

Time: _____ to _____ **2:10 PM** to **2:39 PM**

PRB-S2	Injection #1		Injection #2		Summary	
17	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	170	100	170	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/17/2018

Time: 2:45 PM to 3:17 PM

PRB-S2	Injection #1		Injection #2		Summary	
18	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	170	100	170	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/17/2018

Time: 3:20 PM to 3:46 PM

PRB-S2 19	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	200	100	200	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/17/2018

Time: to 3:52 PM to 4:20 PM

PRB-S2	Injection #1		Injection #2		Summary	
20	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	200	100	200	200
Line Purge (psi)		50	0	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/17/2018

Time: to 5:04 PM to 5:29 PM

PRB-S2 21	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	200	100	200	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: _____

Time: _____ to _____ _____ to _____

PRB-S2	Injection #1		Injection #2		Summary	
22	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'		23-25'		19-25'
Fracture Duration (sec)		3		3		
Pathway Development (psi)		150		150		
Estimated ROI (ft)		7.5		7.5		
Red Yeast Rice (grams)		120		120		240
Vitamin B2 (grams)		56.4		56.4		112.8
Vitamin B12 (grams)		8.1		8.1		16.2
Yeast (lbs)		5		5		10
Provect-IR (lbs)		150		150		300
Sulfite (lbs)		5		5		10
Propionate (lbs)		113		113		226
Kelp (lbs)		38		38		76
Nutrient (lbs)		5		5		10
ZVI (lbs) 1-3 micron		106		106		212
Mixture Volume (gal)		100		100		200
Line Purge (psi)		50		50		100

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/18/2018

Time: 11:01 AM to 11:38 AM

PRB-S2 23	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	23-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	200	100	200	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/18/2018

Time: 11:01 AM to 11:38 AM

PRB-S2 24	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		19-21'	23-25'	23-25'	19-25'	19-25'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	240	120	240	240
Vitamin B2 (grams)	0	56.4	112.8	56.4	112.8	112.8
Vitamin B12 (grams)	0	8.1	16.2	8.1	16.2	16.2
Yeast (lbs)	0	5	10	5	10	10
Provect-IR (lbs)	0	150	300	150	300	300
Sulfite (lbs)	0	5	10	5	10	10
Propionate (lbs)	0	113	226	113	226	226
Kelp (lbs)	0	38	76	38	76	76
Nutrient (lbs)	0	5	10	5	10	10
ZVI (lbs) 1-3 micron	0	106	212	106	212	212
Mixture Volume (gal)	0	100	200	100	200	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/11-8/18/2018**

PRB S2 Summary

	Actual	Proposed
Red Yeast Rice (grams)	5239.2	5760
Vitamin B2 (grams)	2462.424	2707.2
Vitamin B12 (grams)	353.646	388.8
Yeast (lbs)	218.3	240
Provect-IR (lbs)	6549	7200
Sulfite (lbs)	218.3	240
Propionate (lbs)	4933.58	5424
Kelp (lbs)	1659.08	1824
Nutrient (lbs)	218.3	240
ZVI (lbs)	4627.96	5088
Mixture Volume (gal)	4007.5	4800

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/14/2018**

Time: **12:03 PM** to **12:15 PM** **11:50 AM** to **12:00 PM**

PRB-S3	Injection #1		Injection #2		Summary	
1	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'	20-22'	24-26'	24-26'	21-26'	20-26'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	79.2	120	159.6	120	238.8	240
Vitamin B2 (grams)	37.224	56.4	75.012	56.4	112.236	112.8
Vitamin B12 (grams)	5.346	8.1	10.773	8.1	16.119	16.2
Yeast (lbs)	3.3	5	6.65	5	9.95	10
Provect-IR (lbs)	82.5	125	166.25	125	248.75	250
Sulfite (lbs)	3.3	5	6.65	5	9.95	10
Propionate (lbs)	58.08	88	117.04	88	175.12	176
Kelp (lbs)	25.08	38	50.54	38	75.62	76
Nutrient (lbs)	3.3	5	6.65	5	9.95	10
ZVI (lbs) 1-3 micron	70.62	107	142.31	107	212.93	214
Mixture Volume (gal)	50	100	100	100	150	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: Slight surface escapes after 21-23', dosages adjusted in attempt to minimize daylighting

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/14/2018**

Time: _____ to _____ **1:00 PM** to **1:15 PM**

PRB-S3 2	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	133	100	133	200
Line Purge (psi)		50	x	50		

Other Field Observations: daylighting around annulus during attempt at 21-23'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/14/2018**

Time: **2:34 PM** to **2:54 PM** **2:15 PM** to **2:34 PM**

PRB-S3 3	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	21-23'	20-22'	24-26'	24-26'	21-26'	20-26'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	79.2	120	159.6	120	238.8	240
Vitamin B2 (grams)	37.224	56.4	75.012	56.4	112.236	112.8
Vitamin B12 (grams)	5.346	8.1	10.773	8.1	16.119	16.2
Yeast (lbs)	3.3	5	6.65	5	9.95	10
Provect-IR (lbs)	82.5	125	166.25	125	248.75	250
Sulfite (lbs)	3.3	5	6.65	5	9.95	10
Propionate (lbs)	58.08	88	117.04	88	175.12	176
Kelp (lbs)	25.08	38	50.54	38	75.62	76
Nutrient (lbs)	3.3	5	6.65	5	9.95	10
ZVI (lbs) 1-3 micron	70.62	107	142.31	107	212.93	214
Mixture Volume (gal)	50	100	100	100	150	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/14/2018**

Time: _____ to _____ **3:03 PM** to **3:20 PM**

PRB-S3 4	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	20-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations: Daylighting occurred from near tree, after 24-26'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/14/2018**

Time: **4:08 PM** to **4:16 PM** **3:50 PM** to **4:08 PM**

PRB-S3 5	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	20-22'	20-22'	24-26'	24-26'	20-26'	20-26'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	125	125	125	125	250	250
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	88	88	88	88	176	176
Kelp (lbs)	38	38	38	38	76	76
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	107	107	107	107	214	214
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/16/2018**

Time: to **10:52 AM** to **11:06 AM**

PRB-S3 6	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	133	100	133	200
Line Purge (psi)		50	x	50		

Other Field Observations: Points moved to avoid large trees/roots

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/16/2018**

Time: **11:18 AM** to **11:37 AM**

PRB-S3	Injection #1		Injection #2		Summary	
7	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations: Point moved to avoid big trees/roots, daylighting occurred around rods/threads tightened and injection completed, shallow injection not attempted/daylighting concerns

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/16/2018**

Time: **11:51 AM** to **12:08 PM**

PRB-S3 8	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/16/2018**

Time: _____ to _____ **12:20 PM** to **12:36 PM**

PRB-S3	Injection #1		Injection #2		Summary	
9	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/16/2018

Time: 12:45 PM to 1:00 PM

PRB-S3	Injection #1		Injection #2		Summary	
10	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/16/2018

Time: 1:15 PM to 1:33 PM

PRB-S3	Injection #1		Injection #2		Summary	
11	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/16/2018

Time: 2:00 PM to 2:20 PM

PRB-S3 12	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone		20-22'	24-26'	24-26'	24-26'	20-26'
Fracture Duration (sec)		3	x	3		
Pathway Development (psi)		150	x	150		
Estimated ROI (ft)		7.5	7.5	7.5		
Red Yeast Rice (grams)	0	120	159.6	120	159.6	240
Vitamin B2 (grams)	0	56.4	75.012	56.4	75.012	112.8
Vitamin B12 (grams)	0	8.1	10.773	8.1	10.773	16.2
Yeast (lbs)	0	5	6.65	5	6.65	10
Provect-IR (lbs)	0	125	166.25	125	166.25	250
Sulfite (lbs)	0	5	6.65	5	6.65	10
Propionate (lbs)	0	88	117.04	88	117.04	176
Kelp (lbs)	0	38	50.54	38	50.54	76
Nutrient (lbs)	0	5	6.65	5	6.65	10
ZVI (lbs) 1-3 micron	0	107	142.31	107	142.31	214
Mixture Volume (gal)	0	100	100	100	100	200
Line Purge (psi)		50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **2018 Injections**

tu Reductive Dechlorination of Soil and Groundwater via Synergistic Technol

Date of Injection: **8/16/2018**

Time: **2:35 PM** to **2:55 PM**

PRB-S3	Injection #2		Summary	
13	Actual	Proposed	Actual	Proposed
Injection Zone	24-26'		24-26'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	0			
Red Yeast Rice (grams)	159.6		159.6	
Vitamin B2 (grams)	75.012		75.012	
Vitamin B12 (grams)	10.773		10.773	
Yeast (lbs)	6.65		6.65	
Provect-IR (lbs)	166.25		166.25	
Sulfite (lbs)	6.65		6.65	
Propionate (lbs)	117.04		117.04	
Kelp (lbs)	50.54		50.54	
Nutrient (lbs)	6.65		6.65	
ZVI (lbs) 1-3 micron	142.31		142.31	
Mixture Volume (gal)	100		100	
Line Purge (psi)	x			

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **2018 Injections**

tu Reductive Dechlorination of Soil and Groundwater via Synergistic Technol

Date of Injection: **8/16/2018**

Time: **3:15 PM** to **3:35 PM**

PRB-S3	Injection #2		Summary	
14	Actual	Proposed	Actual	Proposed
Injection Zone	24-26'		24-26'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	0			
Red Yeast Rice (grams)	159.6		159.6	
Vitamin B2 (grams)	75.012		75.012	
Vitamin B12 (grams)	10.773		10.773	
Yeast (lbs)	6.65		6.65	
Provect-IR (lbs)	166.25		166.25	
Sulfite (lbs)	6.65		6.65	
Propionate (lbs)	117.04		117.04	
Kelp (lbs)	50.54		50.54	
Nutrient (lbs)	6.65		6.65	
ZVI (lbs) 1-3 micron	142.31		142.31	
Mixture Volume (gal)	100		100	
Line Purge (psi)	x			

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **2018 Injections**

tu Reductive Dechlorination of Soil and Groundwater via Synergistic Technol

Date of Injection: **8/16/2018**

Time: **3:50 PM** to **4:10 PM**

PRB-S3	Injection #2		Summary	
15	Actual	Proposed	Actual	Proposed
Injection Zone	24-26'		24-26'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	0			
Red Yeast Rice (grams)	159.6		159.6	
Vitamin B2 (grams)	75.012		75.012	
Vitamin B12 (grams)	10.773		10.773	
Yeast (lbs)	6.65		6.65	
Provect-IR (lbs)	166.25		166.25	
Sulfite (lbs)	6.65		6.65	
Propionate (lbs)	117.04		117.04	
Kelp (lbs)	50.54		50.54	
Nutrient (lbs)	6.65		6.65	
ZVI (lbs) 1-3 micron	142.31		142.31	
Mixture Volume (gal)	100		100	
Line Purge (psi)	x			

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/14-8/16/2018**

PRB S3 Summary

	Actual	Proposed
Red Yeast Rice (grams)	2632.8	2880
Vitamin B2 (grams)	1237.416	1353.6
Vitamin B12 (grams)	177.714	194.4
Yeast (lbs)	109.7	120
Provect-IR (lbs)	2742.5	3000
Sulfite (lbs)	109.7	120
Propionate (lbs)	1930.72	2112
Kelp (lbs)	833.72	912
Nutrient (lbs)	109.7	120
ZVI (lbs)	2347.58	2568
Mixture Volume (gal)	1766	2400

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 7/31/2018

	Injection #1		Injection #2		Injection #3		Summary	
Time:	3:58 PM to 4:07 PM		3:40 PM to 3:56 PM		3:16 PM to 3:39 PM			
SE Plume 1	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	19-21'	19-21'	21-23'	23-25'	24-26'	27-29'	19-26'	19-29'
Fracture Duration (sec)	3	3	3	3	3	3		
Pathway Development (psi)	150	150	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	133.5	133.5	133.5	133.5	133.5	133.5	400.5	400.5
Vitamin B2 (grams)	62.7	62.7	62.7	62.7	62.7	62.7	188.1	188.1
Vitamin B12 (grams)	9.0	9.0	9.0	9.0	9.0	9.0	27	27
Yeast (lbs)	5	5	5	5	5	5	15	15
Provect-IR (lbs)	100	100	100	100	100	100	300	300
Sulfite (lbs)	5	5	5	5	5	5	15	15
Propionate (lbs)	83	83	83	83	83	83	249	249
Kelp (lbs)	25	25	25	25	25	25	75	75
Nutrient (lbs)	5	5	5	5	5	5	15	15
ZVI (lbs) 1-3 micron	37	37	37	37	37	37	111	111
Mixture Volume (gal)	100	100	100	100	100	100	300	300
Line Purge (psi)	50	50	50	50	50	50		

Other Field Observations: DPT refusal at 27'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **7/31/2018**

	Injection #1		Injection #2		Injection #3		Summary	
Time:	**5:09 PM** to **5:47 PM**		**4:44 PM** to **4:55 PM**		**4:21 PM** to **4:42 PM**			
SE Plume 2	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**21-23'**	**19-21'**	**22.5-24.5'**	**23-25'**	**25.5-27.5'**	**27-29'**	**21-27.5'**	**19-29'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**	**3**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**	**150**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**400.5**	**400.5**
Vitamin B2 (grams)	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**188.1**	**188.1**
Vitamin B12 (grams)	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**27**	**27**
Yeast (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
Provect-IR (lbs)	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
Propionate (lbs)	**83**	**83**	**83**	**83**	**83**	**83**	**249**	**249**
Kelp (lbs)	**25**	**25**	**25**	**25**	**25**	**25**	**75**	**75**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
ZVI (lbs) 1-3 micron	**37**	**37**	**37**	**37**	**37**	**37**	**111**	**111**
Mixture Volume (gal)	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**
Line Purge (psi)	**50**	**50**	**50**	**50**	**50**	**50**		

Other Field Observations: DPT refusal at 28.5'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **7/31/2018**

	Injection #1		Injection #2		Injection #3		Summary	
Time:	**6:30 PM** to **6:54 PM**		**6:04 PM** to **6:21 PM**		**5:53 PM** to **6:02 PM**			
SE Plume 3	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**21-23'**	**19-21'**	**23-25'**	**23-25'**	**25-27'**	**27-29'**	**21-27'**	**19-29'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**	**3**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**	**150**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**400.5**	**400.5**
Vitamin B2 (grams)	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**188.1**	**188.1**
Vitamin B12 (grams)	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**27**	**27**
Yeast (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
Provect-IR (lbs)	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
Propionate (lbs)	**83**	**83**	**83**	**83**	**83**	**83**	**249**	**249**
Kelp (lbs)	**25**	**25**	**25**	**25**	**25**	**25**	**75**	**75**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
ZVI (lbs) 1-3 micron	**37**	**37**	**37**	**37**	**37**	**37**	**111**	**111**
Mixture Volume (gal)	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**
Line Purge (psi)	**50**	**50**	**50**	**50**	**50**	**50**		

Other Field Observations: DPT refusal at 28'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/1/2018**

	Injection #1		Injection #2		Injection #3		Summary	
Time:	**10:42 AM** to **10:50 AM**		**10:20 AM** to **10:38 AM**		**10:04 AM** to **10:19 AM**			
SE Plume 4	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**21-23'**	**19-21'**	**23-25'**	**23-25'**	**25-27'**	**27-29'**	**21-27'**	**19-29'**
Fracture Duration (sec)	**3**	**3**	**3**	**3**	**6**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**	**175**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**133.5**	**400.5**	**400.5**
Vitamin B2 (grams)	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**62.7**	**188.1**	**188.1**
Vitamin B12 (grams)	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**27**	**27**
Yeast (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
Provect-IR (lbs)	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
Propionate (lbs)	**83**	**83**	**83**	**83**	**83**	**83**	**249**	**249**
Kelp (lbs)	**25**	**25**	**25**	**25**	**25**	**25**	**75**	**75**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**15**
ZVI (lbs) 1-3 micron	**37**	**37**	**37**	**37**	**37**	**37**	**111**	**111**
Mixture Volume (gal)	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**
Line Purge (psi)	**50**	**50**	**100**	**50**	**100**	**50**		

Other Field Observations: DPT refusal at 28'

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **7/31-8/1/2018**

SE Plume Summary

	Actual	Proposed
Red Yeast Rice (grams)	1602	1602
Vitamin B2 (grams)	752.4	752.4
Vitamin B12 (grams)	108	108
Yeast (lbs)	60	60
Provect-IR (lbs)	1200	1200
Sulfite (lbs)	60	60
Propionate (lbs)	996	996
Kelp (lbs)	300	300
Nutrient (lbs)	60	60
ZVI (lbs)	444	444
Mixture Volume (gal)	1200	1200

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/1/2018**

	Injection #1		Injection #2	
Time:	**2:19 PM** to **2:28 PM**		**1:34 PM** to **1:46 PM**	

Pilot PH II 1	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	100	100	100	100	200	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/1/2018

Time:	2:44 PM to 2:54 PM	2:33 PM to 2:43 PM

Pilot PH II 2	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/1/2018

Time: 3:48 PM to 3:53 PM 3:08 PM to 3:40 PM

Pilot PH II 3	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations: Tooling clogged 1st attempt

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/1/2018**

Time: **4:21 PM** to **4:36 PM** **4:10 PM** to **4:20 PM**

Pilot PH II 4	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	3	3	5	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/1/2018**

	Injection #1		Injection #2		Summary	
Time:	**4:48 PM** to **4:54 PM**		**4:40 PM** to **4:47 PM**			
Pilot PH II 5	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**
Injection Zone	**8-10'**	**8-10'**	**12-14'**	**12-14'**	**8-14'**	**8-14'**
Fracture Duration (sec)	**3**	**3**	**5**	**3**		
Pathway Development (psi)	**150**	**150**	**150**	**150**		
Estimated ROI (ft)	**7.5**	**7.5**	**7.5**	**7.5**		
Red Yeast Rice (grams)	**120**	**120**	**120**	**120**	**240**	**240**
Vitamin B2 (grams)	**56.4**	**56.4**	**56.4**	**56.4**	**112.8**	**112.8**
Vitamin B12 (grams)	**8.1**	**8.1**	**8.1**	**8.1**	**16.2**	**16.2**
Yeast (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Provect-IR (lbs)	**88**	**88**	**88**	**88**	**176**	**176**
Sulfite (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
Propionate (lbs)	**75**	**75**	**75**	**75**	**150**	**150**
Kelp (lbs)	**25**	**25**	**25**	**25**	**50**	**50**
Nutrient (lbs)	**5**	**5**	**5**	**5**	**10**	**10**
ZVI (lbs) 1-3 micron	**29**	**29**	**29**	**29**	**58**	**58**
Mixture Volume (gal)	**75**	**100**	**75**	**100**	**150**	**200**
Line Purge (psi)	**50**	**50**	**50**	**50**		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/1/2018**

	Injection #1		Injection #2	
Time:	**5:20 PM** to **5:30 PM**		**5:03 PM** to **5:16 PM**	

Pilot PH II 6	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	3	3	3	3		
Pathway Development (psi)	150	150	150	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	75	100	75	100	150	200
Line Purge (psi)	50	50	50	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

Time: **11:08 AM** to **11:17 AM** **10:56 AM** to **11:06 AM**

Pilot PH II 7	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	50	100	50	100	100	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: chemgrout pump used due to proximity to buildings

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: **8/2/2018**

	Injection #1		Injection #2	
Time:	**11:42 AM** to **11:50 AM**		**11:35 AM** to **11:42 AM**	

Pilot PH II 8	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	50	100	50	100	100	200
Line Purge (psi)	x	50	x	50		

Other Field Observations: chemgrout pump used due to proximity to buildings

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: Whirlpool-Fort Smith AR 2018 Injections

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Date of Injection: 8/2/2018

Time: 12:06 PM to 12:13 PM; 11:57 AM to 12:05 PM

Pilot PH II 9	Injection #1		Injection #2		Summary	
	Actual	Proposed	Actual	Proposed	Actual	Proposed
Injection Zone	8-10'	8-10'	12-14'	12-14'	8-14'	8-14'
Fracture Duration (sec)	x	3	x	3		
Pathway Development (psi)	x	150	x	150		
Estimated ROI (ft)	7.5	7.5	7.5	7.5		
Red Yeast Rice (grams)	120	120	120	120	240	240
Vitamin B2 (grams)	56.4	56.4	56.4	56.4	112.8	112.8
Vitamin B12 (grams)	8.1	8.1	8.1	8.1	16.2	16.2
Yeast (lbs)	5	5	5	5	10	10
Provect-IR (lbs)	88	88	88	88	176	176
Sulfite (lbs)	5	5	5	5	10	10
Propionate (lbs)	75	75	75	75	150	150
Kelp (lbs)	25	25	25	25	50	50
Nutrient (lbs)	5	5	5	5	10	10
ZVI (lbs) 1-3 micron	29	29	29	29	58	58
Mixture Volume (gal)	50	100	50	100	100	200
Line Purge (psi)	x	50	x	50		

Other Field Observations:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: **8/1, 8/2/2018**

Pilot PH II Summary

	Actual	Proposed
Red Yeast Rice (grams)	2160	2160
Vitamin B2 (grams)	1015.2	1015.2
Vitamin B12 (grams)	145.8	145.8
Yeast (lbs)	90	90
Provect-IR (lbs)	1584	1584
Sulfite (lbs)	90	90
Propionate (lbs)	1350	1350
Kelp (lbs)	450	450
Nutrient (lbs)	90	90
ZVI (lbs)	522	522
Mixture Volume (gal)	1250	1800

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/21/2018**

Time: **3:35 PM** to **3:53 PM**

TMW25 1	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	26-28'		26-28'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	219.125	175.3	219.125	
Vitamin B2 (grams)	102.9	82.3	102.9	
Vitamin B12 (grams)	14.75	11.8	14.75	
Yeast (lbs)	8.75	7	8.75	
Provect-IR (lbs)	253.25	203	253.25	
Sulfite (lbs)	8.75	7	8.75	
Propionate (lbs)	179.2375	143.39	179.2375	
Kelp (lbs)	56.5625	45	56.5625	
Nutrient (lbs)	8.75	7	8.75	
ZVI (lbs) 1-3 micron	190.125	152.1	190.125	
Mixture Volume (gal)	100		100	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 29'

Daylighting occurred near marked utility line

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/21/2018**

Time: **3:56 PM** to **4:30 PM**

TMW25 2	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	26-28'		26-28'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	482.075	175.3	482.075	
Vitamin B2 (grams)	226.38	82.3	226.38	
Vitamin B12 (grams)	32.45	11.8	32.45	
Yeast (lbs)	19.25	7	19.25	
Provect-IR (lbs)	557.15	203	557.15	
Sulfite (lbs)	19.25	7	19.25	
Propionate (lbs)	394.3225	143.39	394.3225	
Kelp (lbs)	124.4375	45	124.4375	
Nutrient (lbs)	19.25	7	19.25	
ZVI (lbs) 1-3 micron	418.275	152.1	418.275	
Mixture Volume (gal)	220		220	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 29'
Extra volume added here

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/21/2018**

Time: **4:45 PM** to **5:14 PM**

TMW25 3	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	26-28'		26-28'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	350.6	175.3	350.6	
Vitamin B2 (grams)	164.64	82.3	164.64	
Vitamin B12 (grams)	23.6	11.8	23.6	
Yeast (lbs)	14	7	14	
Provect-IR (lbs)	405.2	203	405.2	
Sulfite (lbs)	14	7	14	
Propionate (lbs)	286.78	143.39	286.78	
Kelp (lbs)	90.5	45	90.5	
Nutrient (lbs)	14	7	14	
ZVI (lbs) 1-3 micron	304.2	152.1	304.2	
Mixture Volume (gal)	160		160	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 29'
Extra volume added here

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

n-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologie

Date of Injection: **8/21/2018**

Time: **5:20 PM** to **5:50 PM**

TMW25 4	Injection #3		Summary	
	Actual	Proposed	Actual	Proposed
Injection Zone	26-28'		26-28'	
Fracture Duration (sec)	x			
Pathway Development (psi)	x			
Estimated ROI (ft)	7.5			
Red Yeast Rice (grams)	350.6	175.3	350.6	
Vitamin B2 (grams)	164.64	82.3	164.64	
Vitamin B12 (grams)	23.6	11.8	23.6	
Yeast (lbs)	14	7	14	
Provect-IR (lbs)	405.2	203	405.2	
Sulfite (lbs)	14	7	14	
Propionate (lbs)	286.78	143.39	286.78	
Kelp (lbs)	90.5	45	90.5	
Nutrient (lbs)	14	7	14	
ZVI (lbs) 1-3 micron	304.2	152.1	304.2	
Mixture Volume (gal)	160		160	
Line Purge (psi)	x			

Other Field Observations: Added location, DPT refusal at 29'
Extra volume added here

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES, INC.

Job Name: **Whirlpool-Fort Smith AR** **2018 Injections**

In-Situ Reductive Dechlorination of Soil and Groundwater via Synergistic Technologies

Dates of Injection: 7/31/18-8/21/18

Site Summary

	Actual	Proposed
Red Yeast Rice (grams)	32250	32250
Vitamin B2 (grams)	15155	15155
Vitamin B12 (grams)	2176	2176
Yeast (lbs)	1310	1310
Provect-IR (lbs)	34184	34184
Sulfite (lbs)	1310	1310
Propionate (lbs)	25882	25882
Kelp (lbs)	8266	8266
Nutrient (lbs)	1310	1310
ZVI (lbs)	18254	18254
Mixture Volume (gal)	21874	26200

Appendix B
Reagent Material Safety Data Sheets

NIACET CORPORATION
400 47th St.
Niagara Falls, NY 14304
Fax (716) 285 1497
Ph (716) 285 1474

MSDS
NIACET
CALCIUM PROPIONATE

Issued: January 2006

EMERGENCY PHONE NUMBER: (800) 424 9300, (202) 483-7616

MATERIAL SAFETY DATA SHEET
CALCIUM PROPIONATE

SECTION I - PRODUCT IDENTIFICATION

Product Name: **NIACET Calcium Propionate, FCC**
Chemical Synonyms: **Cal Prop, CP**
Chemical Family: **organic acid, calcium salt**
Chemical Formula: **$(C_3H_5O_2)_2Ca$**

SECTION II - INGREDIENTS

	% by wt.	CAS #
Calcium Propionate (dry basis)	**99 min**	**4075-81-4**
Water	**5 max**	**7732-18-5**

SECTION III - PHYSICAL DATA

Molecular Weight: **186.22**
Appearance: **white powder, granules, or crystals**
pH of 10% Aq Soln: **7.5 to 10.5**
Odor: **odorless**
Melting Point: **400 'C (decomposes)**
Boiling Point: **not applicable**
Vapor Pressure: **not applicable**
Bulk Density: **approx. 45 lbs./cu. ft.**
Solubility in Water: **28.5% in water at 20'C**
Reactivity in Water: **does not react**

SECTION IV - FIRE & EXPLOSION HAZARD

Flash Point: **None by Tag Closed Cup**
Flammable Limits: **Not Determined** **Auto-Ignition Temperature: Not Applicable**
Unusual Hazards: **Avoid dispersion of dust to minimize possible explosion hazard.**
Extinguishing Media: **Appropriate media for surrounding fire.**

SECTION V - REACTIVITY DATA

Hazardous Decomposition Products: **Carbon monoxide**
Hazardous Polymerization: **Will not occur.**
Incompatibility: **Strong oxidizing agents**

SECTION VI - TOXICITY DATA

Calcium Propionate is a non-toxic food chemical Generally Recognized As Safe by the FDA

Occupational Exposure: No exposure limits have been set by OSHA, NIOSH or ACGIH.
Carcinogen: **IARC: NO, NTP: NO, OSHA: NO**

NIACET CORPORATION
400 47th St.
Niagara Falls, NY 14304
Fax (716) 285 1497
Ph (716) 285 1474

Issued: January 2006

EMERGENCY PHONE NUMBER: (800) 424 9300, (202) 483-7616

SECTION VII - HEALTH HAZARD INFORMATION

Primary Routes of Exposure:
Ingestion: If swallowed, wash mouth out with water.
Eye Contact: Can cause irritation. Flush with water for at least 15 minutes, hold eyelids open. Get medical attention.
Skin Contact: May cause irritation of the skin. Wash area with soap and water. Get medical attention if irritation persists.
Inhalation: If irritation develops, remove to fresh air.

Effects of Overexposure:
Dust, in high concentration, may cause irritation of eyes, nose and throat.

Medical Conditions Aggravated by Exposure:
None identified. Handle with reasonable care.

SECTION VIII - EMPLOYEE PROTECTION

Protective Clothing: Appropriate work apparel. Plastic or rubber gloves optional.
Eye Protection: Safety glasses should always be worn when working with chemicals.
Respiratory Protection: Material should be handled in a manner that does not produce airborne particles. If dust is a problem a dust mask or respirator is recommended.

SECTION IX - SPILL AND DISPOSAL PROCEDURES

Action to be taken for Spills:
Wear suitable protective clothing including a respirator or dust mask. Sweep up spillage and collect for disposal. Wash down area with large quantities of water.

Disposal Methods:
Material is biodegradable. Dispose of in accordance with applicable Federal, state and local regulations.

SECTION X - OTHER REGULATORY CONTROLS

Calcium Propionate	**TSCA Inventory:**	**YES (all ingredients)**
	OSHA Hazard:	**NO**
	Regulated under RECRA:	**NO**
	Regulated under CERCLA:	**NO**
	Regulated under SARA Title III:	**NO**

The information herein is given in good faith and believed to be accurate and has been compiled from sources believed to be reliable. Buyer assumes all risk of use, storage and handling of this product in compliance with applicable federal. State, and local laws and regulations.

Material Safety Data Sheet

Nitrogen

Section 1. Chemical product and company identification

Product name : Nitrogen

Supplier : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Product use : Synthetic/Analytical chemistry. Liquid – cryogenic coolant.

Synonym : nitrogen (dot); nitrogen gas; Nitrogen NF, LIN, Cryogenic Liquid Nitrogen, Liquid Nitrogen

MSDS # : 001040

Date of Preparation/Revision : **1/14/2011.**

In case of emergency : 1-866-734-3438

Section 2. Hazards identification

Physical state : Gas. [NORMALLY A COLORLESS GAS: MAY BE A CLEAR COLORLESS LIQUID AT LOW TEMPERATURES. SOLD AS A COMPRESSED GAS OR LIQUID IN STEEL CYLINDERS.]

Emergency overview : WARNING!

GAS:
CONTENTS UNDER PRESURE.
Do not puncture or incinerate container.
Can cause rapid suffocation.
May cause severe frostbite.
LIQUID:
Extremely cold liquid and gas under pressure.
Can cause rapid suffocation.
May cause severe frostbite.

Do not puncture or incinerate container.

Contact with rapidly expanding gases or liquids can cause frostbite.

Routes of entry : Inhalation

Potential acute health effects

Eyes : Contact with rapidly expanding gas may cause burns or frostbite. Contact with cryogenic liquid can cause frostbite and cryogenic burns.

Skin : Contact with rapidly expanding gas may cause burns or frostbite. Contact with cryogenic liquid can cause frostbite and cryogenic burns.

Inhalation : Acts as a simple asphyxiant.

Ingestion : Ingestion is not a normal route of exposure for gases. Contact with cryogenic liquid can cause frostbite and cryogenic burns.

Medical conditions aggravated by over-exposure : Acute or chronic respiratory conditions may be aggravated by overexposure to this gas.

See toxicological information (Section 11)

Section 3. Composition, Information on Ingredients

Name	CAS number	% Volume	Exposure limits
Nitrogen	7727-37-9	100	Oxygen Depletion [Asphyxiant]

Section 4. First aid measures

No action shall be taken involving any personal risk or without suitable training.If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : None expected.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : As this product is a gas, refer to the inhalation section.

Section 5. Fire-fighting measures

Flammability of the product : Non-flammable.

Products of combustion : Decomposition products may include the following materials:
nitrogen oxides

Fire-fighting media and instructions : Use an extinguishing agent suitable for the surrounding fire.

Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk.

Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : Immediately contact emergency personnel. Stop leak if without risk. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7. Handling and storage

Handling : High pressure gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
Never allow any unprotected part of the body to touch uninsulated pipes or vessels that contain cryogenic liquids. Prevent entrapment of liquid in closed systems or piping without pressure relief devices. Some materials may become brittle at low temperatures and will easily fracture.

Storage : Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).
For additional information concerning storage and handling refer to Compressed Gas Association pamphlets P-1 Safe Handling of Compressed Gases in Containers and P-12 Safe Handling of Cryogenic Liquids available from the Compressed Gas Association, Inc.

Section 8. Exposure controls/personal protection

Engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

When working with cryogenic liquids, wear a full face shield.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Insulated gloves suitable for low temperatures

Personal protection in case of a large spill : Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product.

Product name

Nitrogen	Oxygen Depletion [Asphyxiant]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Molecular weight : 28.02 g/mole

Molecular formula : N2

Boiling/condensation point : -195.8°C (-320.4°F)

Melting/freezing point : -210°C (-346°F)

Critical temperature : -146.9°C (-232.4°F)

Vapor density : 0.967 (Air = 1) Liquid Density@BP: 50.46 lb/ft3 (808.3 kg/m3)

Specific Volume (ft^3/lb) : 13.8889

Gas Density (lb/ft^3) : 0.072

Section 10. Stability and reactivity

Stability and reactivity : The product is stable.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Toxicity data

Other toxic effects on humans : No specific information is available in our database regarding the other toxic effects of this material to humans.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Aquatic ecotoxicity

Not available.

Environmental fate : Not available.

Environmental hazards : No known significant effects or critical hazards.

Toxicity to the environment : Not available.

Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation.Return cylinders with residual product to Airgas, Inc.Do not dispose of locally.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1066 UN1977	NITROGEN, COMPRESSED Nitrogen, refrigerated liquid	2.2	Not applicable (gas).		**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg
TDG Classification	UN1066 UN1977	NITROGEN, COMPRESSED Nitrogen, refrigerated liquid	2.2	Not applicable (gas).		**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75
Mexico Classification	UN1066 UN1977	NITROGEN, COMPRESSED Nitrogen, refrigerated liquid	2.2	Not applicable (gas).		-

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Section 15. Regulatory information

United States

U.S. Federal regulations :

TSCA 8(a) IUR: Partial exemption
United States inventory (TSCA 8b): This material is listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Nitrogen
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nitrogen: Sudden release of pressure

State regulations :

Connecticut Carcinogen Reporting: This material is not listed.
Connecticut Hazardous Material Survey: This material is not listed.
Florida substances: This material is not listed.
Illinois Chemical Safety Act: This material is not listed.
Illinois Toxic Substances Disclosure to Employee Act: This material is not listed.
Louisiana Reporting: This material is not listed.
Louisiana Spill: This material is not listed.
Massachusetts Spill: This material is not listed.
Massachusetts Substances: This material is listed.
Michigan Critical Material: This material is not listed.
Minnesota Hazardous Substances: This material is not listed.
New Jersey Hazardous Substances: This material is listed.
New Jersey Spill: This material is not listed.
New Jersey Toxic Catastrophe Prevention Act: This material is not listed.
New York Acutely Hazardous Substances: This material is not listed.
New York Toxic Chemical Release Reporting: This material is not listed.
Pennsylvania RTK Hazardous Substances: This material is listed.
Rhode Island Hazardous Substances: This material is not listed.

Canada

WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

United States

Label requirements :

GAS:
CONTENTS UNDER PRESURE.
Do not puncture or incinerate container.
Can cause rapid suffocation.
May cause severe frostbite.
LIQUID:
Extremely cold liquid and gas under pressure.
Can cause rapid suffocation.
May cause severe frostbite.

Canada

Label requirements : Class A: Compressed gas.

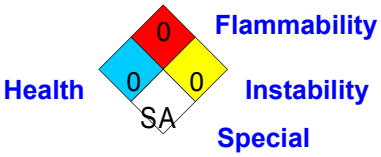
Hazardous Material Information System (U.S.A.) :

Health	0
Flammability	0
Physical hazards	0

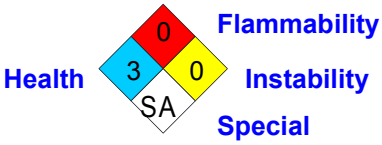
liquid:

Health	3
Fire hazard	0
Reactivity	0
Personal protection	

National Fire Protection Association (U.S.A.) :



liquid:



Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

NATURAL SOURCING™
Specialists in Cosmeceutical Ingredients

341 Christian Street, Oxford, CT 06478 USA
Tel: (203) 267-6061 Fax: (203) 267-6065
www.naturalsourcing.com info@naturalsourcing.com

MATERIAL SAFETY DATA SHEET

ORGANIC KELP POWDER

(Ascophyllum nodosum)

MSDS

1. PRODUCT NAME AND COMPANY IDENTIFICATION

Product Name:	**ORGANIC KELP POWDER (Ascophyllum nodosum)**
Product Use:	Personal Care Formulations
Company Name:	Natural Sourcing
Company Address:	341 Christian Street, Oxford, CT 06478, USA
Date Issued:	7/1/2008
Emergency Telephone Number:	**Chemtrec Tel: (800) 262-8200**

2. COMPOSITION/INGREDIENT INFORMATION

Ingredients:	**Concentration %**
Ascophyllum nodosum (Kelp)	100%, Powdered
Hazardous Components:	None

3. HAZARDS IDENTIFICATION

Routes of Entry

Eyes:	Mild Irritation may occur
Skin:	No known hazard
Inhalation:	No known hazard
Ingestion:	No known hazard

4. FIRST AID MEASURES

Eyes:	Flush with plenty of water or eye wash solution for 15 minutes. Get medical attention if irritation persists.

5. FIRE FIGHTING MEASURES

Extinguishing Media:	Water Spray, Foam, Powder and Carbon Dioxide
Special Firefighting Procedures:	N/A
Unusual Fire & Explosion Hazards:	N/A

6. ACCIDENTAL RELEASE MEASURES (STEPS FOR SPILLS)

Precautions:	N/A
Methods for Cleaning Up:	Sweep up or flush with water and dispose of according to local regulations.

7. HANDLING AND STORAGE

Safe Handling:	Wear safety glasses, Wear dusk mask
Requirements for Storage Areas and Containers:	Keep container closed, away from sunlight and protected from humidity.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Eye:	Safety glasses should be worn.
Skin/Body:	Gloves should be worn.
Respiratory:	Wear dusk mask.
Ventilation:	Ensure good ventilation of the work situation.
Other:	Evaluate need based on application.
Work/Hygiene Practice:	Normal work and hygiene practices

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	Green
Odor:	Characteristic, fish-like

10. STABILITY AND REACTIVITY

Stability:	Stable
Incompatibility (Materials to Avoid):	N/A
Hazardous Decomposition or Byproducts:	N/A
Conditions to Avoid:	Avoid contamination of product, sunlight and damp conditions.

11. TOXICOLOGICAL INFORMATION

Toxicity Data:	Non toxic

12. ECOLOGICAL INFORMATION

Persistence and Degradability:	Easily Degradable

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods:	Dispose of according to local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT Classification:	Not classified

15. REGULATORY INFORMATION

No Information

16. ADDITIONAL INFORMATION

This information is provided for documentation purposes only.
This product is not considered hazardous.

The complete range of conditions or methods of use are beyond our control therefore we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate however, all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

This safety sheet cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers.

130 Research Lane, Suite 2 Guelph◆Ontario ◆ N1G 5G3 ◆ Canada ◆ Tel: (519) 822-2265 ◆ Fax: (519) 822-3151

KB-1® Dechlorinator Material Safety Data Sheet

Section 1: Material Identification

Trade Name: KB-1® Dechlorinator
Chemical Family:
Chemical name:
Manufacturer/Supplier:

For Information call:
Emergency Number:
Description:
Trade Name:
Product Use:
Date Prepared:

Section 2: Composition, Information on Ingredients

Section 3: Hazards Identification:

Section 4: First Aid Measures:

Table 1. Genus' identified in KB-1® Dechlorinator Microbial Inoculum

Genus
Dehalococcoides
Geobacter sp.
Methanomethylovorans sp.

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Eye Contact:

Skin Contact

Ingestion:

Inhalation:

Section 5 - Fire Fighting Measures:

Section 6 – Accidental Release Procedures

Section 7 - Handling and Storage

Storage Requirements:

Section 8 - Exposure Controls/Personal Protection

Personal protective equipment:

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Section 9: Physical and Chemical Properties:

Section 10 – Stability and Reactivity Data

Section 11 - Toxicological Information

Table 2, Results of Human Pathogen Screening of KB-1® Dechlorinator

Organism	Disease(s) Caused	*Test result*
Salmonella		
Listeria monocytogenes		
Vibrio sp.,		
Campylobacter sp.,		
Clostridia sp.,		
Bacillus anthracis		
Pseudomonas aeruginosa		
Yersinia sp.,		
Enterococci		

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Section 12. Disposal Considerations

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Section 13 – Transport Information

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Disclaimer:

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MATERIAL SAFETY DATA SHEET

24- HOUR EMERGENCY ASSISTANCE:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES: 1-888-721-8283
CHEMTREC 1-800-424-9300

MANUFACTURER:

INNOVATIVE ENVIRONMENTAL TECHNOLOGIES
6130 KIT ROAD
PIPERSVILLE, PA 18947
888-721-8283

PRODUCT IDENTIFICATION:

TRADE NAME: BIO IET-3
COMPONENTS:

1. Urea
   - CAS Number: 57-13-6
   - Synonym(s): Carbamide; Carbonyldiamine; Carbanidic Acid
   - Chemical Family: Amide
   - Molecular Formula: CH_4N_2O
   - Molecular Weight: 60.07
2. Diammonomium Phosphate (DAP)
   - CAS Number: 7783-28-0
   - Synonym(s): Ammonium phosphate; Diammonium hydrogen phosphate; Dibasic Ammonium Phosphate
   - Chemical Family: Salt
   - Molecular Formula: $(NH_4)_2HPO_4$
   - Molecular Weight: 132.0
3. Monosodium Phosphate (MSP)
   - CAS Number: 7558-80-7
   - Synonym(s): Sodium acid phosphate; Sodium phosphate monobasic; Sodium dihydrogen phosphate
   - Chemical Family: Salt
   - Molecular Formula: NaH_2PO_4
   - Molecular Weight: 119.98

PRODUCT HAZARD SUMMARY:

HEALTH: May be harmful if swallowed. May be irritating to the skin, eyes and respiratory tract. Heated material may cause thermal burns.

FLAMMABILITY: Non-combustible

REACTIVITY: Stable

PRODUCT HEALTH HAZARD INFORMATION:

INGESTION: Slightly toxic. Domestic animal oral LD50 of Urea is 511 mg/kg. Acute oral LD50 of Diammonium Phosphate is > 1,000 mg/kg in male rats. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, diarrhea.

SKIN: Slightly irritating. Repeated or prolonged skin contact may cause reddening, itching, and inflammation. Contact with heated material may cause thermal burns.

INHALATION: May cause respiratory tract irritation.

SPECIAL TOXIC EFFECTS: Asthmatics exposed to dust may have difficulty in breathing. Urea is a naturally occurring chemical in the body. It is an end product of protein metabolism and is excreted in the urine.

FIRST AID

INGESTION: Do not induce vomiting. Keep affected person warm and at rest. Get medical attention.

SKIN CONTACT: Wash area of contact thoroughly with soap and water. Launder clothing before reuse. Get medical attention if irritation persists. For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible, submerge area in cold water. Pack with ice. Thermal burns require immediate attention.

EYE CONTACT: Flush immediately with large amounts of water for at least fifteen minutes. Eyelids should be held away from eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION: Removed affected person from source of exposure. If not breathing, ensure open airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Get medical attention.

PERSONAL PROTECTION INFORMATION:

EYE PROTECTION: Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION: Wear impervious gloves and protective clothing to prevent skin contact. Suggested protective materials are butyl rubber.

RESPIRATORY PROTECTION: None normally needed. Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. NIOSH?MSHA approved breathing equipment must be available for non-routine and emergency use.

PHYSICAL PROPERTIES:

BIOLING POINT:	Decomposes	
SPECIFIC GRAVITY:	NA	
MELTING POINT:	133-211 C (271-412 F); DAP decomposes at 155 C (311 F)	
% VOLATILE:	NA	
VAPOR PRESSURE:	NA	
EVAPORATION RATE (WATER-1)	NA	
VAPOR DENSITY (AIR=1)	NA	
VISCOSITY:	NA	
% SOLUBILITY IN WATER, GM/100 GM @ 25C	Urea	119
	DAP	41
	MSP	71
OCTANOL/WATER PARTITION COEFFICIENT:	ND	
POUR POINT:	NA	
pH	ND	

APPEARANCE/ODOR: White granules with little or no odor. Ammonia odor will develop upon long standing

FIRE AND EXPLOSION DATA:

FLASH POINT	NA
AUTOIGNITION TEMPERATURE:	NA
FLAMMABILITY LIMITS IN AIR (% BY VOLUME); LOWER:	NA
FLAMMABILITY LIMITS IN AIR (% BY VOLUME); UPPER:	NA

BASIC FIREFIGHTING PROCEDURES: Use extinguishing agent suitable for type of surrounding fire. Material itself burns with great difficulty. Urea becomes slippery when wet. Guard against falls.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Fire may produce poisonous or irritating gas, fumes or vapor. Irritating or toxic substances may be emitted upon thermal decomposition. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus with full face mask and full protective equipment. Uncontaminated Urea, DAP and MSP are not explosion hazards. They may form explosive mixtures subject to spontaneous dentonation when contaminated with strong acids (nitric, picric, perchloric) or nitrate fertilizers. At elevated temperature, dry Urea may omit ammonia. Wet Urea may hydrolyze to corrosive ammonium carbamate. Aqueous solution of Urea at elevated temperature may decompose to highly toxic hydrogen cyanide. DAP decomposes upon heating to ammonia and polyphosphoric acid.

REACTIVITY DATA:

STABILITY/INCOMPATIBILITY: Stable when stored dry at up to 160 F and atmospheric pressure. Avoid contact with strong oxidizers, acids and bases, and nitrates. Decomposes to ammonia, biuret, NO_x, CO_x, and polyphoshoric acid.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS: Thermal decomposition products may be hazardous. Urea reactions with sodium or calcium hypochlorite to form explosive nitrogen trichloride. DAP heated with ammonium nitrate at 170 C or higher forms explosive nitroguinidine. Diammonium phosphate wil react with alkali to liberate ammonium.

ENVIRONMENTAL INFORMATION:

SPILL OR RELEASE TO THE ENVIRONMENT: No special procedures are required for clean-up of this material. Avoid methods that result in water pollution. Caution should be exercised regarding personnel safety and exposure to the material as set forth elsewhere in this data sheet.

EMERGENY ACTION: Keep unnecessary people away.

WASTE DISPOSAL: This substance, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulation; however, it could be hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additional, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. If such contact or mixing have occurred, check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, and 264 apply.

The transportation, storage, treatment and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

SARA TITLE III INFORMATION: Listed here are the hazard categories for the Superfun Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate hazard-no- Delayed Hazard-no-Fire Hazard-no-Pressure Hazard-no Reactivity Hazard-no

REGULATORY INFORMATION:

HANDLING/STORAGE: Store in tightly closed containers in cool, dry, isolated, well ventilated area away from heat, sources of ignition and incompatibles. Avoid contamination with other "look-alike" materials that may produce explosion hazard (see Unusual Fire and Explosion Hazards section).

EMPTY CONTAINERS: Empty containers may contain product residue. Do not reuse without adequate precautions.

TRANSPORTATION REQUIREMENTS:

D.O.T. Proper Shipping Name (49 CFR 172.101)	NA
D.O.T. Hazard Class (49 CFR 172.101)	NA
UN/NA Code (40 CFR 172.101)	NA
Bill of Lading Description (49 CFR 172.202)	BIO IET-3
D.O.T. Labels Required (49 CFR 172.101)	NA
D.O.T. Placards Required	NA

INGREDIENTS AND HEALTH HAZARD INFORMATION:

COMPONENTS	CAS NUMBER	%	EXPOSURE LIMITS. REF
Urea	57-13-6	50	10 mg/m^3 (total) TLV as nuisance dust
DAP	7783-28-0	25	ND
MSP	7558-80-7	25	ND

Revision Date: April 9, 2009

NA= Not Applicable
ND= No Data

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 Reviewed on 05/30/2014

* 1 Identification

· **Product identifier**

· **Trade name: Provect-IR Antimethanogenic ISCR Reagent**
· **Product description**
Remediation product for the treatment of soil, sediment and groundwater. Not for use in potable water sources.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Provectus Environmental Products
2871 W. Forest Road
Suite 2
Freeport, IL 61032
Phone: 815-650-2230
Fax: 815-650-2232
www.provectusenvironmental.com
· **Emergency telephone number:** 815-650-2230

* 2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Non-Regulated Material
· **Hazard pictograms** Non-Regulated Material
· **Signal word** Non-Regulated Material
· **Hazard statements** Non-Regulated Material
· **Hazard description:**
CONTAINMENT HAZARD: Any vessel that contains wetted reagent must be vented due to potential pressure build up from fermentation gases.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 1
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 1
Reactivity = 0

* 3 Composition/information on ingredients

7439-89-6	iron	5-40%
4075-81-4	calcium dipropionate	2 - 4%
	Proprietary Organic Carbon Sources	48-90%

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

8013-01-2	Yeast extracts	STOT SE 3, H335	0.5 - 2%

(Contd. on page 2)

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 Reviewed on 05/30/2014

Trade name: Provect-IR Antimethanogenic ISCR Reagent

(Contd. of page 1)

9000-30-0	Guar gum	STOT SE 3, H335; Eye Irrit. 2B, H320; Combustible Dust	0.5 - 2%
7757-83-7	sodium sulphite	Acute Tox. 4, H302	1 - 2%

· ***Additional information:*** Product contains red yeast rice

4 First-aid measures

· ***Description of first aid measures***
· ***After inhalation:*** Remove person to fresh air. If signs/symptons continue, get medical attention.
· ***After skin contact:*** Wash off with soap and water. Get medical attention if irritation develops.
· ***After eye contact:*** Flush with water for 5 minutes
· ***After swallowing:***
Rinse mouth with water and afterwards drink plenty of milk or water. Call a poson control center or doctor immediately for treatment advice.
· ***Most important symptoms and effects, both acute and delayed*** No further relevant information available.
· ***Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

5 Fire-fighting measures

· ***Extinguishing media***
· ***Suitable extinguishing agents:***
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· ***Special hazards arising from the substance or mixture*** No further relevant information available.
· ***Advice for firefighters***
· ***Protective equipment:*** No special measures required.

* 6 Accidental release measures

· ***Personal precautions, protective equipment and emergency procedures*** Not required.
· ***Environmental precautions:*** Do not allow to enter sewers/ surface or ground water.
· ***Methods and material for containment and cleaning up:***
Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Sweep or vacuum up spillage and place in vented container.
· ***Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* 7 Handling and storage

· ***Precautions for safe handling*** No special measures required.
· ***Information about protection against explosions and fires:*** Combustible material

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and receptacles:***
CONTAINMENT HAZARD: Any vessel that contains wetted reagent must be vented due to potential pressure build up from fermentation gases.
· ***Information about storage in one common storage facility:*** Not required.
· ***Further information about storage conditions:***
Keep tightly closed in a dry and cool place. Keep away from open flames, hot surfaces and sources of ignition. Any material that is wetted must be vented due to potential pressure build up from fermentation gases.

(Contd. on page 3)

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 Reviewed on 05/30/2014

Trade name: Provect-IR Antimethanogenic ISCR Reagent

(Contd. of page 2)

· **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**
· **Components with occupational exposure limits:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:**
Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtues that are ignitable and explosive. Minimize airborne dust generation and eliminate sources of ignition.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:** Not required.
· **Eye protection:** Not required.

* 9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Solid
Color:	Brown to Green
· **Odor:**	Pleasant
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtures that are ingnitable and explosive. Minimize airborne dust generation and eliminate sources of ignition.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.

(Contd. on page 4)

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 Reviewed on 05/30/2014

Trade name: Provect-IR Antimethanogenic ISCR Reagent

(Contd. of page 3)

· **Relative density** Not determined.
· **Vapour density** Not applicable.
· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**
Water: Soluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**
Dynamic: Not applicable.
Kinematic: Not applicable.

· **Solvent content:**
Organic solvents: 0.0 %

Solids content: 100.0 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability** Product is stable under normal conditions.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

* 11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Product dust may cause eye irritation.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.

(Contd. on page 5)

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 Reviewed on 05/30/2014

Trade name: Provect-IR Antimethanogenic ISCR Reagent

(Contd. of page 4)

· ***Persistence and degradability*** No further relevant information available.
· ***Bioaccumulative potential*** No further relevant information available.
· ***Mobility in soil*** No further relevant information available.
· ***Additional ecological information:***
· ***General notes:*** Water hazard class 1 (Self-assessment): slightly hazardous for water
· ***Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.
· ***Other adverse effects*** No further relevant information available.

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** Smaller quantities can be disposed of with household waste.

· ***Uncleaned packagings:***
· ***Recommendation:*** Disposal must be made according to official regulations.
· ***Recommended cleansing agent:*** Water, if necessary with cleansing agents.

* 14 Transport information

· ***UN-Number***
· ***DOT, ADR, ADN, IMDG, IATA*** Non-Regulated Material
· ***UN proper shipping name***
· ***DOT, ADR, ADN, IMDG, IATA*** Non-Regulated Material
· ***Transport hazard class(es)***

· ***DOT, ADR, ADN, IMDG, IATA***
· ***Class*** Non-Regulated Material
· ***Packing group***
· ***DOT, ADR, IMDG, IATA*** Non-Regulated Material
· ***Environmental hazards:***
· ***Marine pollutant:*** No
· ***Special precautions for user*** Not applicable.
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code*** Not applicable.
· ***UN "Model Regulation":*** -

15 Regulatory information

· ***Safety, health and environmental regulations/legislation specific for the substance or mixture***
· ***Sara***

· ***Section 355 (extremely hazardous substances):***

None of the ingredients is listed.

· ***Section 313 (Specific toxic chemical listings):***

None of the ingredients is listed.

· ***TSCA (Toxic Substances Control Act):***

7439-89-6	iron
4075-81-4	calcium dipropionate
8013-01-2	Yeast extracts
9000-30-0	Guar gum
7757-83-7	sodium sulphite

(Contd. on page 6)

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 Reviewed on 05/30/2014

Trade name: Provect-IR Antimethanogenic ISCR Reagent

(Contd. of page 5)

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **GHS label elements** Non-Regulated Material
· **Hazard pictograms** Non-Regulated Material
· **Signal word** Non-Regulated Material
· **Hazard statements** Non-Regulated Material

· **National regulations:**
The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.

· **State Right to Know**

7439-89-6	iron	5-40%
4075-81-4	calcium dipropionate	2-4%
8013-01-2	Yeast extracts STOT SE 3, H335	0.5-2%
9000-30-0	Guar gum STOT SE 3, H335; Eye Irrit. 2B, H320; Combustible Dust	0.5-2%
7757-83-7	sodium sulphite Acute Tox. 4, H302	1-2%
	Proprietary Organic Carbon Sources	48-90%

All ingredients are listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 05/30/2014 / 6
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association

(Contd. on page 7)

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 05/30/2014 *Reviewed on 05/30/2014*

Trade name: Provect-IR Antimethanogenic ISCR Reagent

(Contd. of page 6)

ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
Acute Tox. 4: Acute toxicity, Hazard Category 4
Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· **** Data compared to the previous version altered.***

SDS / MSDS Created by MSDS Authoring Services (www.MSDSAuthoring.com)

Health	4
Fire	0
Reactivity	0
Personal Protection	F

Material Safety Data Sheet

Contact information: Purebulk, Inc.
1640 Austin Rd
Roseburg, Oregon USA 97471

Toll Free: 888-280-0050
Phone: 541-679-1500
FAX: 541-393-9005

Section 1: Chemical Product and Company Identification

Product Name: ***Red Yeast Rice P.E. 0.4%***

CAS#: 75330-75-5
Synonym: 2-methyl-1S,2,3R,7S,8S,8aR-hexahydro-3,7-dimethyl-8-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo
Chemical Name: Lovastatin
Chemical Formula: C24H36O5

Section 2: Composition and Information on Ingredients

Composition(s):

Composition
Ankaflavin
Monascorubrin
Rubropunctatin
Monascorubramine

Toxicological Data on Ingredients: The toxicological effects of this product have not been thoroughly studied.

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to lung, upper respiratory tract, mucuous membrances. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Flash point: Not available.
Autoignition Temp: Not available.
Flammability: Not available.

Section 5: Fire and Explosion Data

Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Special Fire Fighting Procedures: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: No data available.
Hazardous Combustion Products: No data available.
Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.

Section 6: Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled:

Avoid release into the environment.
Avoid raising and breathing dust, and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
Transfer to a proper chemical waste container for disposal.

Section 7: Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation. Wash thoroughly after handling
Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas). Avoid prolonged or repeated exposure.
Precautions To Be Taken in Storing: Keep tightly closed. Store at correct temperature.

Section 8: Exposure Controls/Personal Protection

Protective Equipment Summary - Hazard Label Information:

Compatible chemical-resistant gloves

Eye wash station in work area
Lab coat
Safety glasses
Safety shower in work area
Vent Hood

Respiratory Equipment (Specify Type):	NIOSH approved respirator, as conditions warrant.
Eye Protection:	Safety glasses
Protective Gloves:	Compatible chemical-resistant gloves
Other Protective Clothing:	Lab coat
Ventilation:	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Work/Hygienic/Maintenance Practices:	Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling.

Section 9: Physical and Chemical Properties

Physical States:	Solid
Melting Point:	No data.
Boiling Point:	No data.
Autoignition Pt:	No data.
Flash Pt:	No data.
Explosive Limits:	LEL: No data. UEL: No data.
Specific Gravity (Water = 1):	No data.
Bulk density:	No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.
Evaporation Rate (vs Butyl Acetate=1):	No data.
Solubility in Water:	No data.
Solubility Notes:	~0.5 mg/ml in 1: 1 DMSO: PBS (pH 7.2); ~20 mg/ml in EtOH & DMSO; ~15 mg/ml in DMF;
Percent Volatile:	No data.
Heat Value:	No data.
Particle Size:	No data.
Corrosion Rate:	No data.
Formula:	C24H36O5

Section 10: Stability and Reactivity Data

Stability:	Stable
Conditions To Avoid - Instability:	No data available.
Incompatibility - Materials To Avoid:	strong oxidizing agents
Hazardous Decomposition Or Byproducts:	carbon dioxide carbon monoxide
Possibility of Hazardous Reactions:	Will not occur
Conditions To Avoid - Hazardous Reactions:	No data available.

Section 11: Toxicological Information

The toxicological effects of this product have not been thoroughly studied.

Carcinogenicity/Other Information:	No data available.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

Section 12: Ecological Information

Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

Section 13: Disposal Considerations

Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

Section 14: Transport Information

LAND TRANSPORT (US DOT): DOT Proper Shipping Name Not dangerous goods.

LAND TRANSPORT (European ADR/RID): ADR/RID Shipping Name Not dangerous goods.

AIR TRANSPORT (ICAO/IATA): ICAO/IATA Shipping Name Not dangerous goods.

Additional Transport Information: Transport in accordance with local, state, and federal regulations.

Section 15: Other Regulatory Information

European Community Hazard Symbol codes: No data available.

European Community Risk and Safety Phrases:

S24/25 - Avoid contact with skin and eyes.
S37/39 - Wear suitable gloves and eye/face protection.

US EPA SARA Title III:

Section 16: Other Information

References: *Not available.*

Other Special Considerations: Not available.

Created: 06/25/2013 2:00 P.M. kkl

Last Updated: 07/09/2013 3:10 P.M. kkl

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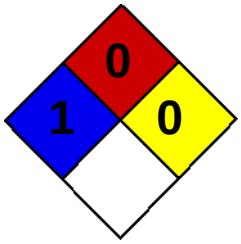

Health	2
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet

MSDS

Sodium sulfite

Section 1: Chemical Product and Company Identification

Product Name: Sodium sulfite

Catalog Codes: SLS2383

CAS#: 7757-83-7

RTECS: WE2150000

TSCA: TSCA 8(b) inventory: Sodium sulfite

CI#: Not available.

Synonym: Sulfurous Acid, Disodium salt

Chemical Name: Sulfurous acid, disodium salt

Chemical Formula: Na2SO3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium sulfite	7757-83-7	100

Toxicological Data on Ingredients: Sodium sulfite: ORAL (LD50): Acute: 820 mg/kg [Mouse.]. 3650 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to peripheral nervous system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, acids.

Storage:

Air sensitive. Moisture sensitive. Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance:
Solid. (Solid crystalline powder. Powdered solid. Crystals solid.)

Odor: Sulfurous. Odorless.

Taste: Sulfurous. Saline.

Molecular Weight: 126.04 g/mole

Color: White or Tan to slightly pink

pH (1% soln/water): Not available.

Boiling Point: Not available.

Melting Point: Decomposition temperature: >500°C (932°F)

Critical Temperature: Not available.

Specific Gravity: 2.63 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:
Soluble in cold water, hot water. Soluble in glycerol. Almost insoluble in alcohol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materitals, air, moisture, dust generation

Incompatibility with various substances: Reactive with oxidizing agents, combustible materials, organic materials, acids.

Corrosivity:
Corrosive in presence of aluminum, of zinc, of copper. Slightly corrosive in presence of steel.

Special Remarks on Reactivity:
Air sensitive. Moisture sensitive. Keep container tightly closed. When heated to decompostion, it emits toxic fumes of Na2O and SOx

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 820 mg/kg [Mouse.].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: peripheral nervous system, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals:
Lowest Published Dose: LDL [Rabbit] - Route: Oral; Dose 2825 mg/kg

Special Remarks on Chronic Effects on Humans: May affect genetic material(mutagenic)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Acute Potential Health Effects: Skin: Causes skin irritation. Eyes: Causes eye irritation and may cause chemical conjunctivitis. Conjunctivitis may be more noted in sensitive individuals. Inhalation: Causes upper respiratory tract and mucous membrane irritation. May cause hypersensitivity reaction with swelling of the tongue, bronchospasm, bronchoconstriction diaphoreisis, flushing, urticaria, hypotension, tachycardia, and anaphylaxis particularly in asthmatic people who are sulfite sensitive. Ingestion: May cause gastrointestinal tract irritation with abdominal pain, nausea, vomiting and diarrhea. May affect behavior/central nervous system (CNS depression with convulsions, somnolence), respiration (respiration depression), and cardiovascular system (circulatory disturbancs, hypotension). It may liberate sulfurous acid which may result in caustic injury. Hypersensitivity reaction with swelling of the tongue bronchospasm, bronchoconstriction diaphoreisis, flushing, urticaria, hypotension, tachycardia, and anaphylaxis may occur more frequently with people who are asthmatic. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause dermal sensitization (contact dermatitis), but this is rare. Inhalation: Prolonged or repeated inhalation may cause chronic irritation, inflammation, delayed pulmonary edema, and alteration of sense of smell and taste. Ingestion: Prolonged or repeated ingestion may affect the bone marrow (bone marrow atrophy), and behavior/central/peripheral nervous systems (CNS depression and paralysis).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself. **Special Remarks on the Products of Biodegradation:** Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: Sodium

sulfite **Other Regulations:** Not available.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
R22- Harmful if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. S22- Do not breathe dust. S24/25- Avoid contact with skin and eyes. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36- Wear suitable protective clothing.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References:
-The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. RTECS (Registry of Toxic Effects of Chemicals). Hazardous Substance Data Bank (HDSB)

Other Special Considerations: Not available.

Created: 10/09/2005 06:36 PM

Last Updated: 11/01/2010 12:00 PM

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Material Safety Data Sheet
Riboflavin

ACC# 20145

Section 1 - Chemical Prod uct and Company Identification

MSDS Name: Riboflavin
Catalog Numbers: BP167 50, BP167-50, BP16750
Synonyms: Lactoflavine; 6,7-Dimethyl-9-D-ribitylisoalloxazine; Isoalloxazine, 7,8-dimethyl-10-D-ribityl-;Isoalloxazine, 7,8-dimethyl-10-(D-ribo-2,3,4,5-tetrahydroxypentyl)-; Vitamin B2; Vitamin G
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMT REC assistance, call: 800-424-9300
For International CHEMT REC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
83-88-5	Riboflavin	ca.100	201-507-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Yellow powder or orange-yellow crystals.
Warning! Causes respiratory tract irritation. Causes eye and skin irritation. May cause digestive tract irritation. Light sensitive. This is expected to be a low hazard for usual industrial handling.
Target Organs: No data found.

Potential Health Effects

Eye: Causes eye irritation. May cause chemical conjunctivitis.
Skin: Causes skin irritation. May cause skin discoloration.
Ingestion: Ingestion of large amounts may cause gastrointestinal irritation.

Inhalation: Causes respiratory tract irritation. Can produce delayed pulmonary edema.
Chronic: Effects may be delayed. Laboratory experiments have resulted in m utagenic effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.
Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower:Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Remove contaminated clothing and wash before re use. Minimize d ust generation and acc um ulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adeq uate ventilation. Store protected from light. Wash clothing before re use.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible s ubstances. Store protected from light.

Section 8 - Expos ure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material sho uld be eq uipped with an eyewash facility and a safety shower. Use adeq uate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Riboflavin	none listed	none listed	none listed

OSHA Vacated PELs: Riboflavin: No OSHA Vacated PELs are listed for this chemical. Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystals
Appearance: Yellow powder or orange-yellow crystals
Odor: slight odor
pH: 6 (neutral)
Vapor Pressure: Negligible.
Vapor Density: Not available.
Evaporation Rate:negligible

Viscosity: Not applicable.
Boiling Point: Not available.
Freezing/Melting Point:290 deg C
Decomposition Temperature:290 deg C Solubility: Soluble.
Specific Gravity/Density:Not available.
Molecular Formula:C17H2ON4O6
Molecular Weight:374.0366

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. Light sensitive.
Conditions to Avoid: Incompatible materials, light, dust generation, moisture, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents, reducing agents, bases, calcium, metallic salts.
Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, oxides of phosphorus, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 83-88-5: V31400000
LDSO/LCSO:
CAS# 83-88-5:
Oral, rat: LD50 = >10 gm/kg;
.

Carcinogenicity:
CAS# 83-88-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: Cytogenetic Analysis: Hamster, Lung = 300 mg/L.; Sex Chromosome Loss and Nondisj unction: Hamster, Lung = 100 mg/L.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators m ust determine whether a discarded chemical is classified as a hazardo us waste. US EPA g uidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators m ust cons ult state and local hazardo us waste reg ulations to ens ure complete and acc urate classification.
RC RA P-Series: None listed.
RC RA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	**Not reg ulated as a hazardo us material**	**No information available.**
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 83-88-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CE RCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

Section 313 **No chemicals are reportable under Section 313.**

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 83-88-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 83-88-5: No information available.

Canada - DSL/NDSL

CAS# 83-88-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 7/16/1999

Revision #3 Date: 10/03/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any

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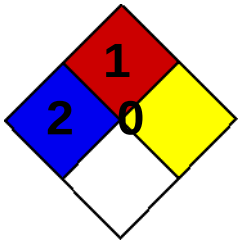

Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet

Cyanocobalamin MSDS

Section 1: Chemical Product and Company Identification

Product Name: Cyanocobalamin

Catalog Codes: SLC5008, SLC2218

CAS#: 68-19-9

RTECS: GL7030000

TSCA: TSCA 8(b) inventory: Cyanocobalamin

CI#: Not available.

Synonym: Vitamin B12; Cobinamide, cyanide phosphate 3'-ester with 5,6-dimethyl-1-alpha-Dribofuranosylbenzimidazole, inner salt

Chemical Formula: C63H88CoN14O14P

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cyanocobalamin	68-19-9	100

Toxicological Data on Ingredients: Cyanocobalamin LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention. **Serious Inhalation:** Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...). Some metallic oxides.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a

cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 1355.39 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: Decomposes.

Melting Point: 102.5°C (216.5°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic. **Special Remarks on the Products of Biodegradation:** Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: Cyanocobalamin

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36/38- Irritating to eyes and skin.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available. **Created:** 10/10/2005 08:17 PM

Last Updated: 06/09/2012 12:00 PM

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Autolyzed yeast

Provesta® 027

O h I

ASIAB.F. tog:stlients Company

Product Code: 50300

D7107

PRODUCT SPECIFICATION

Chemical and physical data

Parameter	Unit	Min.		Max.	Method
Moisture	%			7	100 deg F oven, 24 hours
Protein in product	%	49			AOAC 988.05

Microbiological standard

Parameter	Unit	Specification	Method
Total plate count	cfulg	<7,500	48 hrs at 30 deg F
Yeasts and molds	cfu/g	<50	3 days at 30 deg_F
E. coli	cfulg	NEG	FDA BAM Revision A of 8th Ed, 1998 Chp.4
Coliforms	cfu/g	<10	FDA BAM Revision A of 8th Ed, 1998 Chp.4
Staph aureus	cfu/g	<10	FDA BAM Revision A of 8th Ed, 1998 Chp.12
Salmonella	NEG/375 g	NEG	AOAC/BAM Method 2004.03

Typical Nutritional Information

Calories	371/100g	Cholesterol	<1mg/100g(1)
Calories from fat	631100g	Ash	8g/100g
Calories from Saturated fat	7.2/100g	Sodium	0.10g/100g
Protein	52g/100g	Potassium	2.5g/100g
Carbohydrates	26g/100g	Vitamin A (IU)	<44 IU/100g(1)
Dietary Fiber	5g/100g	Vitamin C (ascorbic acid)	<0.5mg/100g(1)
Sugar-Total	<iwicio 3 [1])	Calcium	0.015g/100g
Fat — Total	7g/ 100g	Iron	0.010g/100g
Saturated Fatty Acids	0.8g/100g		
Trans Fatty Acids	0.07g/100g		

Below Detection Limit

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www.ohly.corn

America
Chly Americas
35 Adams Street NE
Hutchinson, MN 55350
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Fax: +1 320-587-8617
E-mail: infoOprovesta.com
Toll Free: 0800 321 26 89

BASF
The Chemical Company

Safety data sheet ZV-Iron Microspheres 200

1. Substance/preparation and company identification

Company	24 Hour Emergency Response information
BASF CORPORATION	CHEMTREC: 1-800-424-9300
100 Campus Drive	BASF HOTLINE: 1-800-832-HELP
Florham Park, NJ 07932	

Molecular formula: FE (Small Quantities C,N,O)
Synonyms: Carbonyl Iron Powders

2. Composition/information on ingredients

CAS Number	Content (W/W)	Chemical name
7439-89-6	**98.0 %**	Carbonyl iron powder

3. Hazard identification

Emergency overview

DANGER: EXTREMELY FLAMMABLE. INGESTION MAY CAUSE GASTRIC DISTURBANCES.
CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of dusts.
Use with local exhaust ventilation.
Wear a NIOSH-certified {or equivalent) particulate respirator.
Wear NIOSH-certified chemical goggles.
Wear protective clothing.
Wash thoroughly after handling.
Eye wash fountains and safety showers must be easily accessible.

Potential health effects

Primary routes **of exposure**
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:
No other known acute effects.

Irritation:
Extremely irritating to the skin, eyes and respiratory tract.

Potential environmental effects

Aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms.
The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

4. First-aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek medical attention.

If swallowed:
Rinse mouth and then drink plenty of water.

Seek medical attention.

Note to physician
Symptoms: Overexposure may cause:, vomiting, acidosis, shock, bloody diarrhea, nausea

5. Fire-fighting measures

Autoignition: 150 °C
Lower explosion limit: (20 °C, 1 bar)
Flammability: Highly flammable.

Suitable extinguishing media:
water spray

Unsuitable extinguishing media far safety reasons:
carbon dioxide

Additional information:
Avoid whirling up the material/product because of the danger of dust explosion.

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

NFPA Hazard codes:
Health : 1 Fire: 3 Reactivity: **1** Special:

6. Accidental release measures

Personal **precautions:**
Avoid dust formation. Use personal protective clothing.

Environmental precautions:
This product is not regulated by RCRA. This product is not regulated by CERCLA CSuperfund').

Cleanup:
❑o not vacuum up powder.

For large amounts: Dampen, pick up mechanically and dispose of.
For residues: Dampen, pick up mechanically and dispose of.

7. Handling and storage

Handling

General advice:
Handle in accordance with good industrial hygiene and safety practice. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:
Fine dust of the product is capable of dust explosion. Avoid all sources of ignition: heat, sparks, open flame. Electrostatic discharge may cause ignition. Ground all transfer equipment properly to prevent electrostatic discharge.

Storage

Storage incompatibility:
General: Segregate from acids. Segregate from oxidants.

Storage **stability:**
Protect against moisture.

8. Exposure controls and personal protection

Advice on system design:
Provide local exhaust ventilation to control dust.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) particulate respirator. Do not exceed the maximum use concentration for the respirator facepieceicartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Eye protection:
Tightly fitting safety goggles (chemical goggles).

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended.

9. Physical and chemical properties

Form:	powder	
Odour:	faint odour	
Colour:	grey	
Melting point:	1,535 °C	Literature data.
Boiling point:	2,735 °C	Literature data.
Density:	7.8 g/cm3	(20 'C)
Bulk density:	2,500 - 3,500 kg/m3	
Solubility in water:		insoluble

10. Stability and reactivity

Minimum ignition energy:
1 - 3 nnJ, 1 bar, 20 'C, Inductivity: 1 mH (VD! 2263, sheet 1, 2.5)

Conditions to avoid:
Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge. Avoid dust formation.

Substances to avoid:
acids

Hazardous reactions:
Dust explosion hazard. Contact with acids liberates hydrogen gas.

Decomposition products:
No hazardous decomposition products known.

Corrosion to metals:
No corrosive effect on metal.

11. Toxicological information

Acute toxicity

Oral:
LD50/rat: > 5,000 mg/kg

Chronic toxicity

Carcinogenicity:
In the majority of the short term assays the substance caused no carcinogenic effects.

12. Ecological information

Environmental fate and transport

Biodegradation:
Evaluation: Inorganic product which cannot be eliminated from water by biological purification processes.
Can be eliminated mechanically.

Bioaccumulation:

The product will not be readily bioavailable due to its consistency and insolubility in water. Accumulation in organisms is not to be expected.

Environmental toxicity

Acute and prolonged toxicity to fish:
DIN 38412 Part 15 static
golden ❑rfe1LC50 (96 h): > 10,000
mg/I Nominal concentration.

13. Disposal considerations

Waste disposal of substance:
Dispose of in a licensed facility.
Dispose of in accordance with national, state and local regulations.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport information

Land transport
LISDOT

Hazard class:	4.2
Packing group:	II
ID number:	UN 3189
Hazard label:	4.2
Proper shipping name:	METAL POWDER, SELF-HEATING, N.O.S. (contains CARBONYL IRON POWDER)

Sea transport
IMDG

Hazard class:	4.2
Packing group:	II
ID number:	UN 3189
Hazard label:	4.2
Marine pollutant:	NO
Proper shipping name:	METAL POWDER, SELF-HEATING, N.O.S. contains (CARBONYL IRON POWDER)

Air transport
IATMCAO

Hazard class:	4.2
Packing group:	

ID number:	UN 3189
Hazard label:	4.2
Proper shipping name:	METAL POWDER, SELF-HEATING, N.O.S. contains (CARBONYL IRON POWDER)

15. Regulatory information

Federal Regulations

Registration status:
TSCA, US released / listed

OSHA hazard category: Skin and/or eye irritant, Chronic target organ effects reported

SARA hazard categories (EPCRA 311/312): Chronic, Acute Chronic, Acute

16. Other information

HMIS III rating
Health: 2 Flammability: 3 Physical hazard: 1

HMIS uses a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates high hazard.

Local contact Information
prod_reg @ basf .corn

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END OF DATA SHEET

Appendix C
Laboratory Analytical Reports

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 13, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: FORT SMITH, AR
Pace Project No.: 60276306

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on August 01, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: FORT SMITH, AR
Pace Project No.: 60276306

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60276306001	**MW-61R-201807**	Water	07/31/18 11:20	08/01/18 08:40
60276306002	**MW-185-201807**	Water	07/31/18 13:10	08/01/18 08:40
60276306003	**MW-194-201807**	Water	07/31/18 14:50	08/01/18 08:40
60276306004	**TMW-21-201807**	Water	07/31/18 16:05	08/01/18 08:40
60276306005	**TMW-10-201807**	Water	07/31/18 17:25	08/01/18 08:40
60276306006	**TRIP BLANK-01**	Water	07/31/18 11:20	08/01/18 08:40

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SAMPLE ANALYTE COUNT

Project: FORT SMITH, AR
Pace Project No.: 60276306

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60276306001	**MW-61R-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	MJK	1	PASI-K
		SM 5310C	MJK	1	PASI-K
60276306002	**MW-185-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	MJK	1	PASI-K
		SM 5310C	MJK	1	PASI-K
60276306003	**MW-194-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	MJK	1	PASI-K
		SM 5310C	MJK	1	PASI-K
60276306004	**TMW-21-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	MJK	1	PASI-K
		SM 5310C	MJK	1	PASI-K
60276306005	**TMW-10-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	MJK	1	PASI-K
		SM 5310C	MJK	1	PASI-K
60276306006	**TRIP BLANK-01**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 538263

B: Analyte was detected in the associated method blank.
- BLANK for HBN 538263 [MPRP/463 (Lab ID: 2205022)
  - Iron

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 538939

B: Analyte was detected in the associated method blank.

- BLANK for HBN 538939 [MSV/9107 (Lab ID: 2208286)
  - 1,2-Dichloroethane
  - Trichloroethene

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 538939

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 539010

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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(913)599-5665

PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **SM 3500-Fe B#4**
Description: Iron, Ferric (Calculation)
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
5 samples were analyzed for SM 3500-Fe B#4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 537883

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2081137003,60276104001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2203781)
  - Chloride

QC Batch: 537907

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276182004,60276306003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2203843)
  - Chloride

Additional Comments:

Analyte Comments:

QC Batch: 537907

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 2203841)
  - Chloride
- MS (Lab ID: 2203843)
  - Chloride
- MSD (Lab ID: 2203842)
  - Chloride

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
5 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 537374

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276286001,60276309008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2201165)
  - Nitrogen, NO2 plus NO3

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: August 13, 2018

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 537579

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276168001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2202113)
  - Dissolved Organic Carbon

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: MW-61R-201807 **Lab ID: 60276306001** Collected: 07/31/18 11:20 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**11900**	ug/L	50.0	6.1	1	08/08/18 10:03	08/08/18 21:32	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		08/11/18 12:49	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/11/18 12:49	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/11/18 12:49	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/11/18 12:49	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/11/18 12:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/11/18 12:49	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/11/18 12:49	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/11/18 12:49	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/11/18 12:49	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/11/18 12:49	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/11/18 12:49	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/11/18 12:49	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/11/18 12:49	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/11/18 12:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/11/18 12:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 12:49	75-35-4	
cis-1,2-Dichloroethene	**1.8**	ug/L	1.0	0.080	1		08/11/18 12:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 12:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/11/18 12:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/11/18 12:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/11/18 12:49	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/11/18 12:49	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/11/18 12:49	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/11/18 12:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/11/18 12:49	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/11/18 12:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/11/18 12:49	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/11/18 12:49	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/11/18 12:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/11/18 12:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/11/18 12:49	79-00-5	
Trichloroethene	**7.0**	ug/L	1.0	0.17	1		08/11/18 12:49	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/11/18 12:49	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/11/18 12:49	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		08/11/18 12:49	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		08/11/18 12:49	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/11/18 12:49	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/11/18 12:49		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**8.6**	mg/L	0.050		1		08/13/18 10:12	7439-89-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: MW-61R-201807 **Lab ID: 60276306001** Collected: 07/31/18 11:20 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**102**	mg/L	10.0	4.6	10		08/07/18 01:48	16887-00-6	
Sulfate	**9.1**	mg/L	1.0	0.24	1		08/07/18 01:33	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.078	1		08/01/18 15:01		
Nitrogen, Nitrite	ND	mg/L	0.10	0.055	1		08/01/18 15:01		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.078	1		08/01/18 15:01		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.86J**	mg/L	1.0	0.13	1		08/02/18 17:09	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.83J**	mg/L	1.0	0.13	1		08/02/18 21:12	7440-44-0	B

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: MW-185-201807 **Lab ID: 60276306002** Collected: 07/31/18 13:10 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**10100**	ug/L	50.0	6.1	1	08/08/18 10:03	08/08/18 21:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.7J**	ug/L	10.0	1.9	1		08/11/18 13:03	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/11/18 13:03	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/11/18 13:03	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/11/18 13:03	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/11/18 13:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/11/18 13:03	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/11/18 13:03	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/11/18 13:03	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/11/18 13:03	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:03	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/11/18 13:03	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/11/18 13:03	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/11/18 13:03	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/11/18 13:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/11/18 13:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:03	75-35-4	
cis-1,2-Dichloroethene	**1.4**	ug/L	1.0	0.080	1		08/11/18 13:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/11/18 13:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/11/18 13:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/11/18 13:03	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/11/18 13:03	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/11/18 13:03	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/11/18 13:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/11/18 13:03	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/11/18 13:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:03	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/11/18 13:03	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/11/18 13:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/11/18 13:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/11/18 13:03	79-00-5	
Trichloroethene	**11.7**	ug/L	1.0	0.17	1		08/11/18 13:03	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/11/18 13:03	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/11/18 13:03	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	93	%	80-119		1		08/11/18 13:03	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		08/11/18 13:03	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/11/18 13:03	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/11/18 13:03		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**9.9**	mg/L	0.050		1		08/13/18 10:12	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: MW-185-201807 **Lab ID: 60276306002** Collected: 07/31/18 13:10 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**17.1**	mg/L	1.0	0.46	1		08/07/18 02:02	16887-00-6	
Sulfate	**8.2**	mg/L	1.0	0.24	1		08/07/18 02:02	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.21**	mg/L	0.10	0.078	1		08/01/18 15:04		
Nitrogen, Nitrite	**0.61**	mg/L	0.10	0.055	1		08/01/18 15:04		
Nitrogen, NO2 plus NO3	**0.82**	mg/L	0.10	0.078	1		08/01/18 15:04		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.37J**	mg/L	1.0	0.13	1		08/02/18 17:21	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.90J**	mg/L	1.0	0.13	1		08/02/18 21:25	7440-44-0	B

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: MW-194-201807 **Lab ID: 60276306003** Collected: 07/31/18 14:50 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**19400**	ug/L	50.0	6.1	1	08/08/18 10:03	08/08/18 21:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.2J**	ug/L	10.0	1.9	1		08/11/18 13:17	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/11/18 13:17	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/11/18 13:17	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/11/18 13:17	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/11/18 13:17	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/11/18 13:17	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/11/18 13:17	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/11/18 13:17	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/11/18 13:17	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:17	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/11/18 13:17	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/11/18 13:17	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/11/18 13:17	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/11/18 13:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/11/18 13:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:17	75-35-4	
cis-1,2-Dichloroethene	**0.79J**	ug/L	1.0	0.080	1		08/11/18 13:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/11/18 13:17	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/11/18 13:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/11/18 13:17	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/11/18 13:17	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/11/18 13:17	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/11/18 13:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/11/18 13:17	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/11/18 13:17	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:17	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/11/18 13:17	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/11/18 13:17	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/11/18 13:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/11/18 13:17	79-00-5	
Trichloroethene	**13.3**	ug/L	1.0	0.17	1		08/11/18 13:17	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/11/18 13:17	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/11/18 13:17	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		08/11/18 13:17	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-117		1		08/11/18 13:17	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		08/11/18 13:17	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/11/18 13:17		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**18.9**	mg/L	0.050		1		08/13/18 10:12	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: MW-194-201807 **Lab ID: 60276306003** Collected: 07/31/18 14:50 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**167**	mg/L	10.0	4.6	10		08/06/18 14:51	16887-00-6	
Sulfate	**8.9**	mg/L	1.0	0.24	1		08/06/18 14:08	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.078	1		08/01/18 15:07		
Nitrogen, Nitrite	**0.39**	mg/L	0.10	0.055	1		08/01/18 15:07		
Nitrogen, NO2 plus NO3	**0.21**	mg/L	0.10	0.078	1		08/01/18 15:07		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.26J**	mg/L	1.0	0.13	1		08/02/18 17:34	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**1.1**	mg/L	1.0	0.13	1		08/02/18 21:38	7440-44-0	B

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: TMW-21-201807 **Lab ID: 60276306004** Collected: 07/31/18 16:05 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**81.0**	ug/L	50.0	6.1	1	08/08/18 10:03	08/08/18 21:43	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.4J**	ug/L	10.0	1.9	1		08/11/18 13:45	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/11/18 13:45	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/11/18 13:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/11/18 13:45	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/11/18 13:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/11/18 13:45	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/11/18 13:45	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/11/18 13:45	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/11/18 13:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:45	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/11/18 13:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/11/18 13:45	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/11/18 13:45	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/11/18 13:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/11/18 13:45	107-06-2	
1,1-Dichloroethene	**1.5**	ug/L	1.0	0.20	1		08/11/18 13:45	75-35-4	
cis-1,2-Dichloroethene	**12.6**	ug/L	1.0	0.080	1		08/11/18 13:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/11/18 13:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/11/18 13:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/11/18 13:45	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/11/18 13:45	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/11/18 13:45	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/11/18 13:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/11/18 13:45	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/11/18 13:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:45	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/11/18 13:45	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/11/18 13:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/11/18 13:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/11/18 13:45	79-00-5	
Trichloroethene	**564**	ug/L	10.0	1.7	10		08/13/18 12:46	79-01-6	
Vinyl chloride	**0.31J**	ug/L	1.0	0.13	1		08/11/18 13:45	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/11/18 13:45	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	95	%	80-119		1		08/11/18 13:45	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-117		1		08/11/18 13:45	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/11/18 13:45	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/11/18 13:45		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**0.081**	mg/L	0.050		1		08/13/18 10:12	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: TMW-21-201807 **Lab ID: 60276306004** Collected: 07/31/18 16:05 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**186**	mg/L	10.0	4.6	10		08/06/18 15:47	16887-00-6	
Sulfate	**8.2**	mg/L	1.0	0.24	1		08/06/18 15:33	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.078	1		08/01/18 15:10		
Nitrogen, Nitrite	ND	mg/L	0.10	0.055	1		08/01/18 15:10		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.078	1		08/01/18 15:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.28J**	mg/L	1.0	0.13	1		08/02/18 17:47	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.33J**	mg/L	1.0	0.13	1		08/02/18 22:16	7440-44-0	B

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: TMW-10-201807 **Lab ID: 60276306005** Collected: 07/31/18 17:25 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**122**	ug/L	50.0	6.1	1	08/08/18 10:03	08/08/18 21:45	7439-89-6	B
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.8J**	ug/L	10.0	1.9	1		08/11/18 13:31	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/11/18 13:31	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/11/18 13:31	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/11/18 13:31	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/11/18 13:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/11/18 13:31	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/11/18 13:31	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/11/18 13:31	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/11/18 13:31	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:31	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/11/18 13:31	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/11/18 13:31	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/11/18 13:31	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/11/18 13:31	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		08/11/18 13:31	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:31	75-35-4	
cis-1,2-Dichloroethene	**5.9**	ug/L	1.0	0.080	1		08/11/18 13:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 13:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/11/18 13:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/11/18 13:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/11/18 13:31	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/11/18 13:31	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/11/18 13:31	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/11/18 13:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/11/18 13:31	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/11/18 13:31	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/11/18 13:31	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/11/18 13:31	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/11/18 13:31	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/11/18 13:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/11/18 13:31	79-00-5	
Trichloroethene	**91.1**	ug/L	1.0	0.17	1		08/11/18 13:31	79-01-6	
Vinyl chloride	**0.66J**	ug/L	1.0	0.13	1		08/11/18 13:31	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/11/18 13:31	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		08/11/18 13:31	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-117		1		08/11/18 13:31	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/11/18 13:31	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/11/18 13:31		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**0.072**	mg/L	0.050		1		08/13/18 10:12	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: TMW-10-201807 **Lab ID: 60276306005** Collected: 07/31/18 17:25 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**170**	mg/L	10.0	4.6	10		08/06/18 16:16	16887-00-6	
Sulfate	**1.9**	mg/L	1.0	0.24	1		08/06/18 16:02	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.078	1		08/01/18 15:12		
Nitrogen, Nitrite	ND	mg/L	0.10	0.055	1		08/01/18 15:12		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.078	1		08/01/18 15:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.28J**	mg/L	1.0	0.13	1		08/02/18 18:00	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.32J**	mg/L	1.0	0.13	1		08/02/18 22:29	7440-44-0	B

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276306

Sample: TRIP BLANK-01 **Lab ID: 60276306006** Collected: 07/31/18 11:20 Received: 08/01/18 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		08/11/18 12:35	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/11/18 12:35	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/11/18 12:35	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/11/18 12:35	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/11/18 12:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/11/18 12:35	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/11/18 12:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/11/18 12:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/11/18 12:35	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/11/18 12:35	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/11/18 12:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/11/18 12:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/11/18 12:35	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/11/18 12:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/11/18 12:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 12:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		08/11/18 12:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/11/18 12:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/11/18 12:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/11/18 12:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/11/18 12:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/11/18 12:35	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/11/18 12:35	591-78-6	
Methylene chloride	**0.75J**	ug/L	1.0	0.15	1		08/11/18 12:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/11/18 12:35	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/11/18 12:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/11/18 12:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/11/18 12:35	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/11/18 12:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/11/18 12:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/11/18 12:35	79-00-5	
Trichloroethene	**0.58J**	ug/L	1.0	0.17	1		08/11/18 12:35	79-01-6	B
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/11/18 12:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/11/18 12:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		08/11/18 12:35	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	80-117		1		08/11/18 12:35	17060-07-0	
Toluene-d8 (S)	100	%	80-115		1		08/11/18 12:35	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/11/18 12:35		

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 538263 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

METHOD BLANK: 2205022 Matrix: Water
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	16.1J	50.0	6.1	08/08/18 21:16	

LABORATORY CONTROL SAMPLE: 2205023

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9820	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2205024 2205025

Parameter	Units	60276406003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	ND	10000	10000	9680	9620	97	96	75-125	1	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 538939 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005, 60276306006

METHOD BLANK: 2208286 Matrix: Water
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005, 60276306006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	08/11/18 12:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	08/11/18 12:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	08/11/18 12:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	08/11/18 12:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	08/11/18 12:06	
1,2-Dichloroethane	ug/L	0.15J	1.0	0.12	08/11/18 12:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	08/11/18 12:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	08/11/18 12:06	
2-Hexanone	ug/L	ND	10.0	1.2	08/11/18 12:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	08/11/18 12:06	
Acetone	ug/L	ND	10.0	1.9	08/11/18 12:06	
Benzene	ug/L	ND	1.0	0.060	08/11/18 12:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	08/11/18 12:06	
Bromoform	ug/L	ND	1.0	0.070	08/11/18 12:06	
Bromomethane	ug/L	ND	5.0	0.16	08/11/18 12:06	
Carbon disulfide	ug/L	ND	5.0	0.12	08/11/18 12:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	08/11/18 12:06	
Chlorobenzene	ug/L	ND	1.0	0.21	08/11/18 12:06	
Chloroethane	ug/L	ND	1.0	0.15	08/11/18 12:06	
Chloroform	ug/L	ND	1.0	0.14	08/11/18 12:06	
Chloromethane	ug/L	ND	1.0	0.080	08/11/18 12:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	08/11/18 12:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	08/11/18 12:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	08/11/18 12:06	
Ethylbenzene	ug/L	ND	1.0	0.18	08/11/18 12:06	
Methylene chloride	ug/L	ND	1.0	0.15	08/11/18 12:06	
Styrene	ug/L	ND	1.0	0.12	08/11/18 12:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	08/11/18 12:06	
Toluene	ug/L	ND	1.0	0.17	08/11/18 12:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	08/11/18 12:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	08/11/18 12:06	
Trichloroethene	ug/L	0.49J	1.0	0.17	08/11/18 12:06	
Vinyl chloride	ug/L	ND	1.0	0.13	08/11/18 12:06	
Xylene (Total)	ug/L	ND	3.0	0.42	08/11/18 12:06	
1,2-Dichloroethane-d4 (S)	%	98	80-117		08/11/18 12:06	
4-Bromofluorobenzene (S)	%	95	80-119		08/11/18 12:06	
Toluene-d8 (S)	%	100	80-115		08/11/18 12:06	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

LABORATORY CONTROL SAMPLE: 2208287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.3	102	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	18.9	94	74-121	
1,1,2-Trichloroethane	ug/L	20	21.1	106	83-119	
1,1-Dichloroethane	ug/L	20	20.1	100	85-128	
1,1-Dichloroethene	ug/L	20	20.1	101	85-123	
1,2-Dichloroethane	ug/L	20	18.7	93	77-120	
1,2-Dichloropropane	ug/L	20	20.7	104	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	105	105	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	102	102	66-139	
Acetone	ug/L	100	96.3	96	62-142	
Benzene	ug/L	20	20.4	102	81-118	
Bromodichloromethane	ug/L	20	20.7	103	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	20.0	100	39-149	
Carbon disulfide	ug/L	20	20.2	101	85-124	
Carbon tetrachloride	ug/L	20	21.5	107	85-126	
Chlorobenzene	ug/L	20	21.1	106	87-118	
Chloroethane	ug/L	20	18.6	93	73-134	
Chloroform	ug/L	20	19.9	99	85-119	
Chloromethane	ug/L	20	19.7	99	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.1	100	80-124	
Dibromochloromethane	ug/L	20	20.9	104	83-122	
Ethylbenzene	ug/L	20	21.5	107	80-118	
Methylene chloride	ug/L	20	20.3	102	81-126	
Styrene	ug/L	20	21.3	107	85-120	
Tetrachloroethene	ug/L	20	21.3	107	87-120	
Toluene	ug/L	20	20.6	103	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.2	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	21.5	108	80-122	
Trichloroethene	ug/L	20	22.2	111	82-120	
Vinyl chloride	ug/L	20	22.1	111	74-147	
Xylene (Total)	ug/L	60	62.1	104	81-120	
1,2-Dichloroethane-d4 (S)	%			96	80-117	
4-Bromofluorobenzene (S)	%			95	80-119	
Toluene-d8 (S)	%			102	80-115	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 539010 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60276306004

METHOD BLANK: 2208670 Matrix: Water
Associated Lab Samples: 60276306004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	08/13/18 09:16	
1,2-Dichloroethane-d4 (S)	%	95	80-117		08/13/18 09:16	
4-Bromofluorobenzene (S)	%	98	80-119		08/13/18 09:16	
Toluene-d8 (S)	%	99	80-115		08/13/18 09:16	

LABORATORY CONTROL SAMPLE: 2208671

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	21.8	109	82-120	
1,2-Dichloroethane-d4 (S)	%			106	80-117	
4-Bromofluorobenzene (S)	%			96	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 537883 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276306001, 60276306002

METHOD BLANK: 2203777 Matrix: Water
Associated Lab Samples: 60276306001, 60276306002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.46	08/06/18 18:40	
Sulfate	mg/L	ND	1.0	0.24	08/06/18 18:40	

LABORATORY CONTROL SAMPLE: 2203778

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	
Sulfate	mg/L	5	4.7	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2203779 2203780

Parameter	Units	60276104001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	208	100	100	307	306	99	98	90-110	0	15	

MATRIX SPIKE SAMPLE: 2203781

Parameter	Units	2081137003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	23.1	10	36.4	132	90-110	M1

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 537907 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276306003, 60276306004, 60276306005

METHOD BLANK: 2203839 Matrix: Water
Associated Lab Samples: 60276306003, 60276306004, 60276306005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.46	08/06/18 13:12	
Sulfate	mg/L	ND	1.0	0.24	08/06/18 13:12	

LABORATORY CONTROL SAMPLE: 2203840

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	95	90-110	
Sulfate	mg/L	5	4.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2203841 2203842

Parameter	Units	60276306003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	167	50	50	221	220	109	107	90-110	0	15	E
Sulfate	mg/L	8.9	5	5	14.3	14.4	109	110	90-110	1	15	

MATRIX SPIKE SAMPLE: 2203843

Parameter	Units	60276182004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	3500	1000	4730	123	90-110	E,M1

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 537374 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

METHOD BLANK: 2201163 Matrix: Water
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.078	08/01/18 14:49	
Nitrogen, Nitrite	mg/L	ND	0.10	0.055	08/01/18 14:49	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.078	08/01/18 14:49	

LABORATORY CONTROL SAMPLE: 2201164

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	1.1	106	70-130	
Nitrogen, Nitrite	mg/L	1	1.1	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.1	107	90-110	

MATRIX SPIKE SAMPLE: 2201165

Parameter	Units	60276286001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	39.4	20	63.3	119	70-130	
Nitrogen, Nitrite	mg/L	ND	20	21.7	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	39.4	40	85.0	114	90-110	M1

MATRIX SPIKE SAMPLE: 2201167

Parameter	Units	60276309008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	11.3	5	15.5	84	70-130	
Nitrogen, Nitrite	mg/L	ND	5	5.4	108	90-110	
Nitrogen, NO2 plus NO3	mg/L	11.3	10	20.9	96	90-110	

SAMPLE DUPLICATE: 2201166

Parameter	Units	60276288001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	17.5	19.4	10	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	17.5	19.4	10	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 537578 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

METHOD BLANK: 2202107 Matrix: Water
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	08/02/18 14:35	

LABORATORY CONTROL SAMPLE: 2202108

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.3	106	80-120	

MATRIX SPIKE SAMPLE: 2202109

Parameter	Units	60276387001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	6.2	5	11.6	108	80-120	

SAMPLE DUPLICATE: 2202110

Parameter	Units	60276168001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.2	3.3	2	25	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276306

QC Batch: 537579 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

METHOD BLANK: 2202111 Matrix: Water
Associated Lab Samples: 60276306001, 60276306002, 60276306003, 60276306004, 60276306005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	08/02/18 19:43	

LABORATORY CONTROL SAMPLE: 2202112

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.5	111	80-120	

MATRIX SPIKE SAMPLE: 2202113

Parameter	Units	60276168001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	3.1	5	6.3	64	80-120	M1

SAMPLE DUPLICATE: 2202114

Parameter	Units	60276168002 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	7.8	7.9	1	25	

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QUALIFIERS

Project: FORT SMITH, AR
Pace Project No.: 60276306

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 538939

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 539010

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FORT SMITH, AR
Pace Project No.: 60276306

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60276306001	**MW-61R-201807**	EPA 3010	538263	EPA 6010	538346
60276306002	**MW-185-201807**	EPA 3010	538263	EPA 6010	538346
60276306003	**MW-194-201807**	EPA 3010	538263	EPA 6010	538346
60276306004	**TMW-21-201807**	EPA 3010	538263	EPA 6010	538346
60276306005	**TMW-10-201807**	EPA 3010	538263	EPA 6010	538346
60276306001	**MW-61R-201807**	EPA 5030B/8260	538939		
60276306002	**MW-185-201807**	EPA 5030B/8260	538939		
60276306003	**MW-194-201807**	EPA 5030B/8260	538939		
60276306004	**TMW-21-201807**	EPA 5030B/8260	538939		
60276306004	**TMW-21-201807**	EPA 5030B/8260	539010		
60276306005	**TMW-10-201807**	EPA 5030B/8260	538939		
60276306006	**TRIP BLANK-01**	EPA 5030B/8260	538939		
60276306001	**MW-61R-201807**	SM 3500-Fe B#4	539028		
60276306002	**MW-185-201807**	SM 3500-Fe B#4	539028		
60276306003	**MW-194-201807**	SM 3500-Fe B#4	539028		
60276306004	**TMW-21-201807**	SM 3500-Fe B#4	539028		
60276306005	**TMW-10-201807**	SM 3500-Fe B#4	539028		
60276306001	**MW-61R-201807**	EPA 300.0	537883		
60276306002	**MW-185-201807**	EPA 300.0	537883		
60276306003	**MW-194-201807**	EPA 300.0	537907		
60276306004	**TMW-21-201807**	EPA 300.0	537907		
60276306005	**TMW-10-201807**	EPA 300.0	537907		
60276306001	**MW-61R-201807**	EPA 353.2	537374		
60276306002	**MW-185-201807**	EPA 353.2	537374		
60276306003	**MW-194-201807**	EPA 353.2	537374		
60276306004	**TMW-21-201807**	EPA 353.2	537374		
60276306005	**TMW-10-201807**	EPA 353.2	537374		
60276306001	**MW-61R-201807**	SM 5310C	537578		
60276306002	**MW-185-201807**	SM 5310C	537578		
60276306003	**MW-194-201807**	SM 5310C	537578		
60276306004	**TMW-21-201807**	SM 5310C	537578		
60276306005	**TMW-10-201807**	SM 5310C	537578		
60276306001	**MW-61R-201807**	SM 5310C	537579		
60276306002	**MW-185-201807**	SM 5310C	537579		
60276306003	**MW-194-201807**	SM 5310C	537579		
60276306004	**TMW-21-201807**	SM 5310C	537579		
60276306005	**TMW-10-201807**	SM 5310C	537579		

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Sample Condition Upon Receipt

WO# : 60276306

60276306

Client Name: Ramboll

Courier: FedEx ☒ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 7820 8933 4386 Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☐

Thermometer Used: 301 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.8 **Corr. Factor** +1.0 **Corrected** 3.8

KM

Date and initials of person examining contents: 3831

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	NA
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☒Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	~~Environ~~ Ramboll	Report To:	Tamara House-Knight	Attention:	Tamara House-Knight
Address:	7500 College Blvd., Ste. 925	Copy To:		Company Name:	~~Environ~~ Ramboll
	Overland Park, KS 66210			Address:	124 W. Capital Avenue
Email To:		Purchase Order No.:	NA	Pace Quote Reference:	Little Rock, AR 72201
Phone:	913-553-5926 Fax:	Project Name:	Fort Smith, AR	Pace Project Manager:	Richard Mannz
Requested Due Date/TAT:		Project Number:		Pace Profile #:	7444

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER ADEQ

Site Location STATE: AR

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: VOC's 8260	Cl, SO4, NO3	Total Organic Carbon	Dissolved Organic Carbon *	Total Iron	Ferric Iron	Methan, Ethane Ethene AM20GAX	Volatile Fatty Acids AM21G		CO2 Calc (Alkalinity +pH)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 102763a
1	MW-61R-201807	WT	G			7/31/18	1120		12	4	1	1	3				3		X	X	X	X	X	X	X	X	AG2A BP3N	AG3S BP3N (3)DG4H (3)VG9A (2)OTHR	001
2	MW-185-201807						1310																					002
3	MW-194-201807						1450																					003
4	TMW-21-201807						1605																					004
5	TMW-10-201807						1725																					005
6	Trip Blank-01								2																		(2)DG4H TB	006
7																												
8																												
9																												
10																												
11																												
12																												

Haley Ahlers

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Level IV data package required	Haley Ahlers / Ramboll	7/31/18	1840		8/1	0810	3B	Y	Y	Y
* DOC to be lab filtered										
Ferrous Iron Field Reading (mg/L)										
MW-61R-201807 - 3.30										
MW-185-201807 - 0.18										
MW-194-201807 - 0.49										
TMW-21-201807 - 0.00										
TMW-10-201807 - 0.05										

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Haley Ahlers					
SIGNATURE of SAMPLER:	Haley Ahlers	DATE Signed (MM/DD/YY): 07/31/18				

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 9, 2018

Colleen Clyne
Pace Analytical Services
9608 Loiret Blvd
Lenexa, KS 66219

RE: **60276306 FORT SMITH,AR**
Pace Workorder: 27630

Dear Colleen Clyne:

Enclosed are the analytical results for sample(s) received by the laboratory on Thursday, August 02, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 08/09/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com. Total Number of Pages ____

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID	Sample ID	Matrix	Date Collected	Date Received
276300001	MW-61R-201807	Water	7/31/2018 11:20	8/2/2018 13:38
276300002	MW-185-201807	Water	7/31/2018 13:10	8/2/2018 13:38
276300003	MW-194-201807	Water	7/31/2018 14:50	8/2/2018 13:38
276300004	TMW-21-201807	Water	7/31/2018 16:05	8/2/2018 13:38
276300005	TMW-10-201807	Water	7/31/2018 17:25	8/2/2018 13:38

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ANALYTICAL RESULTS

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID: **276300001** Date Received: 8/2/2018 13:38 Matrix: Water

Sample ID: **MW-61R-201807** Date Collected: 7/31/2018 11:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/3/2018 13:46	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/3/2018 13:46	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/3/2018 13:46	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/3/2018 13:46	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/3/2018 13:46	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**8400**	ug/l	0.50	0.020	1	8/7/2018 11:53	BW	n
Ethane	**0.26**	ug/l	0.10	0.0070	1	8/7/2018 11:53	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	8/7/2018 11:53	BW	n

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ANALYTICAL RESULTS

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID: **276300002** Date Received: 8/2/2018 13:38 Matrix: Water

Sample ID: **MW-185-201807** Date Collected: 7/31/2018 13:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/3/2018 15:04	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/3/2018 15:04	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/3/2018 15:04	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/3/2018 15:04	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/3/2018 15:04	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**0.64**	ug/l	0.50	0.020	1	8/7/2018 12:13	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/7/2018 12:13	BW	n
Ethene	**0.17**	ug/l	0.10	0.0050	1	8/7/2018 12:13	BW	n

nelac ACCREDITED IN ACCORDANCE WITH

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ANALYTICAL RESULTS

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID: **276300003** Date Received: 8/2/2018 13:38 Matrix: Water

Sample ID: **MW-194-201807** Date Collected: 7/31/2018 14:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/3/2018 15:29	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/3/2018 15:29	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/3/2018 15:29	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/3/2018 15:29	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/3/2018 15:29	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.020	1	8/7/2018 12:25	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/7/2018 12:25	BW	n
Ethene	**0.14**	ug/l	0.10	0.0050	1	8/7/2018 12:25	BW	n

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ANALYTICAL RESULTS

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID: **276300004** Date Received: 8/2/2018 13:38 Matrix: Water

Sample ID: **TMW-21-201807** Date Collected: 7/31/2018 16:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/3/2018 15:55	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/3/2018 15:55	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/3/2018 15:55	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/3/2018 15:55	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/3/2018 15:55	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**1.5**	ug/l	0.50	0.020	1	8/7/2018 12:38	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/7/2018 12:38	BW	n
Ethene	**0.39**	ug/l	0.10	0.0050	1	8/7/2018 12:38	BW	n

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ANALYTICAL RESULTS

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID: **276300005** Date Received: 8/2/2018 13:38 Matrix: Water

Sample ID: **TMW-10-201807** Date Collected: 7/31/2018 17:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/3/2018 16:21	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/3/2018 16:21	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/3/2018 16:21	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/3/2018 16:21	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/3/2018 16:21	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**490**	ug/l	0.50	0.020	1	8/7/2018 12:47	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/7/2018 12:47	BW	n
Ethene	**0.38**	ug/l	0.10	0.0050	1	8/7/2018 12:47	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 27630 60276306 FORT SMITH,AR

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA

Workorder: 27630 60276306 FORT SMITH,AR

QC Batch: EDON/3828 Analysis Method: AM21G

QC Batch Method: AM21G

Associated Lab Samples: 276300001, 276300002, 276300003, 276300004, 276300005

METHOD BLANK: 56780

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	<5.0	5.0	n
Propionic Acid	mg/l	<5.0	5.0	n
Pyruvic Acid	mg/l	<5.0	5.0	n
Butyric Acid	mg/l	<5.0	5.0	n
Lactic Acid	mg/l	<10	10	n

LABORATORY CONTROL SAMPLE: 56781

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	100	110	110	70-130	n
Propionic Acid	mg/l	100	110	113	70-130	n
Pyruvic Acid	mg/l	100	120	121	70-130	n
Butyric Acid	mg/l	100	110	113	70-130	n
Lactic Acid	mg/l	100	110	110	70-130	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 56782 56783 Original: 276300001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	0.41	100	110	97	109	97	70-130	12	20	n
Propionic Acid	mg/l	0	100	110	97	111	97	70-130	13	20	n
Pyruvic Acid	mg/l	0	100	120	120	120	119	70-130	1.3	20	n
Butyric Acid	mg/l	0	100	110	100	111	101	70-130	9.7	20	n
Lactic Acid	mg/l	0	100	110	100	107	106	70-130	0.9	20	n

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QUALITY CONTROL DATA

Workorder: 27630 60276306 FORT SMITH,AR

QC Batch: DISG/6995 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 276300001, 276300002, 276300003, 276300004, 276300005

METHOD BLANK: 56807

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 56808 56809

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	690	680	92	90	80-120	1.9	20	n
Ethane	ug/l	38	41	41	107	107	80-120	0.068	20	n
Ethene	ug/l	35	38	38	106	107	80-120	0.24	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 27630 60276306 FORT SMITH,AR

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 27630 60276306 FORT SMITH,AR

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
276300001	MW-61R-201807			AM21G	EDON/3828
276300002	MW-185-201807			AM21G	EDON/3828
276300003	MW-194-201807			AM21G	EDON/3828
276300004	TMW-21-201807			AM21G	EDON/3828
276300005	TMW-10-201807			AM21G	EDON/3828
276300001	MW-61R-201807			AM20GAX	DISG/6995
276300002	MW-185-201807			AM20GAX	DISG/6995
276300003	MW-194-201807			AM20GAX	DISG/6995
276300004	TMW-21-201807			AM20GAX	DISG/6995
276300005	TMW-10-201807			AM20GAX	DISG/6995

CERTIFICATE OF ANALYSIS
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Chain of Custody

27630

Pace Analytical®
www.pacelabs.com

Workorder: 60276306 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 8/13/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9179

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	AM20GAX MEE	AM21G VFA	LAB USE ONLY
1	MW-61R-201807	7/31/2018 11:20	60276306001	Water	5	X	X	
2	MW-185-201807	7/31/2018 13:10	60276306002	Water	5	X	X	
3	MW-194-201807	7/31/2018 14:50	60276306003	Water	5	X	X	
4	TMW-21-201807	7/31/2018 16:05	60276306004	Water	5	X	X	
5	TMW-10-201807	7/31/2018 17:25	60276306005	Water	5	X	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	EBrackett / Pace	8/1/18 1020	RWelsh	8-2-18 1135
2				
3				

Comments

Cooler Temperature on Receipt ____ °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: Pace KS **Project:** 60276306 **Lab Work Order:** 27630

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 4542 2779 1213

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2.6 **Radiation Screened:** Yes No **Chain of Custody Present:** Yes No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : AWelsh **Date:** 8-2-18

Project Manager Review : ERG **Date:** 8/2/18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 17, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: FORT SMITH, AR
Pace Project No.: 60276523

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on August 02, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: FORT SMITH, AR
Pace Project No.: 60276523

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: FORT SMITH, AR
Pace Project No.: 60276523

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60276523001	**TMW-22-201807**	Water	08/01/18 10:15	08/02/18 08:35
60276523002	**TRIP-BLANK-02**	Water	08/01/18 10:15	08/02/18 08:35

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SAMPLE ANALYTE COUNT

Project: FORT SMITH, AR
Pace Project No.: 60276523

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60276523001	**TMW-22-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	OL, WNM	2	PASI-K
		EPA 353.2	CMS1	3	PASI-K
		SM 5310C	LDF	1	PASI-K
		SM 5310C	LDF	1	PASI-K
60276523002	**TRIP-BLANK-02**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
2 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 539010

B: Analyte was detected in the associated method blank.

- BLANK for HBN 539010 [MSV/9107 (Lab ID: 2208670)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 539010

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **SM 3500-Fe B#4**
Description: Iron, Ferric (Calculation)
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
1 sample was analyzed for SM 3500-Fe B#4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 538825

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276341006,60276454003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2207328)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
1 sample was analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 537654

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276390003,60276473003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2202672)
  - Nitrogen, Nitrite

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
1 sample was analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: August 17, 2018

General Information:
1 sample was analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276523

Sample: TMW-22-201807 **Lab ID: 60276523001** Collected: 08/01/18 10:15 Received: 08/02/18 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**694**	ug/L	50.0	6.1	1	08/08/18 10:03	08/08/18 22:12	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		08/13/18 13:43	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/13/18 13:43	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/13/18 13:43	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/13/18 13:43	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/13/18 13:43	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/13/18 13:43	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/13/18 13:43	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/13/18 13:43	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/13/18 13:43	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/13/18 13:43	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/13/18 13:43	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/13/18 13:43	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/13/18 13:43	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/13/18 13:43	75-34-3	
1,2-Dichloroethane	**0.19J**	ug/L	1.0	0.12	1		08/13/18 13:43	107-06-2	B
1,1-Dichloroethene	**0.97J**	ug/L	1.0	0.20	1		08/13/18 13:43	75-35-4	
cis-1,2-Dichloroethene	**28.7**	ug/L	1.0	0.080	1		08/13/18 13:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/13/18 13:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/13/18 13:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/13/18 13:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/13/18 13:43	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/13/18 13:43	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/13/18 13:43	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/13/18 13:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/13/18 13:43	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/13/18 13:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/13/18 13:43	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/13/18 13:43	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/13/18 13:43	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/13/18 13:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/13/18 13:43	79-00-5	
Trichloroethene	**460**	ug/L	20.0	3.4	20		08/13/18 13:57	79-01-6	
Vinyl chloride	**0.20J**	ug/L	1.0	0.13	1		08/13/18 13:43	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/13/18 13:43	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		08/13/18 13:43	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-117		1		08/13/18 13:43	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/13/18 13:43	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/13/18 13:43		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**0.31**	mg/L	0.050		1		08/13/18 10:12	7439-89-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276523

Sample: TMW-22-201807 **Lab ID: 60276523001** Collected: 08/01/18 10:15 Received: 08/02/18 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**190**	mg/L	20.0	9.2	20		08/11/18 12:03	16887-00-6	
Sulfate	**5.6**	mg/L	1.0	0.24	1		08/08/18 23:51	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.078	1		08/03/18 10:01		
Nitrogen, Nitrite	ND	mg/L	0.10	0.055	1		08/03/18 10:01		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.078	1		08/03/18 10:01		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		08/07/18 14:03	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		08/07/18 18:25	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276523

Sample: TRIP-BLANK-02 **Lab ID: 60276523002** Collected: 08/01/18 10:15 Received: 08/02/18 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.0J**	ug/L	10.0	1.9	1		08/13/18 13:29	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/13/18 13:29	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/13/18 13:29	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/13/18 13:29	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/13/18 13:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/13/18 13:29	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/13/18 13:29	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/13/18 13:29	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/13/18 13:29	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/13/18 13:29	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/13/18 13:29	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/13/18 13:29	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/13/18 13:29	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/13/18 13:29	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		08/13/18 13:29	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/13/18 13:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		08/13/18 13:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/13/18 13:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/13/18 13:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/13/18 13:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/13/18 13:29	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/13/18 13:29	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/13/18 13:29	591-78-6	
Methylene chloride	**0.91J**	ug/L	1.0	0.15	1		08/13/18 13:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/13/18 13:29	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/13/18 13:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/13/18 13:29	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/13/18 13:29	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/13/18 13:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/13/18 13:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/13/18 13:29	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		08/13/18 13:29	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/13/18 13:29	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/13/18 13:29	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	80-119		1		08/13/18 13:29	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		08/13/18 13:29	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		08/13/18 13:29	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/13/18 13:29		

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 538263 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60276523001

METHOD BLANK: 2205022 Matrix: Water
Associated Lab Samples: 60276523001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	16.1J	50.0	6.1	08/08/18 21:16	

LABORATORY CONTROL SAMPLE: 2205023

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9820	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2205024 2205025

Parameter	Units	60276406003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	ND	10000	10000	9680	9620	97	96	75-125	1	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 539010
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60276523001, 60276523002

METHOD BLANK: 2208670
Matrix: Water
Associated Lab Samples: 60276523001, 60276523002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	08/13/18 09:16	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	08/13/18 09:16	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	08/13/18 09:16	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	08/13/18 09:16	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	08/13/18 09:16	
1,2-Dichloroethane	ug/L	0.16J	1.0	0.12	08/13/18 09:16	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	08/13/18 09:16	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	08/13/18 09:16	
2-Hexanone	ug/L	ND	10.0	1.2	08/13/18 09:16	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	08/13/18 09:16	
Acetone	ug/L	ND	10.0	1.9	08/13/18 09:16	
Benzene	ug/L	ND	1.0	0.060	08/13/18 09:16	
Bromodichloromethane	ug/L	ND	1.0	0.19	08/13/18 09:16	
Bromoform	ug/L	ND	1.0	0.070	08/13/18 09:16	
Bromomethane	ug/L	ND	5.0	0.16	08/13/18 09:16	
Carbon disulfide	ug/L	ND	5.0	0.12	08/13/18 09:16	
Carbon tetrachloride	ug/L	ND	1.0	0.18	08/13/18 09:16	
Chlorobenzene	ug/L	ND	1.0	0.21	08/13/18 09:16	
Chloroethane	ug/L	ND	1.0	0.15	08/13/18 09:16	
Chloroform	ug/L	ND	1.0	0.14	08/13/18 09:16	
Chloromethane	ug/L	ND	1.0	0.080	08/13/18 09:16	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	08/13/18 09:16	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	08/13/18 09:16	
Dibromochloromethane	ug/L	ND	1.0	0.21	08/13/18 09:16	
Ethylbenzene	ug/L	ND	1.0	0.18	08/13/18 09:16	
Methylene chloride	ug/L	ND	1.0	0.15	08/13/18 09:16	
Styrene	ug/L	ND	1.0	0.12	08/13/18 09:16	
Tetrachloroethene	ug/L	ND	1.0	0.10	08/13/18 09:16	
Toluene	ug/L	ND	1.0	0.17	08/13/18 09:16	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	08/13/18 09:16	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	08/13/18 09:16	
Trichloroethene	ug/L	ND	1.0	0.17	08/13/18 09:16	
Vinyl chloride	ug/L	ND	1.0	0.13	08/13/18 09:16	
Xylene (Total)	ug/L	ND	3.0	0.42	08/13/18 09:16	
1,2-Dichloroethane-d4 (S)	%	95	80-117		08/13/18 09:16	
4-Bromofluorobenzene (S)	%	98	80-119		08/13/18 09:16	
Toluene-d8 (S)	%	99	80-115		08/13/18 09:16	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

LABORATORY CONTROL SAMPLE: 2208671

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.3	101	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.5	103	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	20.9	104	85-128	
1,1-Dichloroethene	ug/L	20	21.7	109	85-123	
1,2-Dichloroethane	ug/L	20	20.2	101	77-120	
1,2-Dichloropropane	ug/L	20	21.4	107	81-126	
2-Butanone (MEK)	ug/L	100	116	116	65-134	
2-Hexanone	ug/L	100	112	112	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	118	118	66-139	
Acetone	ug/L	100	116	116	62-142	
Benzene	ug/L	20	20.1	100	81-118	
Bromodichloromethane	ug/L	20	21.7	109	85-123	
Bromoform	ug/L	20	21.3	107	83-123	
Bromomethane	ug/L	20	23.1	116	39-149	
Carbon disulfide	ug/L	20	20.8	104	85-124	
Carbon tetrachloride	ug/L	20	21.4	107	85-126	
Chlorobenzene	ug/L	20	21.0	105	87-118	
Chloroethane	ug/L	20	19.8	99	73-134	
Chloroform	ug/L	20	20.7	103	85-119	
Chloromethane	ug/L	20	28.7	144	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.7	103	84-121	
cis-1,3-Dichloropropene	ug/L	20	21.0	105	80-124	
Dibromochloromethane	ug/L	20	21.7	108	83-122	
Ethylbenzene	ug/L	20	21.5	107	80-118	
Methylene chloride	ug/L	20	21.5	108	81-126	
Styrene	ug/L	20	21.3	107	85-120	
Tetrachloroethene	ug/L	20	20.3	101	87-120	
Toluene	ug/L	20	19.7	98	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	102	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.2	101	80-122	
Trichloroethene	ug/L	20	21.8	109	82-120	
Vinyl chloride	ug/L	20	23.3	117	74-147	
Xylene (Total)	ug/L	60	61.4	102	81-120	
1,2-Dichloroethane-d4 (S)	%			106	80-117	
4-Bromofluorobenzene (S)	%			96	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 538308
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276523001

METHOD BLANK: 2205165
Matrix: Water
Associated Lab Samples: 60276523001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	08/08/18 19:20	

LABORATORY CONTROL SAMPLE: 2205166

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	97	90-110	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 538825 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276523001

METHOD BLANK: 2207324 Matrix: Water
Associated Lab Samples: 60276523001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.46	08/11/18 08:18	

LABORATORY CONTROL SAMPLE: 2207325

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2207326 2207327

Parameter	Units	60276454003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	350	250	250	598	602	99	101	90-110	1	15	

MATRIX SPIKE SAMPLE: 2207328

Parameter	Units	60276341006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	54900	25000	83700	115	90-110	M1

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 537654
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60276523001

METHOD BLANK: 2202670 Matrix: Water
Associated Lab Samples: 60276523001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.078	08/03/18 09:57	
Nitrogen, Nitrite	mg/L	ND	0.10	0.055	08/03/18 09:57	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.078	08/03/18 09:57	

LABORATORY CONTROL SAMPLE: 2202671

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.98	98	70-130	
Nitrogen, Nitrite	mg/L	1	1.1	109	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.1	103	90-110	

MATRIX SPIKE SAMPLE: 2202672

Parameter	Units	60276390003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	<0.10	1	0.92	92	70-130	H3
Nitrogen, Nitrite	mg/L	<0.10	1	1.1	114	90-110	H3,M1
Nitrogen, NO2 plus NO3	mg/L	<0.10	2	2.1	103	90-110	H3

MATRIX SPIKE SAMPLE: 2202674

Parameter	Units	60276473003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	14.2	10	21.9	76	70-130	
Nitrogen, Nitrite	mg/L	ND	10	10.9	109	90-110	
Nitrogen, NO2 plus NO3	mg/L	14.2	20	32.8	93	90-110	

SAMPLE DUPLICATE: 2202673

Parameter	Units	60276397003 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	7.8	7.9	0	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	7.8	7.9	0	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 537885 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60276523001

METHOD BLANK: 2203782 Matrix: Water
Associated Lab Samples: 60276523001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	08/07/18 09:22	

LABORATORY CONTROL SAMPLE: 2203783

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.5	111	80-120	

MATRIX SPIKE SAMPLE: 2203784

Parameter	Units	60276629001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.6	5	8.5	118	80-120	

SAMPLE DUPLICATE: 2203785

Parameter	Units	60276629002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	1.4	1.4	0	25	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276523

QC Batch: 537886 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60276523001

METHOD BLANK: 2203786 Matrix: Water
Associated Lab Samples: 60276523001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	08/07/18 15:46	

LABORATORY CONTROL SAMPLE: 2203787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.7	114	80-120	

MATRIX SPIKE SAMPLE: 2203788

Parameter	Units	60276629001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	3.1	5	8.0	99	80-120	

SAMPLE DUPLICATE: 2203789

Parameter	Units	60276629002 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	1.6	1.6	0	25	

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QUALIFIERS

Project: FORT SMITH, AR
Pace Project No.: 60276523

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 539010

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FORT SMITH, AR
Pace Project No.: 60276523

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60276523001	**TMW-22-201807**	EPA 3010	538263	EPA 6010	538346
60276523001	**TMW-22-201807**	EPA 5030B/8260	539010		
60276523002	**TRIP-BLANK-02**	EPA 5030B/8260	539010		
60276523001	**TMW-22-201807**	SM 3500-Fe B#4	539028		
60276523001	**TMW-22-201807**	EPA 300.0	538308		
60276523001	**TMW-22-201807**	EPA 300.0	538825		
60276523001	**TMW-22-201807**	EPA 353.2	537654		
60276523001	**TMW-22-201807**	SM 5310C	537885		
60276523001	**TMW-22-201807**	SM 5310C	537886		

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Sample Condition Upon Receipt

WO# : 60276523

60276523

Client Name: Ramboll

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 7821 0834 3416 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☑ zplc

Thermometer Used: T-298 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 1.6 **Corr. Factor** +1.1 **Corrected** 2.7

Date and initials of person examining contents: 8/31/18 RR

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	Fest
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	~~Environ~~ Ramboll
Address:	7500 College Blvd., Ste. 925
	Overland Park, KS 66210
Email To:	
Phone: 913-553-5926	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Tamara House-Knight
Copy To:	
Purchase Order No.:	NA
Project Name:	Fort Smith, AR
Project Number:	

Section C Invoice Information:

Attention:	Tamara House-Knight
Company Name:	~~Environ~~ Ramboll
Address:	124 W. Capital Avenue
Pace Quote Reference:	Little Rock, AR 72201
Pace Project Manager:	Richard Mannz
Pace Profile #:	7444

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER ADEQ

Site Location STATE: AR

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	VOC's 8260	Cl, SO4, NO3	Total Organic Carbon	Dissolved Organic Carbon *	Total Iron	Ferric Iron	Methan, Ethane Ethene AM20GAX	Volatile Fatty Acids AM21G	CO2 Calc (Alkalinity +pH)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TMW-22-201807	WT	G	~~8/1/18~~	~~1015~~	8/1/18	1015		12	4	1	1	3				3		X	X	X	X	X	X	X	~~A6934~~, A6935, ~~8934~~, ~~8934~~ 3D694H, 20694		001
2	Trip-Blank-02	↓											2						X									002
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Level IV data package required	Haley Ahlers/Ramboll	8/1/18	1840	E Brockett / Pace	8/2/18	0835	2.7	Y	Y	Y
* DOC to be lab filtered										
Ferrous Iron Field Reading (mg/L)										
TMW-22-201807 - 0.38										

	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
SAMPLER NAME AND SIGNATURE				
PRINT Name of SAMPLER: Haley Ahlers				
SIGNATURE of SAMPLER: Haley Ahlers				
DATE Signed (MM/DD/YY): ~~8/1/18~~ 8/1/18				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 16, 2018

Colleen Clyne
Pace Analytical Services
9608 Loiret Blvd
Lenexa, KS 66219

RE: **Fort Smith, AR**
Pace Workorder: 27675

Dear Colleen Clyne:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, August 07, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 08/16/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 11

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 27675 Fort Smith, AR

Lab ID	Sample ID	Matrix	Date Collected	Date Received
276750001	TMW-22-201807	Water	8/1/2018 10:15	8/7/2018 11:25

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ANALYTICAL RESULTS

Workorder: 27675 Fort Smith, AR

Lab ID: **276750001** Date Received: 8/7/2018 11:25 Matrix: Water

Sample ID: **TMW-22-201807** Date Collected: 8/1/2018 10:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/8/2018 20:01	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/8/2018 20:01	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/8/2018 20:01	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/8/2018 20:01	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/8/2018 20:01	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**14**	ug/l	0.50	0.099	1	8/11/2018 13:30	TD	n
Ethane	**1.1**	ug/l	0.10	0.0090	1	8/11/2018 13:30	TD	n
Ethene	**0.11**	ug/l	0.10	0.0050	1	8/11/2018 13:30	TD	n

nelac

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 27675 Fort Smith, AR

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA

Workorder: 27675 Fort Smith, AR

QC Batch: EDON/3830 Analysis Method: AM21G

QC Batch Method: AM21G

Associated Lab Samples: 276750001

METHOD BLANK: 56867

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	<5.0	5.0	n
Propionic Acid	mg/l	<5.0	5.0	n
Pyruvic Acid	mg/l	<5.0	5.0	n
Butyric Acid	mg/l	<5.0	5.0	n
Lactic Acid	mg/l	<10	10	n

LABORATORY CONTROL SAMPLE: 56868

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	100	110	110	70-130	n
Propionic Acid	mg/l	100	110	113	70-130	n
Pyruvic Acid	mg/l	100	120	121	70-130	n
Butyric Acid	mg/l	100	110	113	70-130	n
Lactic Acid	mg/l	100	110	111	70-130	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 56870 56871 Original: 276740001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	0	100	110	96	111	96	70-130	15	20	n
Propionic Acid	mg/l	0	100	110	97	113	97	70-130	15	20	n
Pyruvic Acid	mg/l	0	100	120	120	123	116	70-130	6.1	20	n
Butyric Acid	mg/l	0	100	110	100	114	101	70-130	11	20	n
Lactic Acid	mg/l	0	100	110	110	110	107	70-130	2.5	20	n

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QUALITY CONTROL DATA

Workorder: 27675 Fort Smith, AR

QC Batch: DISG/7007 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 276750001

METHOD BLANK: 56924

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 56926 56928

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	770	860	880	112	114	80-120	2.3	20	n
Ethane	ug/l	76	81	81	107	107	80-120	0.5	20	n
Ethene	ug/l	71	76	77	108	109	80-120	1.1	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 27675 Fort Smith, AR

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 27675 Fort Smith, AR

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
276750001	TMW-22-201807			AM21G	EDON/3830
276750001	TMW-22-201807			AM20GAX	DISG/7007

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Chain of Custody

27675

Pace Analytical®
www.pacelabs.com

Workorder: 60276523 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 8/14/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9183

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	AM20GAX MEE	AM21G VFA	LAB USE ONLY
1	TMW-22-201807	8/1/2018 10:15	60276523001	Water	5	X	X	
2								
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler PASI	8.6.18 1700	[illegible] PAES	8/7/18 11:25
2				
3				

Comments

Cooler Temperature on Receipt 2.4 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

Cooler Receipt Form

Client Name: Pace Project: Fort Smith, AR Lab Work Order: 27675

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 4542 2779 3970

Custody Seal on Cooler/Box Present: (Yes) No EPS 8/7/18 Seals Intact: (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 2.4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓		✓	
Sampler Name & Signature on COC	✓		✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓		✓	
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?		✓	✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by: EPS Date: 8/7/18

Project Manager Review: RW Date: 8-8-18

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 22, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: FORT SMITH, AR
Pace Project No.: 60276564

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on August 03, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: FORT SMITH, AR
Pace Project No.: 60276564

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: FORT SMITH, AR
Pace Project No.: 60276564

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60276564001	**TMW-16-201807**	Water	08/02/18 15:20	08/03/18 10:47
60276564002	**TMW-26-201807**	Water	08/02/18 16:50	08/03/18 10:47
60276564003	**TRIP BLANK-03**	Water	08/02/18 15:20	08/03/18 10:47

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SAMPLE ANALYTE COUNT

Project: FORT SMITH, AR
Pace Project No.: 60276564

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60276564001	**TMW-16-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	OL	2	PASI-K
		EPA 353.2	OL	3	PASI-K
		SM 5310C	LDF	1	PASI-K
		SM 5310C	LDF	1	PASI-K
60276564002	**TMW-26-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	OL	2	PASI-K
		EPA 353.2	OL	3	PASI-K
		SM 5310C	LDF	1	PASI-K
		SM 5310C	LDF	1	PASI-K
60276564003	**TRIP BLANK-03**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
3 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 539298

B: Analyte was detected in the associated method blank.

- BLANK for HBN 539298 [MSV/9111 (Lab ID: 2209444)
  - 1,2-Dichloroethane
  - Acetone

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 539298

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **SM 3500-Fe B#4**
Description: Iron, Ferric (Calculation)
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for SM 3500-Fe B#4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 538825

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276341006,60276454003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2207328)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 538294

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276444001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2205136)
  - Total Organic Carbon

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276564

Sample: TMW-16-201807 **Lab ID: 60276564001** Collected: 08/02/18 15:20 Received: 08/03/18 10:47 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**110**	ug/L	50.0	6.1	1	08/08/18 16:06	08/13/18 11:16	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**4.0J**	ug/L	10.0	1.9	1		08/13/18 23:46	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/13/18 23:46	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/13/18 23:46	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/13/18 23:46	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/13/18 23:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/13/18 23:46	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/13/18 23:46	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/13/18 23:46	56-23-5	
Chlorobenzene	**0.55J**	ug/L	1.0	0.21	1		08/13/18 23:46	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/13/18 23:46	75-00-3	
Chloroform	**1.5**	ug/L	1.0	0.14	1		08/13/18 23:46	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/13/18 23:46	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/13/18 23:46	124-48-1	
1,1-Dichloroethane	**0.31J**	ug/L	1.0	0.050	1		08/13/18 23:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/13/18 23:46	107-06-2	
1,1-Dichloroethene	**1.4**	ug/L	1.0	0.20	1		08/13/18 23:46	75-35-4	
cis-1,2-Dichloroethene	**15.1**	ug/L	1.0	0.080	1		08/13/18 23:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/13/18 23:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/13/18 23:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/13/18 23:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/13/18 23:46	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/13/18 23:46	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/13/18 23:46	591-78-6	
Methylene chloride	**0.71J**	ug/L	1.0	0.15	1		08/13/18 23:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/13/18 23:46	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/13/18 23:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/13/18 23:46	79-34-5	
Tetrachloroethene	**0.38J**	ug/L	1.0	0.10	1		08/13/18 23:46	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/13/18 23:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/13/18 23:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/13/18 23:46	79-00-5	
Trichloroethene	**988**	ug/L	10.0	1.7	10		08/14/18 00:01	79-01-6	
Vinyl chloride	**0.81J**	ug/L	1.0	0.13	1		08/13/18 23:46	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/13/18 23:46	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		08/13/18 23:46	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-117		1		08/13/18 23:46	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		08/13/18 23:46	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/13/18 23:46		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**0.11**	mg/L	0.050		1		08/15/18 15:10	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276564

Sample: TMW-16-201807 **Lab ID: 60276564001** Collected: 08/02/18 15:20 Received: 08/03/18 10:47 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**250**	mg/L	20.0	9.2	20		08/11/18 16:03	16887-00-6	
Sulfate	**96.6**	mg/L	10.0	2.4	10		08/11/18 16:18	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**96.3**	mg/L	5.0	3.9	50		08/04/18 08:11		
Nitrogen, Nitrite	ND	mg/L	5.0	2.8	50		08/04/18 08:11		
Nitrogen, NO2 plus NO3	**96.3**	mg/L	5.0	3.9	50		08/04/18 08:11		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		08/08/18 14:36	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		08/07/18 18:38	7440-44-0	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276564

Sample: TMW-26-201807 **Lab ID: 60276564002** Collected: 08/02/18 16:50 Received: 08/03/18 10:47 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**12.6J**	ug/L	50.0	6.1	1	08/08/18 16:06	08/13/18 11:19	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.6J**	ug/L	10.0	1.9	1		08/13/18 23:33	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/13/18 23:33	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/13/18 23:33	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/13/18 23:33	75-25-2	
Bromomethane	**1.6J**	ug/L	5.0	0.16	1		08/13/18 23:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/13/18 23:33	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/13/18 23:33	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/13/18 23:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/13/18 23:33	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/13/18 23:33	75-00-3	
Chloroform	**0.21J**	ug/L	1.0	0.14	1		08/13/18 23:33	67-66-3	
Chloromethane	**2.5**	ug/L	1.0	0.080	1		08/13/18 23:33	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/13/18 23:33	124-48-1	
1,1-Dichloroethane	**0.27J**	ug/L	1.0	0.050	1		08/13/18 23:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		08/13/18 23:33	107-06-2	
1,1-Dichloroethene	**0.36J**	ug/L	1.0	0.20	1		08/13/18 23:33	75-35-4	
cis-1,2-Dichloroethene	**2.5**	ug/L	1.0	0.080	1		08/13/18 23:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/13/18 23:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/13/18 23:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/13/18 23:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/13/18 23:33	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/13/18 23:33	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/13/18 23:33	591-78-6	
Methylene chloride	**0.27J**	ug/L	1.0	0.15	1		08/13/18 23:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/13/18 23:33	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/13/18 23:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/13/18 23:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/13/18 23:33	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/13/18 23:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/13/18 23:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/13/18 23:33	79-00-5	
Trichloroethene	**96.1**	ug/L	1.0	0.17	1		08/13/18 23:33	79-01-6	
Vinyl chloride	**0.23J**	ug/L	1.0	0.13	1		08/13/18 23:33	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/13/18 23:33	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	99	%	80-119		1		08/13/18 23:33	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-117		1		08/13/18 23:33	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/13/18 23:33	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/13/18 23:33		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	ND	mg/L	0.050		1		08/15/18 15:10	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276564

Sample: TMW-26-201807 **Lab ID: 60276564002** Collected: 08/02/18 16:50 Received: 08/03/18 10:47 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**119**	mg/L	10.0	4.6	10		08/11/18 16:32	16887-00-6	
Sulfate	**100**	mg/L	10.0	2.4	10		08/11/18 16:32	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**30.7**	mg/L	2.0	1.6	20		08/04/18 08:14		
Nitrogen, Nitrite	ND	mg/L	2.0	1.1	20		08/04/18 08:14		
Nitrogen, NO2 plus NO3	**30.7**	mg/L	2.0	1.6	20		08/04/18 08:14		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		08/08/18 14:48	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		08/07/18 18:51	7440-44-0	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276564

Sample: TRIP BLANK-03 **Lab ID: 60276564003** Collected: 08/02/18 15:20 Received: 08/03/18 10:47 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.7J**	ug/L	10.0	1.9	1		08/14/18 16:45	67-64-1	B
Benzene	ND	ug/L	1.0	0.060	1		08/14/18 16:45	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/14/18 16:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/14/18 16:45	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/14/18 16:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/14/18 16:45	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/14/18 16:45	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/14/18 16:45	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/14/18 16:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/14/18 16:45	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/14/18 16:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/14/18 16:45	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/14/18 16:45	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/14/18 16:45	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		08/14/18 16:45	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 16:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		08/14/18 16:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 16:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/14/18 16:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/14/18 16:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/14/18 16:45	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/14/18 16:45	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/14/18 16:45	591-78-6	
Methylene chloride	**1.1**	ug/L	1.0	0.15	1		08/14/18 16:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/14/18 16:45	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/14/18 16:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/14/18 16:45	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/14/18 16:45	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/14/18 16:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/14/18 16:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/14/18 16:45	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		08/14/18 16:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/14/18 16:45	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/14/18 16:45	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		08/14/18 16:45	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		08/14/18 16:45	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		08/14/18 16:45	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/14/18 16:45		

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 538407 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60276564001, 60276564002

METHOD BLANK: 2205515 Matrix: Water
Associated Lab Samples: 60276564001, 60276564002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	08/13/18 11:01	

LABORATORY CONTROL SAMPLE: 2205516

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2205517 2205518

Parameter	Units	60276484011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	59.6	10000	10000	10000	9930	100	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 539060
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60276564001, 60276564002

METHOD BLANK: 2208811
Matrix: Water
Associated Lab Samples: 60276564001, 60276564002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	08/13/18 20:58	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	08/13/18 20:58	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	08/13/18 20:58	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	08/13/18 20:58	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	08/13/18 20:58	
1,2-Dichloroethane	ug/L	0.16J	1.0	0.12	08/13/18 20:58	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	08/13/18 20:58	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	08/13/18 20:58	
2-Hexanone	ug/L	ND	10.0	1.2	08/13/18 20:58	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	08/13/18 20:58	
Acetone	ug/L	ND	10.0	1.9	08/13/18 20:58	
Benzene	ug/L	ND	1.0	0.060	08/13/18 20:58	
Bromodichloromethane	ug/L	ND	1.0	0.19	08/13/18 20:58	
Bromoform	ug/L	ND	1.0	0.070	08/13/18 20:58	
Bromomethane	ug/L	ND	5.0	0.16	08/13/18 20:58	
Carbon disulfide	ug/L	ND	5.0	0.12	08/13/18 20:58	
Carbon tetrachloride	ug/L	ND	1.0	0.18	08/13/18 20:58	
Chlorobenzene	ug/L	ND	1.0	0.21	08/13/18 20:58	
Chloroethane	ug/L	ND	1.0	0.15	08/13/18 20:58	
Chloroform	ug/L	ND	1.0	0.14	08/13/18 20:58	
Chloromethane	ug/L	ND	1.0	0.080	08/13/18 20:58	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	08/13/18 20:58	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	08/13/18 20:58	
Dibromochloromethane	ug/L	ND	1.0	0.21	08/13/18 20:58	
Ethylbenzene	ug/L	ND	1.0	0.18	08/13/18 20:58	
Methylene chloride	ug/L	ND	1.0	0.15	08/13/18 20:58	
Styrene	ug/L	ND	1.0	0.12	08/13/18 20:58	
Tetrachloroethene	ug/L	ND	1.0	0.10	08/13/18 20:58	
Toluene	ug/L	ND	1.0	0.17	08/13/18 20:58	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	08/13/18 20:58	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	08/13/18 20:58	
Trichloroethene	ug/L	ND	1.0	0.17	08/13/18 20:58	
Vinyl chloride	ug/L	ND	1.0	0.13	08/13/18 20:58	
Xylene (Total)	ug/L	ND	3.0	0.42	08/13/18 20:58	
1,2-Dichloroethane-d4 (S)	%	94	80-117		08/13/18 20:58	
4-Bromofluorobenzene (S)	%	97	80-119		08/13/18 20:58	
Toluene-d8 (S)	%	98	80-115		08/13/18 20:58	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

LABORATORY CONTROL SAMPLE: 2208812

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.6	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.3	102	74-121	
1,1,2-Trichloroethane	ug/L	20	22.0	110	83-119	
1,1-Dichloroethane	ug/L	20	21.1	106	85-128	
1,1-Dichloroethene	ug/L	20	21.9	109	85-123	
1,2-Dichloroethane	ug/L	20	20.3	101	77-120	
1,2-Dichloropropane	ug/L	20	22.6	113	81-126	
2-Butanone (MEK)	ug/L	100	110	110	65-134	
2-Hexanone	ug/L	100	107	107	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	112	112	66-139	
Acetone	ug/L	100	104	104	62-142	
Benzene	ug/L	20	21.9	109	81-118	
Bromodichloromethane	ug/L	20	21.9	110	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.8	104	85-124	
Carbon tetrachloride	ug/L	20	22.3	111	85-126	
Chlorobenzene	ug/L	20	21.0	105	87-118	
Chloroethane	ug/L	20	18.7	94	73-134	
Chloroform	ug/L	20	20.8	104	85-119	
Chloromethane	ug/L	20	19.6	98	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.0	105	84-121	
cis-1,3-Dichloropropene	ug/L	20	21.4	107	80-124	
Dibromochloromethane	ug/L	20	22.0	110	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	21.6	108	81-126	
Styrene	ug/L	20	20.9	104	85-120	
Tetrachloroethene	ug/L	20	20.9	105	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.5	102	83-121	
trans-1,3-Dichloropropene	ug/L	20	21.2	106	80-122	
Trichloroethene	ug/L	20	23.4	117	82-120	
Vinyl chloride	ug/L	20	24.0	120	74-147	
Xylene (Total)	ug/L	60	59.5	99	81-120	
1,2-Dichloroethane-d4 (S)	%			99	80-117	
4-Bromofluorobenzene (S)	%			96	80-119	
Toluene-d8 (S)	%			99	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2208813 2208814

Parameter	Units	60276406003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	20.9	20.4	105	102	79-135	3	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	18.6	18.4	93	92	49-144	1	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.8	19.5	99	97	71-124	2	14	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2208813 2208814

Parameter	Units	60276406003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.0	20.9	105	105	77-135	0	12	
1,1-Dichloroethene	ug/L	ND	20	20	21.8	21.3	109	106	77-138	2	14	
1,2-Dichloroethane	ug/L	ND	20	20	18.5	18.3	92	91	47-152	1	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.8	21.1	109	105	74-128	3	13	
2-Butanone (MEK)	ug/L	ND	100	100	87.0	89.0	87	89	60-125	2	17	
2-Hexanone	ug/L	ND	100	100	85.8	86.9	86	87	53-133	1	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	93.0	95.5	93	96	62-134	3	15	
Acetone	ug/L	ND	100	100	78.6	85.7	79	86	50-127	9	28	
Benzene	ug/L	ND	20	20	21.1	20.4	106	102	62-138	4	34	
Bromodichloromethane	ug/L	ND	20	20	20.1	21.2	100	106	75-126	5	12	
Bromoform	ug/L	ND	20	20	17.6	18.9	88	95	70-122	8	14	
Bromomethane	ug/L	ND	20	20	21.4	23.0	107	115	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	21.3	21.4	107	107	70-148	0	14	
Carbon tetrachloride	ug/L	ND	20	20	22.0	22.1	110	110	78-139	0	23	
Chlorobenzene	ug/L	ND	20	20	20.6	19.8	103	99	74-130	4	10	
Chloroethane	ug/L	ND	20	20	19.3	19.5	96	98	67-153	1	27	
Chloroform	ug/L	ND	20	20	20.1	20.1	97	97	75-127	0	12	
Chloromethane	ug/L	ND	20	20	20.7	24.8	103	124	22-188	18	68	
cis-1,2-Dichloroethene	ug/L	16.9	20	20	36.3	38.0	97	105	69-135	4	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.3	95	97	61-129	2	11	
Dibromochloromethane	ug/L	ND	20	20	19.6	18.9	98	94	60-133	4	14	
Ethylbenzene	ug/L	ND	20	20	21.1	20.8	106	104	60-140	2	32	
Methylene chloride	ug/L	ND	20	20	20.4	21.0	102	105	72-131	3	16	
Styrene	ug/L	ND	20	20	18.7	18.2	93	91	59-142	2	12	
Tetrachloroethene	ug/L	ND	20	20	20.7	19.8	103	98	72-136	4	15	
Toluene	ug/L	ND	20	20	19.9	19.4	100	97	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.9	20.6	103	102	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.8	17.7	94	89	60-128	6	13	
Trichloroethene	ug/L	364	20	20	412	407	112	85	66-136	1	15	
Vinyl chloride	ug/L	ND	20	20	23.4	24.2	117	121	65-164	3	16	
Xylene (Total)	ug/L	ND	60	60	58.0	57.6	97	96	69-133	1	31	
1,2-Dichloroethane-d4 (S)	%						94	97	80-117			
4-Bromofluorobenzene (S)	%						99	99	80-119			
Toluene-d8 (S)	%						100	97	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 539298
QC Batch Method: EPA 5030B/8260
Associated Lab Samples: 60276564003

Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge

METHOD BLANK: 2209444
Associated Lab Samples: 60276564003

Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	08/14/18 16:31	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	08/14/18 16:31	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	08/14/18 16:31	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	08/14/18 16:31	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	08/14/18 16:31	
1,2-Dichloroethane	ug/L	0.16J	1.0	0.12	08/14/18 16:31	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	08/14/18 16:31	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	08/14/18 16:31	
2-Hexanone	ug/L	ND	10.0	1.2	08/14/18 16:31	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	08/14/18 16:31	
Acetone	ug/L	1.9J	10.0	1.9	08/14/18 16:31	
Benzene	ug/L	ND	1.0	0.060	08/14/18 16:31	
Bromodichloromethane	ug/L	ND	1.0	0.19	08/14/18 16:31	
Bromoform	ug/L	ND	1.0	0.070	08/14/18 16:31	
Bromomethane	ug/L	ND	5.0	0.16	08/14/18 16:31	
Carbon disulfide	ug/L	ND	5.0	0.12	08/14/18 16:31	
Carbon tetrachloride	ug/L	ND	1.0	0.18	08/14/18 16:31	
Chlorobenzene	ug/L	ND	1.0	0.21	08/14/18 16:31	
Chloroethane	ug/L	ND	1.0	0.15	08/14/18 16:31	
Chloroform	ug/L	ND	1.0	0.14	08/14/18 16:31	
Chloromethane	ug/L	ND	1.0	0.080	08/14/18 16:31	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	08/14/18 16:31	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	08/14/18 16:31	
Dibromochloromethane	ug/L	ND	1.0	0.21	08/14/18 16:31	
Ethylbenzene	ug/L	ND	1.0	0.18	08/14/18 16:31	
Methylene chloride	ug/L	ND	1.0	0.15	08/14/18 16:31	
Styrene	ug/L	ND	1.0	0.12	08/14/18 16:31	
Tetrachloroethene	ug/L	ND	1.0	0.10	08/14/18 16:31	
Toluene	ug/L	ND	1.0	0.17	08/14/18 16:31	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	08/14/18 16:31	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	08/14/18 16:31	
Trichloroethene	ug/L	ND	1.0	0.17	08/14/18 16:31	
Vinyl chloride	ug/L	ND	1.0	0.13	08/14/18 16:31	
Xylene (Total)	ug/L	ND	3.0	0.42	08/14/18 16:31	
1,2-Dichloroethane-d4 (S)	%	98	80-117		08/14/18 16:31	
4-Bromofluorobenzene (S)	%	100	80-119		08/14/18 16:31	
Toluene-d8 (S)	%	98	80-115		08/14/18 16:31	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

LABORATORY CONTROL SAMPLE: 2209445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.0	110	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.7	99	74-121	
1,1,2-Trichloroethane	ug/L	20	21.2	106	83-119	
1,1-Dichloroethane	ug/L	20	23.1	116	85-128	
1,1-Dichloroethene	ug/L	20	21.9	109	85-123	
1,2-Dichloroethane	ug/L	20	20.6	103	77-120	
1,2-Dichloropropane	ug/L	20	22.1	111	81-126	
2-Butanone (MEK)	ug/L	100	108	108	65-134	
2-Hexanone	ug/L	100	103	103	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	111	111	66-139	
Acetone	ug/L	100	106	106	62-142	
Benzene	ug/L	20	21.9	109	81-118	
Bromodichloromethane	ug/L	20	22.3	111	85-123	
Bromoform	ug/L	20	19.9	99	83-123	
Bromomethane	ug/L	20	22.0	110	39-149	
Carbon disulfide	ug/L	20	21.4	107	85-124	
Carbon tetrachloride	ug/L	20	22.5	112	85-126	
Chlorobenzene	ug/L	20	21.2	106	87-118	
Chloroethane	ug/L	20	21.0	105	73-134	
Chloroform	ug/L	20	21.7	109	85-119	
Chloromethane	ug/L	20	26.3	132	20-174	
cis-1,2-Dichloroethene	ug/L	20	22.0	110	84-121	
cis-1,3-Dichloropropene	ug/L	20	21.8	109	80-124	
Dibromochloromethane	ug/L	20	19.7	98	83-122	
Ethylbenzene	ug/L	20	21.1	105	80-118	
Methylene chloride	ug/L	20	22.5	112	81-126	
Styrene	ug/L	20	21.5	108	85-120	
Tetrachloroethene	ug/L	20	20.6	103	87-120	
Toluene	ug/L	20	20.7	103	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.8	109	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.4	102	80-122	
Trichloroethene	ug/L	20	23.4	117	82-120	
Vinyl chloride	ug/L	20	26.4	132	74-147	
Xylene (Total)	ug/L	60	63.2	105	81-120	
1,2-Dichloroethane-d4 (S)	%			100	80-117	
4-Bromofluorobenzene (S)	%			96	80-119	
Toluene-d8 (S)	%			97	80-115	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 538825 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276564001, 60276564002

METHOD BLANK: 2207324 Matrix: Water
Associated Lab Samples: 60276564001, 60276564002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.46	08/11/18 08:18	
Sulfate	mg/L	ND	1.0	0.24	08/11/18 08:18	

LABORATORY CONTROL SAMPLE: 2207325

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	91	90-110	
Sulfate	mg/L	5	4.7	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2207326 2207327

Parameter	Units	60276454003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	350	250	250	598	602	99	101	90-110	1	15	
Sulfate	mg/L	322	250	250	574	578	101	102	90-110	1	15	

MATRIX SPIKE SAMPLE: 2207328

Parameter	Units	60276341006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	54900	25000	83700	115	90-110	M1
Sulfate	mg/L	5580	25000	31000	102	90-110	

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(913)599-5665

QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 537779
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60276564001, 60276564002

METHOD BLANK: 2203356 Matrix: Water
Associated Lab Samples: 60276564001, 60276564002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.078	08/04/18 08:01	
Nitrogen, Nitrite	mg/L	ND	0.10	0.055	08/04/18 08:01	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.078	08/04/18 08:01	

LABORATORY CONTROL SAMPLE: 2203357

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.88	88	70-130	
Nitrogen, Nitrite	mg/L	1	1.1	105	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2203358

Parameter	Units	60276551003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	25.3	20	41.7	82	70-130	
Nitrogen, Nitrite	mg/L	ND	20	20.8	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	25.3	40	62.6	93	90-110	

SAMPLE DUPLICATE: 2203359

Parameter	Units	60276551004 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	16.3	17.0	4	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	16.3	17.0	4	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 538294 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60276564001, 60276564002

METHOD BLANK: 2205134 Matrix: Water
Associated Lab Samples: 60276564001, 60276564002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	08/08/18 11:23	

LABORATORY CONTROL SAMPLE: 2205135

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	109	80-120	

MATRIX SPIKE SAMPLE: 2205136

Parameter	Units	60276444001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	295	150	238	-38	80-120	M1

SAMPLE DUPLICATE: 2205137

Parameter	Units	60276460006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	9.1	8.6	5	25	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276564

QC Batch: 537886 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60276564001, 60276564002

METHOD BLANK: 2203786 Matrix: Water
Associated Lab Samples: 60276564001, 60276564002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	08/07/18 15:46	

LABORATORY CONTROL SAMPLE: 2203787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.7	114	80-120	

MATRIX SPIKE SAMPLE: 2203788

Parameter	Units	60276629001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	3.1	5	8.0	99	80-120	

SAMPLE DUPLICATE: 2203789

Parameter	Units	60276629002 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	1.6	1.6	0	25	

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QUALIFIERS

Project: FORT SMITH, AR
Pace Project No.: 60276564

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 539298

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FORT SMITH, AR
Pace Project No.: 60276564

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60276564001	**TMW-16-201807**	EPA 3010	538407	EPA 6010	538506
60276564002	**TMW-26-201807**	EPA 3010	538407	EPA 6010	538506
60276564001	**TMW-16-201807**	EPA 5030B/8260	539060		
60276564002	**TMW-26-201807**	EPA 5030B/8260	539060		
60276564003	**TRIP BLANK-03**	EPA 5030B/8260	539298		
60276564001	**TMW-16-201807**	SM 3500-Fe B#4	539624		
60276564002	**TMW-26-201807**	SM 3500-Fe B#4	539624		
60276564001	**TMW-16-201807**	EPA 300.0	538825		
60276564002	**TMW-26-201807**	EPA 300.0	538825		
60276564001	**TMW-16-201807**	EPA 353.2	537779		
60276564002	**TMW-26-201807**	EPA 353.2	537779		
60276564001	**TMW-16-201807**	SM 5310C	538294		
60276564002	**TMW-26-201807**	SM 5310C	538294		
60276564001	**TMW-16-201807**	SM 5310C	537886		
60276564002	**TMW-26-201807**	SM 5310C	537886		

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Sample Condition Upon Receipt

WO#: 60276564

60276564

PHM

Client Name: RAMBOLL

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 7821 2645 0784 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☑

Thermometer Used: T300 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 3.0 **Corr. Factor** +1.2 **Corrected** 4.2

Date and initials of person examining contents: JPE 8-3-18

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	NO_x
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☑Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☑No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

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Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

012748

Section A Required Client Information:

Company: Ramboll
Address: 1807 Park 270 Dr. STE 450
St. Louis, MO 63146
Email To: nzurweller@ramboll.com
Phone: 636-579-6883 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: nzurweller@ramboll.com
Copy To: thouseknight@ramboll.com
mwilson@ramboll.com
Purchase Order No.:
Project Name: Fort Smith, AR
Project Number:

Section C Invoice Information:

Attention: Tamara House-Knight
Company Name: Ramboll
Address: 124 W. Capital Ave
Pace Quote Reference: Little Rock, AR 72201
Pace Project Manager: Richard Manor
Pace Profile #: 7444

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER ADEQ

Site Location STATE: AR

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N: VOCs 8260	Cl, SO_4, NO_3	Total Organic C	Dissolved Organic C *	Total Iron	Ferric Iron	MEE AM20GAX	VFAs AM21G				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TMW-16-201807	WT	G			8/2/18	1520		12	4	1	1	3				3	X	X	X	X	X	X	X	X			60027651641, BP3U, BP3N 001
2	TMW-26-201807	↓	G			8/2/18	1650		12	4	1	1	3				3	X	X	X	X	X	X	X	X			002
3	TripBlank-03	↓							1				1					X									DG9U (TB) 003
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*DOC to be lab filtered	Ramboll	8/2/18	1840	FACE	8/3/18	0835	4.2	Y	Y	Y
Ferrous Iron Field Reading										
TMW-16: 0.00 mg/L										
TMW-26: 0.00 mg/L										

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nick Zurweller
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 8/2/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 13, 2018

Colleen Clyne
Pace Analytical Services
9608 Loiret Blvd
Lenexa, KS 66219

RE: **Fort Smith, AR**
Pace Workorder: 27676

Dear Colleen Clyne:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, August 07, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 08/13/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com. Total Number of Pages ____

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 27676 Fort Smith, AR

Lab ID	Sample ID	Matrix	Date Collected	Date Received
276760001	TMW-16-201807	Water	8/2/2018 15:20	8/7/2018 11:28
276760002	TMW-26-201807	Water	8/2/2018 16:50	8/7/2018 11:28

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ANALYTICAL RESULTS

Workorder: 27676 Fort Smith, AR

Lab ID: **276760001** Date Received: 8/7/2018 11:28 Matrix: Water

Sample ID: **TMW-16-201807** Date Collected: 8/2/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/8/2018 20:27	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/8/2018 20:27	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/8/2018 20:27	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/8/2018 20:27	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/8/2018 20:27	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**2.0**	ug/l	0.50	0.020	1	8/9/2018 12:10	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/9/2018 12:10	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	8/9/2018 12:10	BW	n

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ANALYTICAL RESULTS

Workorder: 27676 Fort Smith, AR

Lab ID: **276760002** Date Received: 8/7/2018 11:28 Matrix: Water

Sample ID: **TMW-26-201807** Date Collected: 8/2/2018 16:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/8/2018 20:53	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/8/2018 20:53	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/8/2018 20:53	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/8/2018 20:53	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/8/2018 20:53	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**8.5**	ug/l	0.50	0.020	1	8/9/2018 12:21	BW	n
Ethane	**0.44**	ug/l	0.10	0.0070	1	8/9/2018 12:21	BW	n
Ethene	**0.15**	ug/l	0.10	0.0050	1	8/9/2018 12:21	BW	n

nelac

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 27676 Fort Smith, AR

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA

Workorder: 27676 Fort Smith, AR

QC Batch: EDON/3830 Analysis Method: AM21G

QC Batch Method: AM21G

Associated Lab Samples: 276760001, 276760002

METHOD BLANK: 56867

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	<5.0	5.0	n
Propionic Acid	mg/l	<5.0	5.0	n
Pyruvic Acid	mg/l	<5.0	5.0	n
Butyric Acid	mg/l	<5.0	5.0	n
Lactic Acid	mg/l	<10	10	n

LABORATORY CONTROL SAMPLE: 56868

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	100	110	110	70-130	n
Propionic Acid	mg/l	100	110	113	70-130	n
Pyruvic Acid	mg/l	100	120	121	70-130	n
Butyric Acid	mg/l	100	110	113	70-130	n
Lactic Acid	mg/l	100	110	111	70-130	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 56870 56871 Original: 276740001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	0	100	110	96	111	96	70-130	15	20	n
Propionic Acid	mg/l	0	100	110	97	113	97	70-130	15	20	n
Pyruvic Acid	mg/l	0	100	120	120	123	116	70-130	6.1	20	n
Butyric Acid	mg/l	0	100	110	100	114	101	70-130	11	20	n
Lactic Acid	mg/l	0	100	110	110	110	107	70-130	2.5	20	n

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QUALITY CONTROL DATA

Workorder: 27676 Fort Smith, AR

QC Batch: DISG/7002 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 276760001, 276760002

METHOD BLANK: 56872

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 56873 56874

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	700	700	93	93	80-120	0.076	20	n
Ethane	ug/l	38	41	42	109	110	80-120	0.48	20	n
Ethene	ug/l	35	38	39	108	109	80-120	0.83	20	n

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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA QUALIFIERS

Workorder: 27676 Fort Smith, AR

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 27676 Fort Smith, AR

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
276760001	TMW-16-201807			AM21G	EDON/3830
276760002	TMW-26-201807			AM21G	EDON/3830
276760001	TMW-16-201807			AM20GAX	DISG/7002
276760002	TMW-26-201807			AM20GAX	DISG/7002

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Chain of Custody

276076

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www.pacelabs.com

Workorder: 60276564 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 8/15/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9184

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	EthaneEthaneEtheneAM20GAX VFA	LAB USE ONLY
1	TMW-16-201807	8/2/2018 15:20	60276564001	Water	5	X	
2	TMW-26-201807	8/2/2018 16:50	60276564002	Water	5	X	
3							
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler PASI	8:6:18 1700	Summerfield PAES	8/7/18 11:28
2				
3				

Comments

Cooler Temperature on Receipt 2.4 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

Cooler Receipt Form

Client Name: Pace Project: Fort Smith, AR Lab Work Order: 276776

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 4542 2779 3970

Custody Seal on Cooler/Box Present: (Yes) No Seals Intact: (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 2.4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓		✓	
Sampler Name & Signature on COC	✓		✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓		✓	
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?		✓	✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by: ERG Date: 8/7/18

Project Manager Review: RW Date: 8-8-18

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 22, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: FORT SMITH, AR
Pace Project No.: 60276630

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on August 04, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: FORT SMITH, AR
Pace Project No.: 60276630

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: FORT SMITH, AR
Pace Project No.: 60276630

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60276630001	**TMW-32-201807**	Water	08/03/18 12:55	08/04/18 08:20
60276630002	**MW-186-201807**	Water	08/03/18 16:20	08/04/18 08:20
60276630003	**TRIPBLANK-04**	Water	08/03/18 12:55	08/04/18 08:20

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SAMPLE ANALYTE COUNT

Project: FORT SMITH, AR
Pace Project No.: 60276630

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60276630001	**TMW-32-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	OL	2	PASI-K
		EPA 353.2	OL	3	PASI-K
		SM 5310C	LDF	1	PASI-K
		SM 5310C	LDF	1	PASI-K
60276630002	**MW-186-201807**	EPA 6010	TDS	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 3500-Fe B#4	LDB	1	PASI-K
		EPA 300.0	WNM	3	PASI-K
		EPA 353.2	OL	3	PASI-K
		SM 5310C	LDF	1	PASI-K
		SM 5310C	LDF	1	PASI-K
60276630003	**TRIPBLANK-04**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 538407

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- TMW-32-201807 (Lab ID: 60276630001)
  - Iron

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
3 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 539061

B: Analyte was detected in the associated method blank.

- BLANK for HBN 539061 [MSV/9109 (Lab ID: 2208817)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 539061

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **SM 3500-Fe B#4**
Description: Iron, Ferric (Calculation)
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for SM 3500-Fe B#4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 539293

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276545007,60276982006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2209410)
  - Chloride
  - Sulfate
- MSD (Lab ID: 2209411)
  - Chloride
  - Sulfate

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 538294

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276444001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2205136)
  - Total Organic Carbon

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: August 22, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 538296

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60276623001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2205143)
  - Dissolved Organic Carbon

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276630

Sample: TMW-32-201807 **Lab ID: 60276630001** Collected: 08/03/18 12:55 Received: 08/04/18 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	ND	ug/L	500	61.5	10	08/08/18 16:06	08/14/18 12:45	7439-89-6	D3
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.8J**	ug/L	10.0	1.9	1		08/14/18 03:45	67-64-1	
Benzene	**0.14J**	ug/L	1.0	0.060	1		08/14/18 03:45	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/14/18 03:45	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/14/18 03:45	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/14/18 03:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/14/18 03:45	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/14/18 03:45	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/14/18 03:45	56-23-5	
Chlorobenzene	**4.5**	ug/L	1.0	0.21	1		08/14/18 03:45	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/14/18 03:45	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/14/18 03:45	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/14/18 03:45	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/14/18 03:45	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/14/18 03:45	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		08/14/18 03:45	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 03:45	75-35-4	
cis-1,2-Dichloroethene	**3.4**	ug/L	1.0	0.080	1		08/14/18 03:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 03:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/14/18 03:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/14/18 03:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/14/18 03:45	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/14/18 03:45	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/14/18 03:45	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/14/18 03:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/14/18 03:45	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/14/18 03:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/14/18 03:45	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/14/18 03:45	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/14/18 03:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/14/18 03:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/14/18 03:45	79-00-5	
Trichloroethene	**83.5**	ug/L	1.0	0.17	1		08/14/18 03:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/14/18 03:45	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/14/18 03:45	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		08/14/18 03:45	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	80-117		1		08/14/18 03:45	17060-07-0	
Toluene-d8 (S)	98	%	80-115		1		08/14/18 03:45	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/14/18 03:45		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	ND	mg/L	0.050		1		08/15/18 15:10	7439-89-6	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276630

Sample: TMW-32-201807 **Lab ID: 60276630001** Collected: 08/03/18 12:55 Received: 08/04/18 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**119**	mg/L	10.0	4.6	10		08/11/18 21:29	16887-00-6	
Sulfate	**28.9**	mg/L	2.0	0.47	2		08/11/18 21:14	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**5.6**	mg/L	0.20	0.16	2		08/04/18 10:40		
Nitrogen, Nitrite	ND	mg/L	0.20	0.11	2		08/04/18 10:40		
Nitrogen, NO2 plus NO3	**5.6**	mg/L	0.20	0.16	2		08/04/18 10:40		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		08/08/18 15:39	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		08/08/18 19:30	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276630

Sample: MW-186-201807 **Lab ID: 60276630002** Collected: 08/03/18 16:20 Received: 08/04/18 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**127**	ug/L	50.0	6.1	1	08/08/18 16:06	08/13/18 11:53	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**2.8J**	ug/L	10.0	1.9	1		08/14/18 03:31	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/14/18 03:31	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/14/18 03:31	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/14/18 03:31	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/14/18 03:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/14/18 03:31	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/14/18 03:31	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/14/18 03:31	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/14/18 03:31	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/14/18 03:31	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/14/18 03:31	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/14/18 03:31	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/14/18 03:31	124-48-1	
1,1-Dichloroethane	**1.1**	ug/L	1.0	0.050	1		08/14/18 03:31	75-34-3	
1,2-Dichloroethane	**0.14J**	ug/L	1.0	0.12	1		08/14/18 03:31	107-06-2	B
1,1-Dichloroethene	**0.54J**	ug/L	1.0	0.20	1		08/14/18 03:31	75-35-4	
cis-1,2-Dichloroethene	**4.5**	ug/L	1.0	0.080	1		08/14/18 03:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 03:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/14/18 03:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/14/18 03:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/14/18 03:31	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/14/18 03:31	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/14/18 03:31	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		08/14/18 03:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/14/18 03:31	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/14/18 03:31	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/14/18 03:31	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/14/18 03:31	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/14/18 03:31	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/14/18 03:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/14/18 03:31	79-00-5	
Trichloroethene	**17.7**	ug/L	1.0	0.17	1		08/14/18 03:31	79-01-6	
Vinyl chloride	**0.15J**	ug/L	1.0	0.13	1		08/14/18 03:31	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/14/18 03:31	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	95	%	80-119		1		08/14/18 03:31	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		08/14/18 03:31	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		08/14/18 03:31	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/14/18 03:31		
Iron, Ferric (Calculation)	Analytical Method: SM 3500-Fe B#4								
Iron, Ferric	**0.12**	mg/L	0.050		1		08/15/18 15:10	7439-89-6	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276630

Sample: MW-186-201807 **Lab ID: 60276630002** Collected: 08/03/18 16:20 Received: 08/04/18 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**92.2**	mg/L	10.0	4.6	10		08/14/18 15:08	16887-00-6	
Fluoride	**0.21**	mg/L	0.20	0.063	1		08/09/18 05:16	16984-48-8	
Sulfate	**106**	mg/L	10.0	2.4	10		08/14/18 15:08	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**11.2**	mg/L	0.50	0.39	5		08/04/18 10:41		
Nitrogen, Nitrite	ND	mg/L	0.50	0.28	5		08/04/18 10:41		
Nitrogen, NO2 plus NO3	**11.2**	mg/L	0.50	0.39	5		08/04/18 10:41		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		08/08/18 15:52	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		08/08/18 19:43	7440-44-0	

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ANALYTICAL RESULTS

Project: FORT SMITH, AR
Pace Project No.: 60276630

Sample: TRIPBLANK-04 **Lab ID: 60276630003** Collected: 08/03/18 12:55 Received: 08/04/18 08:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		08/14/18 03:17	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		08/14/18 03:17	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		08/14/18 03:17	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		08/14/18 03:17	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		08/14/18 03:17	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		08/14/18 03:17	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		08/14/18 03:17	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		08/14/18 03:17	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		08/14/18 03:17	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		08/14/18 03:17	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		08/14/18 03:17	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		08/14/18 03:17	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		08/14/18 03:17	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		08/14/18 03:17	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		08/14/18 03:17	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 03:17	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		08/14/18 03:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		08/14/18 03:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		08/14/18 03:17	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		08/14/18 03:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		08/14/18 03:17	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		08/14/18 03:17	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		08/14/18 03:17	591-78-6	
Methylene chloride	**1.0J**	ug/L	1.0	0.15	1		08/14/18 03:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		08/14/18 03:17	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		08/14/18 03:17	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		08/14/18 03:17	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		08/14/18 03:17	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		08/14/18 03:17	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		08/14/18 03:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		08/14/18 03:17	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		08/14/18 03:17	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		08/14/18 03:17	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		08/14/18 03:17	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	80-119		1		08/14/18 03:17	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		08/14/18 03:17	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		08/14/18 03:17	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		08/14/18 03:17		

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 538407 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60276630001, 60276630002

METHOD BLANK: 2205515 Matrix: Water
Associated Lab Samples: 60276630001, 60276630002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	08/13/18 11:01	

LABORATORY CONTROL SAMPLE: 2205516

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10000	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2205517 2205518

Parameter	Units	60276484011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	59.6	10000	10000	10000	9930	100	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 539061 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60276630001, 60276630002, 60276630003

METHOD BLANK: 2208817 Matrix: Water
Associated Lab Samples: 60276630001, 60276630002, 60276630003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	08/14/18 02:35	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	08/14/18 02:35	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	08/14/18 02:35	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	08/14/18 02:35	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	08/14/18 02:35	
1,2-Dichloroethane	ug/L	0.14J	1.0	0.12	08/14/18 02:35	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	08/14/18 02:35	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	08/14/18 02:35	
2-Hexanone	ug/L	ND	10.0	1.2	08/14/18 02:35	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	08/14/18 02:35	
Acetone	ug/L	ND	10.0	1.9	08/14/18 02:35	
Benzene	ug/L	ND	1.0	0.060	08/14/18 02:35	
Bromodichloromethane	ug/L	ND	1.0	0.19	08/14/18 02:35	
Bromoform	ug/L	ND	1.0	0.070	08/14/18 02:35	
Bromomethane	ug/L	ND	5.0	0.16	08/14/18 02:35	
Carbon disulfide	ug/L	ND	5.0	0.12	08/14/18 02:35	
Carbon tetrachloride	ug/L	ND	1.0	0.18	08/14/18 02:35	
Chlorobenzene	ug/L	ND	1.0	0.21	08/14/18 02:35	
Chloroethane	ug/L	ND	1.0	0.15	08/14/18 02:35	
Chloroform	ug/L	ND	1.0	0.14	08/14/18 02:35	
Chloromethane	ug/L	ND	1.0	0.080	08/14/18 02:35	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	08/14/18 02:35	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	08/14/18 02:35	
Dibromochloromethane	ug/L	ND	1.0	0.21	08/14/18 02:35	
Ethylbenzene	ug/L	ND	1.0	0.18	08/14/18 02:35	
Methylene chloride	ug/L	ND	1.0	0.15	08/14/18 02:35	
Styrene	ug/L	ND	1.0	0.12	08/14/18 02:35	
Tetrachloroethene	ug/L	ND	1.0	0.10	08/14/18 02:35	
Toluene	ug/L	ND	1.0	0.17	08/14/18 02:35	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	08/14/18 02:35	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	08/14/18 02:35	
Trichloroethene	ug/L	0.25J	1.0	0.17	08/14/18 02:35	
Vinyl chloride	ug/L	ND	1.0	0.13	08/14/18 02:35	
Xylene (Total)	ug/L	ND	3.0	0.42	08/14/18 02:35	
1,2-Dichloroethane-d4 (S)	%	97	80-117		08/14/18 02:35	
4-Bromofluorobenzene (S)	%	101	80-119		08/14/18 02:35	
Toluene-d8 (S)	%	96	80-115		08/14/18 02:35	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

LABORATORY CONTROL SAMPLE: 2208818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.1	101	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	18.8	94	74-121	
1,1,2-Trichloroethane	ug/L	20	19.6	98	83-119	
1,1-Dichloroethane	ug/L	20	20.4	102	85-128	
1,1-Dichloroethene	ug/L	20	19.8	99	85-123	
1,2-Dichloroethane	ug/L	20	18.5	92	77-120	
1,2-Dichloropropane	ug/L	20	21.2	106	81-126	
2-Butanone (MEK)	ug/L	100	94.1	94	65-134	
2-Hexanone	ug/L	100	92.0	92	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	87.2	87	62-142	
Benzene	ug/L	20	20.2	101	81-118	
Bromodichloromethane	ug/L	20	20.9	104	85-123	
Bromoform	ug/L	20	19.7	99	83-123	
Bromomethane	ug/L	20	20.8	104	39-149	
Carbon disulfide	ug/L	20	20.0	100	85-124	
Carbon tetrachloride	ug/L	20	20.5	102	85-126	
Chlorobenzene	ug/L	20	19.9	100	87-118	
Chloroethane	ug/L	20	18.2	91	73-134	
Chloroform	ug/L	20	19.9	100	85-119	
Chloromethane	ug/L	20	20.0	100	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.3	97	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	20.0	100	83-122	
Ethylbenzene	ug/L	20	20.2	101	80-118	
Methylene chloride	ug/L	20	19.9	99	81-126	
Styrene	ug/L	20	19.6	98	85-120	
Tetrachloroethene	ug/L	20	20.1	101	87-120	
Toluene	ug/L	20	19.3	97	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.2	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.3	96	80-122	
Trichloroethene	ug/L	20	22.8	114	82-120	
Vinyl chloride	ug/L	20	22.6	113	74-147	
Xylene (Total)	ug/L	60	57.6	96	81-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			97	80-115	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 538316
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276630002

METHOD BLANK: 2205201 Matrix: Water
Associated Lab Samples: 60276630002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.20	0.063	08/08/18 22:38	

LABORATORY CONTROL SAMPLE: 2205202

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.6	102	90-110	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 538924 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276630001

METHOD BLANK: 2207965 Matrix: Water
Associated Lab Samples: 60276630001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.46	08/11/18 17:55	
Sulfate	mg/L	ND	1.0	0.24	08/11/18 17:55	

LABORATORY CONTROL SAMPLE: 2207966

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.5	90	90-110	
Sulfate	mg/L	5	4.7	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2207967 2207968

Parameter	Units	60275557001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	49.6	25	25	73.5	74.0	96	98	90-110	1	15	

MATRIX SPIKE SAMPLE: 2207969

Parameter	Units	60276084001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	2490	2500	4920	97	90-110	

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(913)599-5665

QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 539293 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60276630002

METHOD BLANK: 2209408 Matrix: Water
Associated Lab Samples: 60276630002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.46	08/14/18 09:17	
Sulfate	mg/L	ND	1.0	0.24	08/14/18 09:17	

LABORATORY CONTROL SAMPLE: 2209409

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	4.8	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2209410 2209411

Parameter	Units	60276982006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	21100	10000	10000	32400	32700	113	116	90-110	1	15	M1
Sulfate	mg/L	4190	10000	10000	16000	16000	118	118	90-110	0	15	M1

MATRIX SPIKE SAMPLE: 2209412

Parameter	Units	60276545007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	324	250	575	101	90-110	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 537790
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60276630001, 60276630002

METHOD BLANK: 2203460 Matrix: Water
Associated Lab Samples: 60276630001, 60276630002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.078	08/04/18 10:28	
Nitrogen, Nitrite	mg/L	ND	0.10	0.055	08/04/18 10:28	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.078	08/04/18 10:28	

LABORATORY CONTROL SAMPLE: 2203461

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.94	94	70-130	
Nitrogen, Nitrite	mg/L	1	1.1	106	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	100	90-110	

MATRIX SPIKE SAMPLE: 2203462

Parameter	Units	60276629001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.90	87	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.1	105	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	1.9	96	90-110	

SAMPLE DUPLICATE: 2203463

Parameter	Units	60276629002 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.58	0.58	0	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	0.58	0.58	0	20	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 538294 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60276630001, 60276630002

METHOD BLANK: 2205134 Matrix: Water
Associated Lab Samples: 60276630001, 60276630002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	08/08/18 11:23	

LABORATORY CONTROL SAMPLE: 2205135

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	109	80-120	

MATRIX SPIKE SAMPLE: 2205136

Parameter	Units	60276444001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	295	150	238	-38	80-120	M1

SAMPLE DUPLICATE: 2205137

Parameter	Units	60276460006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	9.1	8.6	5	25	

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QUALITY CONTROL DATA

Project: FORT SMITH, AR
Pace Project No.: 60276630

QC Batch: 538296 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60276630001, 60276630002

METHOD BLANK: 2205141 Matrix: Water
Associated Lab Samples: 60276630001, 60276630002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	08/08/18 17:35	

LABORATORY CONTROL SAMPLE: 2205142

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.6	113	80-120	

MATRIX SPIKE SAMPLE: 2205143

Parameter	Units	60276623001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	2.7	5	6.4	75	80-120	M1

SAMPLE DUPLICATE: 2205144

Parameter	Units	60276623002 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.7	9.4	3	25	

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QUALIFIERS

Project: FORT SMITH, AR
Pace Project No.: 60276630

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 539061

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FORT SMITH, AR
Pace Project No.: 60276630

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60276630001	**TMW-32-201807**	EPA 3010	538407	EPA 6010	538506
60276630002	**MW-186-201807**	EPA 3010	538407	EPA 6010	538506
60276630001	**TMW-32-201807**	EPA 5030B/8260	539061		
60276630002	**MW-186-201807**	EPA 5030B/8260	539061		
60276630003	**TRIPBLANK-04**	EPA 5030B/8260	539061		
60276630001	**TMW-32-201807**	SM 3500-Fe B#4	539624		
60276630002	**MW-186-201807**	SM 3500-Fe B#4	539624		
60276630001	**TMW-32-201807**	EPA 300.0	538924		
60276630002	**MW-186-201807**	EPA 300.0	538316		
60276630002	**MW-186-201807**	EPA 300.0	539293		
60276630001	**TMW-32-201807**	EPA 353.2	537790		
60276630002	**MW-186-201807**	EPA 353.2	537790		
60276630001	**TMW-32-201807**	SM 5310C	538294		
60276630002	**MW-186-201807**	SM 5310C	538294		
60276630001	**TMW-32-201807**	SM 5310C	538296		
60276630002	**MW-186-201807**	SM 5310C	538296		

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Sample Condition Upon Receipt

WO# : 60276630

60276630

Client Name: Rambol

Courier: FedEx ☒ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 7821 4332 3060 Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other ☐ RM

Thermometer Used: 301 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.8 **Corr. Factor** +1.0 **Corrected** 3.8

Date and initials of person examining contents: JB 8/4

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	NH3 Fe"
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO3, H2SO4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☒Yes ☐No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

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Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

012752

Section A Required Client Information:

Company: Ramboll
Address: 1807 Park 270 Dr. STE 450
St. Louis, MO 63146
Email To: nzurweller@ramboll.com
Phone: 636-579-6883 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: nzurweller@ramboll.com
Copy To: thouseknight@ramboll.com
mwilson@ramboll.com
Purchase Order No.:
Project Name: Fort Smith, AR
Project Number:

Section C Invoice Information:

Attention: Tamara House-Knight
Company Name: Ramboll
Address: 124 W. Capital Ave
Little Rock, AR
Pace Quote Reference:
Pace Project Manager: Richard Mannz
Pace Profile #: 7444

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER ADEQ

Site Location STATE: AR

Section D Required Client Information

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N: VOC, 8260	$(NH_4)_2SO_4$, NO_3	TOC	DOC	Total Iron	Ferric Iron	MEE AM20GAX	VFA AM21G			Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TMW-32-201807	WT	G			8/3/18	1255		12	4	1	1	3				3	X	X	X	X	X	X	X	X	AG2U	BP3U	AG	35 BP3U (3)DG9H (3)DG9B (2)DG9H 001
2	~~[redacted]~~ MW-186-201807	WT	G			8/3/18	1620		12	4	1	1	3				3	X	X	X	X	X	X	X	X	↓	↓	↓	↓ ↓ ↓ ↓ ↓ 002
3	TripBlank-04	WT							1				1					X										(1) DG9H TB 003
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*DOC to be lab filtered	Ramboll	8/3/18	1840		8/4	0820	3.8	Y	Y	Y
Ferrous iron field readings:										
TMW-32: 0.02 mg/L										
MW-186: 0.01 mg/L										

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Haley Ahlers
SIGNATURE of SAMPLER: Haley Ahlers
DATE Signed (MM/DD/YY): 8/3/18

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

August 13, 2018

Colleen Clyne
Pace Analytical Services
9608 Loiret Blvd
Lenexa, KS 66219

RE: **Fort Smith, AR**
Pace Workorder: 27674

Dear Colleen Clyne:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, August 07, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 08/13/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com. Total Number of Pages ____

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 27674 Fort Smith, AR

Lab ID	Sample ID	Matrix	Date Collected	Date Received
276740001	TMW-32-201807	Water	8/3/2018 12:55	8/7/2018 11:20
276740002	MW-186-201807	Water	8/3/2018 16:20	8/7/2018 11:20

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ANALYTICAL RESULTS

Workorder: 27674 Fort Smith, AR

Lab ID: **276740001** Date Received: 8/7/2018 11:20 Matrix: Water

Sample ID: **TMW-32-201807** Date Collected: 8/3/2018 12:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/8/2018 18:18	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/8/2018 18:18	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/8/2018 18:18	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/8/2018 18:18	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/8/2018 18:18	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**0.81**	ug/l	0.50	0.020	1	8/9/2018 11:48	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/9/2018 11:48	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	8/9/2018 11:48	BW	n

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ANALYTICAL RESULTS

Workorder: 27674 Fort Smith, AR

Lab ID: **276740002** Date Received: 8/7/2018 11:20 Matrix: Water

Sample ID: **MW-186-201807** Date Collected: 8/3/2018 16:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM21G		Analytical Method: AM21G						
Acetic Acid	**<5.0**	mg/l	5.0	1.2	1	8/8/2018 19:36	MD	n
Propionic Acid	**<5.0**	mg/l	5.0	0.80	1	8/8/2018 19:36	MD	n
Pyruvic Acid	**<5.0**	mg/l	5.0	0.79	1	8/8/2018 19:36	MD	n
Butyric Acid	**<5.0**	mg/l	5.0	0.73	1	8/8/2018 19:36	MD	n
Lactic Acid	**<10**	mg/l	10	1.9	1	8/8/2018 19:36	MD	n
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.020	1	8/9/2018 11:59	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	8/9/2018 11:59	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	8/9/2018 11:59	BW	n

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Fax: (412) 826-3433

ANALYTICAL RESULTS QUALIFIERS

Workorder: 27674 Fort Smith, AR

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA

Workorder: 27674 Fort Smith, AR

QC Batch: EDON/3830 Analysis Method: AM21G

QC Batch Method: AM21G

Associated Lab Samples: 276740001, 276740002

METHOD BLANK: 56867

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	<5.0	5.0	n
Propionic Acid	mg/l	<5.0	5.0	n
Pyruvic Acid	mg/l	<5.0	5.0	n
Butyric Acid	mg/l	<5.0	5.0	n
Lactic Acid	mg/l	<10	10	n

LABORATORY CONTROL SAMPLE: 56868

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	100	110	110	70-130	n
Propionic Acid	mg/l	100	110	113	70-130	n
Pyruvic Acid	mg/l	100	120	121	70-130	n
Butyric Acid	mg/l	100	110	113	70-130	n
Lactic Acid	mg/l	100	110	111	70-130	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 56870 56871 Original: 276740001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	0	100	110	96	111	96	70-130	15	20	n
Propionic Acid	mg/l	0	100	110	97	113	97	70-130	15	20	n
Pyruvic Acid	mg/l	0	100	120	120	123	116	70-130	6.1	20	n
Butyric Acid	mg/l	0	100	110	100	114	101	70-130	11	20	n
Lactic Acid	mg/l	0	100	110	110	110	107	70-130	2.5	20	n

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 27674 Fort Smith, AR

QC Batch: DISG/7002 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 276740001, 276740002

METHOD BLANK: 56872

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 56873 56874

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	700	700	93	93	80-120	0.076	20	n
Ethane	ug/l	38	41	42	109	110	80-120	0.48	20	n
Ethene	ug/l	35	38	39	108	109	80-120	0.83	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 27674 Fort Smith, AR

QUALITY CONTROL PARAMETER QUALIFIERS

n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 27674 Fort Smith, AR

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
276740001	TMW-32-201807			AM21G	EDON/3830
276740002	MW-186-201807			AM21G	EDON/3830
276740001	TMW-32-201807			AM20GAX	DISG/7002
276740002	MW-186-201807			AM20GAX	DISG/7002

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Chain of Custody

276074

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www.pacelabs.com

Workorder: 60276630 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 8/16/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9185

State of Sample Origin: AR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	Requested Analysis: M E E AM20GAX and VFA AM21G	LAB USE ONLY
1	TMW-32-201807	8/3/2018 12:55	60276630001	Water	5	X	
2	MW-186-201807	8/3/2018 16:20	60276630002	Water	5	X	
3							
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler PASI	8-6-18 1700	[illegible] PACE	8/7/18 11:20
2				
3				

Comments

Cooler Temperature on Receipt 2.4 °C | Custody Seal Y or (N) | Received on Ice (Y) or N | Samples Intact (Y) or N

Cooler Receipt Form

Client Name: Pace Project: Fort Smith, AR Lab Work Order: 27674

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ Air bill Present: (Yes) No

Tracking Number: 4542 2779 3970

Custody Seal on Cooler/Box Present: (Yes) No Seals Intact: (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None Ice Intact: (Yes) Melted

Cooler Temperature: 2.4°C Radiation Screened: Yes (No) Chain of Custody Present: (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓		✓	
Sampler Name & Signature on COC	✓		✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓		✓	
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by: ERJ Date: 8/7/18

Project Manager Review: RW Date: 8-8-18

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 30, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60286720001	MW-175-201811	Water	11/13/18 13:25	11/14/18 09:45
60286720002	MW-61R-201811	Water	11/13/18 14:20	11/14/18 09:45
60286720003	TMW-29-201811	Water	11/13/18 17:00	11/14/18 09:45
60286720004	DUP-01-201811	Water	11/13/18 17:00	11/14/18 09:45
60286720005	MW-179-201811	Water	11/13/18 16:45	11/14/18 09:45
60286720006	DUP-06-201811	Water	11/13/18 14:20	11/14/18 09:45
60286720007	TMW-11-201811	Water	11/13/18 16:45	11/14/18 09:45
60286720008	TMW-10-201811	Water	11/13/18 16:55	11/14/18 09:45
60286720009	MW-50R-201811	Water	11/13/18 14:10	11/14/18 09:45
60286720010	TRIP BLANK	Water	11/13/18 13:25	11/14/18 09:45
60286720011	TMW-20-201811	Water	11/13/18 17:00	11/14/18 09:45
60286720012	MW-195-201811	Water	11/13/18 14:30	11/14/18 09:45
60286720013	MW-196-201811	Water	11/13/18 15:55	11/14/18 09:45
60286720014	MW-99-201811	Water	11/13/18 13:57	11/14/18 09:45
60286720015	MW-68-201811	Water	11/13/18 15:11	11/14/18 09:45
60286720016	ITMW-2-201811	Water	11/13/18 17:03	11/14/18 09:45
60286720017	MW-28-201811	Water	11/13/18 13:10	11/14/18 09:45
60286720018	MW-27-201811	Water	11/13/18 14:45	11/14/18 09:45
60286720019	ITMW-16-201811	Water	11/13/18 15:40	11/14/18 09:45
60286720020	MW-176-201811	Water	11/13/18 15:00	11/14/18 09:45
60286720021	TRIP BLANK	Water	11/13/18 08:00	11/14/18 09:45

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286720001	**MW-175-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720002	**MW-61R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720003	**TMW-29-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720004	**DUP-01-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720005	**MW-179-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720006	**DUP-06-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720007	**TMW-11-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720008	**TMW-10-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720009	**MW-50R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286720010	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60286720011	**TMW-20-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720012	**MW-195-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720013	**MW-196-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720014	**MW-99-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720015	**MW-68-201811**	EPA 5030B/8260	PGH	38	PASI-K

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286720016	**ITMW-2-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720017	**MW-28-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720018	**MW-27-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720019	**ITMW-16-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720020	**MW-176-201811**	EPA 5030B/8260	PGH	38	PASI-K
60286720021	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
21 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 555602

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555602 [MSV/9331 (Lab ID: 2279341)
  - 1,2-Dichloroethane

QC Batch: 556483

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556483 [MSV/9341 (Lab ID: 2283187)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555602

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 555908

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556483

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: November 30, 2018

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557066

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286720008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2285623)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555224

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286715001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2277762)
  - Nitrogen, NO2 plus NO3

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: November 30, 2018

General Information:
3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-11-201811 **Lab ID: 60286720007** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**10800**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**5.9J**	ug/L	10.0	1.9	1		11/19/18 04:00	67-64-1	
Benzene	**0.11J**	ug/L	1.0	0.060	1		11/19/18 04:00	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 04:00	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 04:00	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 04:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/19/18 04:00	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/19/18 04:00	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 04:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 04:00	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:00	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 04:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 04:00	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 04:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 04:00	75-34-3	
1,2-Dichloroethane	**0.18J**	ug/L	1.0	0.12	1		11/19/18 04:00	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:00	75-35-4	
cis-1,2-Dichloroethene	**0.73J**	ug/L	1.0	0.080	1		11/19/18 04:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 04:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 04:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 04:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 04:00	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 04:00	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/19/18 04:00	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 04:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/19/18 04:00	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 04:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 04:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 04:00	127-18-4	
Toluene	**1.1**	ug/L	1.0	0.17	1		11/19/18 04:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 04:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 04:00	79-00-5	
Trichloroethene	**0.40J**	ug/L	1.0	0.17	1		11/19/18 04:00	79-01-6	
Vinyl chloride	**0.46J**	ug/L	1.0	0.13	1		11/19/18 04:00	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 04:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/19/18 04:00	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 04:00	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/19/18 04:00	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 04:00		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	**0.096**	mg/L	0.050	0.023	1		11/17/18 14:15	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-11-201811 **Lab ID: 60286720007** Collected: 11/13/18 16:45 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**161**	mg/L	50.0	14.5	50		11/28/18 21:04	16887-00-6	
Sulfate	ND	mg/L	1.0	0.24	1		11/28/18 20:48	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:11		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/14/18 17:11		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/14/18 17:11		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**13.2**	mg/L	2.0	1.3	2		11/21/18 12:12	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**9.2**	mg/L	1.0	0.65	1		11/27/18 11:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-10-201811 **Lab ID: 60286720008** Collected: 11/13/18 16:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**105000**	ug/L	50.0	6.1	1	11/27/18 20:00	11/28/18 13:40	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**128**	ug/L	10.0	1.9	1		11/19/18 07:03	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/19/18 07:03	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/19/18 07:03	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/19/18 07:03	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/19/18 07:03	74-83-9	
2-Butanone (MEK)	**307**	ug/L	10.0	0.59	1		11/19/18 07:03	78-93-3	
Carbon disulfide	**0.56J**	ug/L	5.0	0.12	1		11/19/18 07:03	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/19/18 07:03	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/19/18 07:03	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/19/18 07:03	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/19/18 07:03	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/19/18 07:03	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/19/18 07:03	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/19/18 07:03	75-34-3	
1,2-Dichloroethane	**0.16J**	ug/L	1.0	0.12	1		11/19/18 07:03	107-06-2	B
1,1-Dichloroethene	**0.26J**	ug/L	1.0	0.20	1		11/19/18 07:03	75-35-4	
cis-1,2-Dichloroethene	**15.0**	ug/L	1.0	0.080	1		11/19/18 07:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/19/18 07:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/19/18 07:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/19/18 07:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/19/18 07:03	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/19/18 07:03	100-41-4	
2-Hexanone	**3.7J**	ug/L	10.0	1.2	1		11/19/18 07:03	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/19/18 07:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.1J**	ug/L	10.0	0.42	1		11/19/18 07:03	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/19/18 07:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/19/18 07:03	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/19/18 07:03	127-18-4	
Toluene	**0.25J**	ug/L	1.0	0.17	1		11/19/18 07:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/19/18 07:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/19/18 07:03	79-00-5	
Trichloroethene	**14.3**	ug/L	1.0	0.17	1		11/19/18 07:03	79-01-6	
Vinyl chloride	**6.2**	ug/L	1.0	0.13	1		11/19/18 07:03	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/19/18 07:03	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/19/18 07:03	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/19/18 07:03	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/19/18 07:03	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/19/18 07:03		
4500S2D Sulfide, Total	Analytical Method: SM 4500-S-2 D								
Sulfide, Total	**0.043J**	mg/L	0.050	0.023	1		11/17/18 14:15	18496-25-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TMW-10-201811 **Lab ID: 60286720008** Collected: 11/13/18 16:55 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**276**	mg/L	50.0	14.5	50		11/27/18 23:48	16887-00-6	M1
Sulfate	**10.4**	mg/L	10.0	2.4	10		11/27/18 23:19	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/14/18 17:12		
Nitrogen, Nitrite	**0.11**	mg/L	0.10	0.033	1		11/14/18 17:12		
Nitrogen, NO2 plus NO3	**0.12**	mg/L	0.10	0.060	1		11/14/18 17:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2240**	mg/L	300	196	300		11/21/18 12:38	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**2060**	mg/L	500	327	500		11/29/18 10:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Sample: TRIP BLANK **Lab ID: 60286720021** Collected: 11/13/18 08:00 Received: 11/14/18 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/20/18 13:55	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/20/18 13:55	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/20/18 13:55	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/20/18 13:55	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/20/18 13:55	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/20/18 13:55	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/20/18 13:55	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/20/18 13:55	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/20/18 13:55	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/20/18 13:55	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/20/18 13:55	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/20/18 13:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/20/18 13:55	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/20/18 13:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/20/18 13:55	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 13:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.080	1		11/20/18 13:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/20/18 13:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/20/18 13:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/20/18 13:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/20/18 13:55	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/20/18 13:55	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/20/18 13:55	591-78-6	
Methylene chloride	**0.46J**	ug/L	1.0	0.15	1		11/20/18 13:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/20/18 13:55	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/20/18 13:55	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/20/18 13:55	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/20/18 13:55	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/20/18 13:55	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/20/18 13:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/20/18 13:55	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.17	1		11/20/18 13:55	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/20/18 13:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/20/18 13:55	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		1		11/20/18 13:55	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-117		1		11/20/18 13:55	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/20/18 13:55	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/20/18 13:55		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557146 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

METHOD BLANK: 2285800 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	11/28/18 13:27	

LABORATORY CONTROL SAMPLE: 2285801

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10200	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2285802 2285803

Parameter	Units	60287185010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	2200	10000	10000	13900	13700	117	115	75-125	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555602 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720001, 60286720002, 60286720003, 60286720004, 60286720005, 60286720006, 60286720007, 60286720008, 60286720009, 60286720010, 60286720011, 60286720012, 60286720013, 60286720014, 60286720015, 60286720016, 60286720017, 60286720018

METHOD BLANK: 2279341 Matrix: Water
Associated Lab Samples: 60286720001, 60286720002, 60286720003, 60286720004, 60286720005, 60286720006, 60286720007, 60286720008, 60286720009, 60286720010, 60286720011, 60286720012, 60286720013, 60286720014, 60286720015, 60286720016, 60286720017, 60286720018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/19/18 02:50	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/19/18 02:50	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/19/18 02:50	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/19/18 02:50	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 02:50	
1,2-Dichloroethane	ug/L	0.15J	1.0	0.12	11/19/18 02:50	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/19/18 02:50	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/19/18 02:50	
2-Hexanone	ug/L	ND	10.0	1.2	11/19/18 02:50	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/19/18 02:50	
Acetone	ug/L	ND	10.0	1.9	11/19/18 02:50	
Benzene	ug/L	ND	1.0	0.060	11/19/18 02:50	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/19/18 02:50	
Bromoform	ug/L	ND	1.0	0.070	11/19/18 02:50	
Bromomethane	ug/L	ND	5.0	0.16	11/19/18 02:50	
Carbon disulfide	ug/L	ND	5.0	0.12	11/19/18 02:50	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/19/18 02:50	
Chlorobenzene	ug/L	ND	1.0	0.21	11/19/18 02:50	
Chloroethane	ug/L	ND	1.0	0.15	11/19/18 02:50	
Chloroform	ug/L	ND	1.0	0.14	11/19/18 02:50	
Chloromethane	ug/L	ND	1.0	0.080	11/19/18 02:50	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/19/18 02:50	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/19/18 02:50	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/19/18 02:50	
Ethylbenzene	ug/L	ND	1.0	0.18	11/19/18 02:50	
Methylene chloride	ug/L	ND	1.0	0.15	11/19/18 02:50	
Styrene	ug/L	ND	1.0	0.12	11/19/18 02:50	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/19/18 02:50	
Toluene	ug/L	ND	1.0	0.17	11/19/18 02:50	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 02:50	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/19/18 02:50	
Trichloroethene	ug/L	ND	1.0	0.17	11/19/18 02:50	
Vinyl chloride	ug/L	ND	1.0	0.13	11/19/18 02:50	
Xylene (Total)	ug/L	ND	3.0	0.42	11/19/18 02:50	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/19/18 02:50	
4-Bromofluorobenzene (S)	%	101	80-119		11/19/18 02:50	
Toluene-d8 (S)	%	98	80-115		11/19/18 02:50	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2279342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.1	105	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.4	97	74-121	
1,1,2-Trichloroethane	ug/L	20	21.3	106	83-119	
1,1-Dichloroethane	ug/L	20	20.9	104	85-128	
1,1-Dichloroethene	ug/L	20	20.5	103	85-123	
1,2-Dichloroethane	ug/L	20	19.7	98	77-120	
1,2-Dichloropropane	ug/L	20	20.9	104	81-126	
2-Butanone (MEK)	ug/L	100	103	103	65-134	
2-Hexanone	ug/L	100	101	101	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	66-139	
Acetone	ug/L	100	93.9	94	62-142	
Benzene	ug/L	20	20.1	101	81-118	
Bromodichloromethane	ug/L	20	21.5	107	85-123	
Bromoform	ug/L	20	19.2	96	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.7	98	85-124	
Carbon tetrachloride	ug/L	20	21.4	107	85-126	
Chlorobenzene	ug/L	20	20.2	101	87-118	
Chloroethane	ug/L	20	20.1	100	73-134	
Chloroform	ug/L	20	20.4	102	85-119	
Chloromethane	ug/L	20	18.9	94	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.3	97	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.4	102	80-124	
Dibromochloromethane	ug/L	20	20.7	103	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	21.0	105	81-126	
Styrene	ug/L	20	19.6	98	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	20.3	102	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.9	99	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.2	96	80-122	
Trichloroethene	ug/L	20	22.1	110	82-120	
Vinyl chloride	ug/L	20	23.0	115	74-147	
Xylene (Total)	ug/L	60	56.5	94	81-120	
1,2-Dichloroethane-d4 (S)	%			105	80-117	
4-Bromofluorobenzene (S)	%			105	80-119	
Toluene-d8 (S)	%			97	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555908 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720019, 60286720020

METHOD BLANK: 2281212 Matrix: Water
Associated Lab Samples: 60286720019, 60286720020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/19/18 14:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/19/18 14:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/19/18 14:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/19/18 14:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 14:06	
1,2-Dichloroethane	ug/L	0.17J	1.0	0.12	11/19/18 14:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/19/18 14:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/19/18 14:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/19/18 14:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/19/18 14:06	
Acetone	ug/L	ND	10.0	1.9	11/19/18 14:06	
Benzene	ug/L	ND	1.0	0.060	11/19/18 14:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/19/18 14:06	
Bromoform	ug/L	ND	1.0	0.070	11/19/18 14:06	
Bromomethane	ug/L	ND	5.0	0.16	11/19/18 14:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/19/18 14:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/19/18 14:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/19/18 14:06	
Chloroethane	ug/L	ND	1.0	0.15	11/19/18 14:06	
Chloroform	ug/L	ND	1.0	0.14	11/19/18 14:06	
Chloromethane	ug/L	ND	1.0	0.080	11/19/18 14:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/19/18 14:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/19/18 14:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/19/18 14:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/19/18 14:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/19/18 14:06	
Styrene	ug/L	ND	1.0	0.12	11/19/18 14:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/19/18 14:06	
Toluene	ug/L	ND	1.0	0.17	11/19/18 14:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/19/18 14:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/19/18 14:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/19/18 14:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/19/18 14:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/19/18 14:06	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/19/18 14:06	
4-Bromofluorobenzene (S)	%	99	80-119		11/19/18 14:06	
Toluene-d8 (S)	%	96	80-115		11/19/18 14:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2281213

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.9	110	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	18.2	91	74-121	
1,1,2-Trichloroethane	ug/L	20	19.4	97	83-119	
1,1-Dichloroethane	ug/L	20	20.4	102	85-128	
1,1-Dichloroethene	ug/L	20	21.1	106	85-123	
1,2-Dichloroethane	ug/L	20	20.2	101	77-120	
1,2-Dichloropropane	ug/L	20	20.7	103	81-126	
2-Butanone (MEK)	ug/L	100	93.9	94	65-134	
2-Hexanone	ug/L	100	90.2	90	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	95.3	95	66-139	
Acetone	ug/L	100	91.7	92	62-142	
Benzene	ug/L	20	19.3	97	81-118	
Bromodichloromethane	ug/L	20	21.9	110	85-123	
Bromoform	ug/L	20	20.7	104	83-123	
Bromomethane	ug/L	20	21.0	105	39-149	
Carbon disulfide	ug/L	20	19.4	97	85-124	
Carbon tetrachloride	ug/L	20	22.3	111	85-126	
Chlorobenzene	ug/L	20	20.8	104	87-118	
Chloroethane	ug/L	20	20.6	103	73-134	
Chloroform	ug/L	20	20.9	104	85-119	
Chloromethane	ug/L	20	22.2	111	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	21.2	106	83-122	
Ethylbenzene	ug/L	20	20.4	102	80-118	
Methylene chloride	ug/L	20	20.4	102	81-126	
Styrene	ug/L	20	20.9	104	85-120	
Tetrachloroethene	ug/L	20	20.7	104	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.6	103	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.5	102	80-122	
Trichloroethene	ug/L	20	23.0	115	82-120	
Vinyl chloride	ug/L	20	22.6	113	74-147	
Xylene (Total)	ug/L	60	59.9	100	81-120	
1,2-Dichloroethane-d4 (S)	%			106	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555910
QC Batch Method: EPA 5030B/8260
Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286720021

METHOD BLANK: 2281217
Matrix: Water
Associated Lab Samples: 60286720021

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/20/18 13:41	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/20/18 13:41	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/20/18 13:41	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/20/18 13:41	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 13:41	
1,2-Dichloroethane	ug/L	0.19J	1.0	0.12	11/20/18 13:41	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/20/18 13:41	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/20/18 13:41	
2-Hexanone	ug/L	ND	10.0	1.2	11/20/18 13:41	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/20/18 13:41	
Acetone	ug/L	ND	10.0	1.9	11/20/18 13:41	
Benzene	ug/L	ND	1.0	0.060	11/20/18 13:41	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/20/18 13:41	
Bromoform	ug/L	ND	1.0	0.070	11/20/18 13:41	
Bromomethane	ug/L	ND	5.0	0.16	11/20/18 13:41	
Carbon disulfide	ug/L	ND	5.0	0.12	11/20/18 13:41	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/20/18 13:41	
Chlorobenzene	ug/L	ND	1.0	0.21	11/20/18 13:41	
Chloroethane	ug/L	ND	1.0	0.15	11/20/18 13:41	
Chloroform	ug/L	ND	1.0	0.14	11/20/18 13:41	
Chloromethane	ug/L	ND	1.0	0.080	11/20/18 13:41	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/20/18 13:41	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/20/18 13:41	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/20/18 13:41	
Ethylbenzene	ug/L	ND	1.0	0.18	11/20/18 13:41	
Methylene chloride	ug/L	ND	1.0	0.15	11/20/18 13:41	
Styrene	ug/L	ND	1.0	0.12	11/20/18 13:41	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/20/18 13:41	
Toluene	ug/L	ND	1.0	0.17	11/20/18 13:41	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/20/18 13:41	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/20/18 13:41	
Trichloroethene	ug/L	ND	1.0	0.17	11/20/18 13:41	
Vinyl chloride	ug/L	ND	1.0	0.13	11/20/18 13:41	
Xylene (Total)	ug/L	ND	3.0	0.42	11/20/18 13:41	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/20/18 13:41	
4-Bromofluorobenzene (S)	%	103	80-119		11/20/18 13:41	
Toluene-d8 (S)	%	97	80-115		11/20/18 13:41	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2281218

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	20.9	105	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	17.5	87	74-121	
1,1,2-Trichloroethane	ug/L	20	18.9	94	83-119	
1,1-Dichloroethane	ug/L	20	20.5	103	85-128	
1,1-Dichloroethene	ug/L	20	20.6	103	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	20.4	102	81-126	
2-Butanone (MEK)	ug/L	100	93.8	94	65-134	
2-Hexanone	ug/L	100	91.0	91	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.5	97	66-139	
Acetone	ug/L	100	92.5	92	62-142	
Benzene	ug/L	20	19.7	98	81-118	
Bromodichloromethane	ug/L	20	20.9	105	85-123	
Bromoform	ug/L	20	18.3	91	83-123	
Bromomethane	ug/L	20	20.4	102	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.0	105	85-126	
Chlorobenzene	ug/L	20	20.0	100	87-118	
Chloroethane	ug/L	20	20.8	104	73-134	
Chloroform	ug/L	20	20.1	101	85-119	
Chloromethane	ug/L	20	26.6	133	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.5	103	80-124	
Dibromochloromethane	ug/L	20	18.7	94	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	21.4	107	81-126	
Styrene	ug/L	20	19.7	99	85-120	
Tetrachloroethene	ug/L	20	19.5	98	87-120	
Toluene	ug/L	20	20.2	101	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.0	100	83-121	
trans-1,3-Dichloropropene	ug/L	20	19.1	96	80-122	
Trichloroethene	ug/L	20	22.5	112	82-120	
Vinyl chloride	ug/L	20	24.6	123	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281219 2281220

Parameter	Units	60287184003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.9	21.1	109	106	79-135	3	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.8	18.2	89	91	49-144	2	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.7	19.7	94	99	71-124	5	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281219 2281220

Parameter	Units	60287184003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.8	19.9	104	100	77-135	4	12	
1,1-Dichloroethene	ug/L	ND	20	20	21.7	21.1	109	106	77-138	3	14	
1,2-Dichloroethane	ug/L	ND	20	20	17.7	18.3	89	92	47-152	3	27	
1,2-Dichloropropane	ug/L	ND	20	20	19.8	20.2	99	101	74-128	2	13	
2-Butanone (MEK)	ug/L	ND	100	100	83.5	85.1	83	85	60-125	2	17	
2-Hexanone	ug/L	ND	100	100	85.9	88.9	86	89	53-133	3	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	88.1	89.4	88	89	62-134	2	15	
Acetone	ug/L	ND	100	100	79.4	85.1	79	85	50-127	7	28	
Benzene	ug/L	ND	20	20	19.0	19.3	95	96	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	20.1	20.2	101	101	75-126	0	12	
Bromoform	ug/L	ND	20	20	17.2	17.5	86	87	70-122	2	14	
Bromomethane	ug/L	ND	20	20	17.5	20.8	87	104	41-155	17	42	
Carbon disulfide	ug/L	ND	20	20	20.4	20.4	102	102	70-148	0	14	
Carbon tetrachloride	ug/L	ND	20	20	22.2	22.4	111	112	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	19.6	19.5	98	98	74-130	0	10	
Chloroethane	ug/L	ND	20	20	21.7	21.3	109	106	67-153	2	27	
Chloroform	ug/L	ND	20	20	19.8	19.4	99	97	75-127	2	12	
Chloromethane	ug/L	ND	20	20	18.8	16.7	94	84	22-188	12	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.4	18.7	97	94	69-135	4	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	19.1	19.2	95	96	61-129	1	11	
Dibromochloromethane	ug/L	ND	20	20	19.4	19.0	97	95	60-133	2	14	
Ethylbenzene	ug/L	ND	20	20	19.1	19.5	96	97	60-140	2	32	
Methylene chloride	ug/L	ND	20	20	20.3	19.8	101	99	72-131	3	16	
Styrene	ug/L	ND	20	20	18.8	18.9	94	94	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	20.9	20.3	104	102	72-136	3	15	
Toluene	ug/L	ND	20	20	20.1	20.2	100	101	65-135	1	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.1	20.0	101	100	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.8	19.4	94	97	60-128	3	13	
Trichloroethene	ug/L	ND	20	20	22.1	22.8	111	114	66-136	3	15	
Vinyl chloride	ug/L	ND	20	20	24.5	23.9	123	120	65-164	2	16	
Xylene (Total)	ug/L	ND	60	60	55.8	56.6	93	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	103	80-117			
4-Bromofluorobenzene (S)	%						103	104	80-119			
Toluene-d8 (S)	%						97	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556483
QC Batch Method: EPA 5030B/8260
Associated Lab Samples: 60286720020

Analysis Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 10 mL Purge

METHOD BLANK: 2283187
Matrix: Water
Associated Lab Samples: 60286720020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/23/18 09:17	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/23/18 09:17	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/23/18 09:17	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/23/18 09:17	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 09:17	
1,2-Dichloroethane	ug/L	0.14J	1.0	0.12	11/23/18 09:17	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/23/18 09:17	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/23/18 09:17	
2-Hexanone	ug/L	ND	10.0	1.2	11/23/18 09:17	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/23/18 09:17	
Acetone	ug/L	ND	10.0	1.9	11/23/18 09:17	
Benzene	ug/L	ND	1.0	0.060	11/23/18 09:17	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/23/18 09:17	
Bromoform	ug/L	ND	1.0	0.070	11/23/18 09:17	
Bromomethane	ug/L	ND	5.0	0.16	11/23/18 09:17	
Carbon disulfide	ug/L	ND	5.0	0.12	11/23/18 09:17	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/23/18 09:17	
Chlorobenzene	ug/L	ND	1.0	0.21	11/23/18 09:17	
Chloroethane	ug/L	ND	1.0	0.15	11/23/18 09:17	
Chloroform	ug/L	ND	1.0	0.14	11/23/18 09:17	
Chloromethane	ug/L	ND	1.0	0.080	11/23/18 09:17	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/23/18 09:17	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/23/18 09:17	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/23/18 09:17	
Ethylbenzene	ug/L	ND	1.0	0.18	11/23/18 09:17	
Methylene chloride	ug/L	ND	1.0	0.15	11/23/18 09:17	
Styrene	ug/L	ND	1.0	0.12	11/23/18 09:17	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/23/18 09:17	
Toluene	ug/L	ND	1.0	0.17	11/23/18 09:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 09:17	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/23/18 09:17	
Vinyl chloride	ug/L	ND	1.0	0.13	11/23/18 09:17	
Xylene (Total)	ug/L	ND	3.0	0.42	11/23/18 09:17	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/23/18 09:17	
4-Bromofluorobenzene (S)	%	102	80-119		11/23/18 09:17	
Toluene-d8 (S)	%	98	80-115		11/23/18 09:17	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

LABORATORY CONTROL SAMPLE: 2283188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	23.0	115	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	20.8	104	83-119	
1,1-Dichloroethane	ug/L	20	21.4	107	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.5	102	77-120	
1,2-Dichloropropane	ug/L	20	21.0	105	81-126	
2-Butanone (MEK)	ug/L	100	103	103	65-134	
2-Hexanone	ug/L	100	103	103	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	101	101	62-142	
Benzene	ug/L	20	20.2	101	81-118	
Bromodichloromethane	ug/L	20	23.2	116	85-123	
Bromoform	ug/L	20	23.2	116	83-123	
Bromomethane	ug/L	20	20.8	104	39-149	
Carbon disulfide	ug/L	20	20.2	101	85-124	
Carbon tetrachloride	ug/L	20	23.9	120	85-126	
Chlorobenzene	ug/L	20	21.8	109	87-118	
Chloroethane	ug/L	20	22.4	112	73-134	
Chloroform	ug/L	20	21.1	105	85-119	
Chloromethane	ug/L	20	16.2	81	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.2	101	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.4	112	80-124	
Dibromochloromethane	ug/L	20	23.1	116	83-122	
Ethylbenzene	ug/L	20	20.3	101	80-118	
Methylene chloride	ug/L	20	21.0	105	81-126	
Styrene	ug/L	20	21.1	106	85-120	
Tetrachloroethene	ug/L	20	22.4	112	87-120	
Toluene	ug/L	20	21.2	106	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.5	108	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.9	114	80-122	
Vinyl chloride	ug/L	20	23.6	118	74-147	
Xylene (Total)	ug/L	60	61.2	102	81-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555797 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60286720007, 60286720008, 60286720009

METHOD BLANK: 2280407 Matrix: Water
Associated Lab Samples: 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/17/18 14:09	

LABORATORY CONTROL SAMPLE: 2280408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.50	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280409 2280410

Parameter	Units	60286654001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.50	0.51	101	101	75-125	1	20	

SAMPLE DUPLICATE: 2280411

Parameter	Units	60286654001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2280412

Parameter	Units	60286654002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557066 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286720008, 60286720009

METHOD BLANK: 2285619 Matrix: Water
Associated Lab Samples: 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	11/27/18 18:49	
Sulfate	mg/L	ND	1.0	0.24	11/27/18 18:49	

LABORATORY CONTROL SAMPLE: 2285620

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.8	108	90-110	
Sulfate	mg/L	10	10.7	107	90-110	

MATRIX SPIKE SAMPLE: 2285623

Parameter	Units	60286720008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	276	250	574	119	90-110	M1
Sulfate	mg/L	10.4	50	64.7	109	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557313 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286720002, 60286720007

METHOD BLANK: 2286381 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	11/28/18 11:45	
Sulfate	mg/L	ND	1.0	0.24	11/28/18 11:45	

LABORATORY CONTROL SAMPLE: 2286382

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 555224 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

METHOD BLANK: 2277760 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007, 60286720008, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/14/18 17:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/14/18 17:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/14/18 17:04	

LABORATORY CONTROL SAMPLE: 2277761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.93	93	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	96	90-110	

MATRIX SPIKE SAMPLE: 2277762

Parameter	Units	60286715001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	28.6	10	36.0	73	70-130	
Nitrogen, Nitrite	mg/L	ND	10	10.1	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	28.7	20	46.0	86	90-110	M1

SAMPLE DUPLICATE: 2277763

Parameter	Units	60286720009 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556295 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286720002, 60286720009

METHOD BLANK: 2282498 Matrix: Water
Associated Lab Samples: 60286720002, 60286720009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/20/18 21:26	

LABORATORY CONTROL SAMPLE: 2282499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	105	80-120	

MATRIX SPIKE SAMPLE: 2282500

Parameter	Units	60286400009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	8.9	5	13.4	90	80-120	

SAMPLE DUPLICATE: 2282501

Parameter	Units	60286699002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.6	3.5	4	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556502 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286720007, 60286720008

METHOD BLANK: 2283244 Matrix: Water
Associated Lab Samples: 60286720007, 60286720008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/21/18 11:47	

LABORATORY CONTROL SAMPLE: 2283245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.3	106	80-120	

MATRIX SPIKE SAMPLE: 2283246

Parameter	Units	60286720007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	13.2	10	22.3	92	80-120	

SAMPLE DUPLICATE: 2283247

Parameter	Units	60286720008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	2240	2220	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286720002, 60286720007

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60286720002, 60286720007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

QC Batch: 557464 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286720008

METHOD BLANK: 2286984 Matrix: Water
Associated Lab Samples: 60286720008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 10:50	

LABORATORY CONTROL SAMPLE: 2286985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2286987

Parameter	Units	60286720008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	2060	2500	4510	98	80-120	

SAMPLE DUPLICATE: 2286986

Parameter	Units	60286720008 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	2060	2080	1	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 555602

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 555908

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 556483

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286720002	**MW-61R-201811**	EPA 3010	557146	EPA 6010	557218
60286720007	**TMW-11-201811**	EPA 3010	557146	EPA 6010	557218
60286720008	**TMW-10-201811**	EPA 3010	557146	EPA 6010	557218
60286720009	**MW-50R-201811**	EPA 3010	557146	EPA 6010	557218
60286720001	**MW-175-201811**	EPA 5030B/8260	555602		
60286720002	**MW-61R-201811**	EPA 5030B/8260	555602		
60286720003	**TMW-29-201811**	EPA 5030B/8260	555602		
60286720004	**DUP-01-201811**	EPA 5030B/8260	555602		
60286720005	**MW-179-201811**	EPA 5030B/8260	555602		
60286720006	**DUP-06-201811**	EPA 5030B/8260	555602		
60286720007	**TMW-11-201811**	EPA 5030B/8260	555602		
60286720008	**TMW-10-201811**	EPA 5030B/8260	555602		
60286720009	**MW-50R-201811**	EPA 5030B/8260	555602		
60286720010	**TRIP BLANK**	EPA 5030B/8260	555602		
60286720011	**TMW-20-201811**	EPA 5030B/8260	555602		
60286720012	**MW-195-201811**	EPA 5030B/8260	555602		
60286720013	**MW-196-201811**	EPA 5030B/8260	555602		
60286720014	**MW-99-201811**	EPA 5030B/8260	555602		
60286720015	**MW-68-201811**	EPA 5030B/8260	555602		
60286720016	**ITMW-2-201811**	EPA 5030B/8260	555602		
60286720017	**MW-28-201811**	EPA 5030B/8260	555602		
60286720018	**MW-27-201811**	EPA 5030B/8260	555602		
60286720019	**ITMW-16-201811**	EPA 5030B/8260	555908		
60286720020	**MW-176-201811**	EPA 5030B/8260	555908		
60286720020	**MW-176-201811**	EPA 5030B/8260	556483		
60286720021	**TRIP BLANK**	EPA 5030B/8260	555910		
60286720007	**TMW-11-201811**	SM 4500-S-2 D	555797		
60286720008	**TMW-10-201811**	SM 4500-S-2 D	555797		
60286720009	**MW-50R-201811**	SM 4500-S-2 D	555797		
60286720002	**MW-61R-201811**	EPA 300.0	557313		
60286720007	**TMW-11-201811**	EPA 300.0	557313		
60286720008	**TMW-10-201811**	EPA 300.0	557066		
60286720009	**MW-50R-201811**	EPA 300.0	557066		
60286720002	**MW-61R-201811**	EPA 353.2	555224		
60286720007	**TMW-11-201811**	EPA 353.2	555224		
60286720008	**TMW-10-201811**	EPA 353.2	555224		
60286720009	**MW-50R-201811**	EPA 353.2	555224		
60286720002	**MW-61R-201811**	SM 5310C	556295		
60286720007	**TMW-11-201811**	SM 5310C	556502		
60286720008	**TMW-10-201811**	SM 5310C	556502		
60286720009	**MW-50R-201811**	SM 5310C	556295		
60286720002	**MW-61R-201811**	SM 5310C	556798		
60286720007	**TMW-11-201811**	SM 5310C	556798		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286720

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286720008	**TMW-10-201811**	SM 5310C	557464		

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CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix W

WO# : 60286720

60286720

ALL SH

JL Log

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com jpavlowsky@ramboll.com

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690001033

State: AR County/City: Fort Smith Time Zone Collected: PT MT CT ET

Phone: Email:

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print): Johanna Pavlowsky

Purchase Order #:

DW PWS ID #:

Collected by (signature):

Quote #:

DW Location Code #:

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

Turnaround Date Required: Standard

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Immediately Packed on Ice? [X] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (1) U U (5)(4) (2) U (D) U U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Total Metals - Ferrous Iron	Dissolved metals (same bottle as sulfide) or none	Sulfate/Nitrate/Chloride	Sulfide	Total organic Carbon	Dissolved organic carbon - lab filtered	Volatile Fatty Acids	Methane, E, EA	Methane, EE
MW-175-201811	GW	G	11-13-18	1325				3	X									3DG9H
MW-61R-201811	GW	G		1420				3		X		X		X	X	X	X	3DG9Q, APIN, 2DG9U
TMW-29-201811	GW	G		1700				3										
DUP-01-201811	GW	G		1700				3										
MW-179-201811	GW	G		1645				3										
DUP-06-201811	GW	G		1420				3										
TMW-11-201811	GW	G		1645						X		X	X	X	X	X	X	BP3Z
TMW-10-201811	GW	G		1655						X		X	X	X	X	X	X	3DG9Q, BP3N, 2DG9U
MW-50R-201811	GW	G		1410								X*	X	X			X	
Trip Blank	-	-		-				2										2DG9H

ACJU ACJS, BP3U

Customer Remarks/ Special Conditions/ Possible Hazards:

* NO Chloride for MW-50R-201811

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

Packing Material Used: Bubble bags, 2pk

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

LAB Tracking #: 783762715060, 5071

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

SHORT HOLDS PRESENT (< 72 hours): Y (N) N/A

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: 8881-1			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 2.8 °C 0.9

Cooler Therm Corr. Factor: +0.2 °C

Cooler Temp Corrected: 3.0 °C 1.1

Comments: _____

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky / REM	11/13/18 1830	NZ for PGS	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Page 60 of 76

F-ALL-C-010-rev 00, 05Jul2018

CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **: (3)

Lab Project Manager:

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com; jpavlowsky@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller

Site Collection Info/Address: Whirlpool Annual

Analyses

LAB Profile/Line: 7444 Line 1

Customer Project Name/Number: 1690010033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

Phone: Email: nzurweller@ramboll.com

Site/Facility ID #

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): Johanna Pavlowsky

Purchase Order #

DW PWS ID #:

Collected by (signature):

Quote #

DW Location Code #:

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
TMW-20-201811	GW	G	11-13-18	1700				3	X	30694
MW-195-201811	GW	G		1430				3		
MW-196-201811	GW	G		1555				3		
MW-99-201811	GW	G		1357				3		
MW-68-201811	GW	G		1511				3		
ITMW-2-201811	GW	G		1703				3		
MW-28-201811	GW	G		1310				3		
MW-27-201811	GW	G		1445				3		
ITMW-16-201811	GW	G		1540				3		
MW-176-201811	GW	G		1500				3		

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): Y N N/A

Packing Material Used: Bubble bags

LAB Tracking #: 1837,6271,5060, 5071

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky/REM	11/13/18 1830	UPS Fed Ex	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T100

Cooler Temp Upon Receipt: 2.8 oC 0.9

Cooler Therm Corr. Factor: +0.2 oC

Cooler Temp Corrected: 3.0 oC 1.1

Comments:

Trip Blank Received: Y (N) N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight — see other pages

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected: PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive
[ ] Hold

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
Trip Blank	-	-	11/13/18	-				

Container Preservative Type **: (3)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses: Full List VOC 8260

Lab Project Manager:

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	Y	N	(NA)
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

X 20694

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): Y N N/A

Packing Material Used: Bubble Bags

LAB Tracking #: 783762715060, 5071

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: (FEDEX) [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:
ACCT #:
Template:
Prelogin:
PM:
PB:

LAB Sample Temperature Info:
Temp Blank received: Y N NA
Therm ID #: T100
Cooler Temp Upon Receipt: 2.8 oC 6.9
Cooler Therm Corr. Factor: +0.2 oC +0.2
Cooler Temp Corrected: 3.0 oC 7.1
Comments:

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page ____ of ____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[illegible] /RSH	11/13/18 1830	KZ : AS / Pace	11-14-18 0945
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 28, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **FORT SMITH AR / 60286720**

Pace Workorder: 28734

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, November 16, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/28/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 14

CERTIFICATE OF ANALYSIS

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287340001	MW-61R-201811	Water	11/13/2018 14:20	11/16/2018 11:15
287340002	TMW-11-201811	Water	11/13/2018 16:45	11/16/2018 11:15
287340003	TMW-10-201811	Water	11/13/2018 16:55	11/16/2018 11:15

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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PROJECT SUMMARY

Workorder: 28734 FORT SMITH AR / 60286720

Workorder Comments

The container pH for samples 28734 (0002-0003) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Batch Comments

Batch: EDON/3941 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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Pittsburgh, PA 15238
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Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340001** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **MW-61R-201811** Date Collected: 11/13/2018 14:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/20/2018 23:02	KB	d
Acetic Acid	**1.9**	mg/l	1.0	0.24	10	11/20/2018 23:02	KB	d,B
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/20/2018 23:02	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/20/2018 23:02	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/20/2018 23:02	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**6600**	ug/l	0.50	0.014	1	11/27/2018 11:35	BW	n
Ethane	**0.70**	ug/l	0.10	0.0070	1	11/27/2018 11:35	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/27/2018 11:35	BW	n

nelac

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340002** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **TMW-11-201811** Date Collected: 11/13/2018 16:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/20/2018 23:58	KB	d
Acetic Acid	**2.5**	mg/l	1.0	0.24	10	11/20/2018 23:58	KB	d,B
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/20/2018 23:58	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/20/2018 23:58	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/20/2018 23:58	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**16000**	ug/l	0.50	0.014	1	11/27/2018 11:47	BW	n
Ethane	**0.58**	ug/l	0.10	0.0070	1	11/27/2018 11:47	BW	n
Ethene	**0.90**	ug/l	0.10	0.0050	1	11/27/2018 11:47	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/27/2018 11:47	BW	n

nelac

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Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

ANALYTICAL RESULTS

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID: **287340003** Date Received: 11/16/2018 11:15 Matrix: Water

Sample ID: **TMW-10-201811** Date Collected: 11/13/2018 16:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**6.8**	mg/l	2.0	0.14	10	11/21/2018 00:54	KB	d
Acetic Acid	**130**	mg/l	10	2.4	100	11/21/2018 01:51	KB	d,B
Propionic Acid	**4100**	mg/l	100	4.4	1000	11/21/2018 02:47	KB	d,B
Butyric Acid	**54**	mg/l	10	0.47	100	11/21/2018 01:51	KB	d,B
Pyruvic Acid	**43**	mg/l	10	0.57	100	11/21/2018 01:51	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**11000**	ug/l	0.50	0.014	1	11/27/2018 12:00	BW	n
Ethane	**0.28**	ug/l	0.10	0.0070	1	11/27/2018 12:00	BW	n
Ethene	**1.8**	ug/l	0.10	0.0050	1	11/27/2018 12:00	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/27/2018 12:00	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28734 FORT SMITH AR / 60286720

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.

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QUALITY CONTROL DATA

Workorder: 28734 FORT SMITH AR / 60286720

QC Batch: EDON/3941 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287340001, 287340002, 287340003

METHOD BLANK: 58569

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.24	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58570

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.3	113	70-130	
Acetic Acid	mg/l	2	2.3	115	70-130	B
Propionic Acid	mg/l	2	2.2	108	70-130	B
Butyric Acid	mg/l	2	2.2	108	70-130	B
Pyruvic Acid	mg/l	2	2.1	103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58571 58572 Original: 287160001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.047	20	21	22	107	107	70-130	0.6	30	d
Acetic Acid	mg/l	2	20	22	22	100	102	70-130	1.7	30	d,B
Propionic Acid	mg/l	0.37	20	21	21	105	104	70-130	1.4	30	d,B
Butyric Acid	mg/l	0.18	20	21	21	106	105	70-130	1.1	30	d,B
Pyruvic Acid	mg/l	0	20	20	20	100	100	70-130	0.17	30	d

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QUALITY CONTROL DATA

Workorder: 28734 FORT SMITH AR / 60286720

QC Batch: DISG/7229 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287340001, 287340002, 287340003

METHOD BLANK: 58643

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58645 58647

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	96	96	80-120	0.058	20	n
Ethane	ug/l	38	40	41	107	108	80-120	0.85	20	n
Ethene	ug/l	35	38	38	108	108	80-120	0.13	20	n
Acetylene	ug/l	33	36	35	109	107	80-120	1.2	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28734 FORT SMITH AR / 60286720

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28734 FORT SMITH AR / 60286720

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287340001	MW-61R-201811			AM23G	EDON/3941
287340002	TMW-11-201811			AM23G	EDON/3941
287340003	TMW-10-201811			AM23G	EDON/3941
287340001	MW-61R-201811			AM20GAX	DISG/7229
287340002	TMW-11-201811			AM20GAX	DISG/7229
287340003	TMW-10-201811			AM20GAX	DISG/7229

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Chain of Custody

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www.pacelabs.com

Workorder: 60286720 **Workorder Name:** FORT SMITH AR **Results Requested By:** 11/28/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9561 28734

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: TSP	Preserved Containers: Unpres	Requested Analysis: M,E,E,A and VFA	Requested Analysis: M,E,E and VFA	LAB USE ONLY
1	MW-61R-201811	11/13/2018 14:20	60286720002	Water	3	2		X	
2	TMW-11-201811	11/13/2018 16:45	60286720007	Water	3	2	X		
3	TMW-10-201811	11/13/2018 16:55	60286720008	Water	3	2	X		
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Receipt Pres.	11.15.18 1600	[illegible] PAS	11.16.18 1115
2				
3				

Comments: Methane, Ethane, Ethene, Acetylene
Volatile Fatty Acids

Cooler Temperature on Receipt 2 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: PAE **Project:** Fort Smith **Lab Work Order:** 28734

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227861794

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : LG **Date:** 11.16.18

Project Manager Review : JW **Date:** 11.16.18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 24, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 15, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

RV-1 Revised report - sub analysis report added for MW-194

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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Lenexa, KS 66219
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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60286849001	MW-188-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849002	TMW-19-201811	Water	11/14/18 10:20	11/15/18 06:50
60286849003	TMW-27-201811	Water	11/14/18 11:30	11/15/18 06:50
60286849004	MW-178-201811	Water	11/14/18 11:20	11/15/18 06:50
60286849005	MW-84-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849006	MW-83-201811	Water	11/14/18 10:50	11/15/18 06:50
60286849007	MW-22-201811	Water	11/14/18 12:45	11/15/18 06:50
60286849008	MW-56R-201811	Water	11/14/18 14:25	11/15/18 06:50
60286849009	MW-57R-201811	Water	11/14/18 15:40	11/15/18 06:50
60286849010	MW-46R-201811	Water	11/14/18 17:10	11/15/18 06:50
60286849011	MW-60R-201811	Water	11/14/18 09:20	11/15/18 06:50
60286849012	MW-40R-201811	Water	11/14/18 10:50	11/15/18 06:50
60286849013	MW-62R-201811	Water	11/14/18 12:10	11/15/18 06:50
60286849014	MW-63R-201811	Water	11/14/18 13:40	11/15/18 06:50
60286849015	MW-26-201811	Water	11/14/18 15:25	11/15/18 06:50
60286849016	DUP-09-201811	Water	11/14/18 15:25	11/15/18 06:50
60286849017	ITMW-20-201811	Water	11/14/18 16:25	11/15/18 06:50
60286849018	EB-03-201811	Water	11/14/18 17:00	11/15/18 06:50
60286849019	MW-191-201811	Water	11/14/18 14:55	11/15/18 06:50
60286849020	TMW-14-201811	Water	11/14/18 15:51	11/15/18 06:50
60286849021	ITMW-10-201811	Water	11/14/18 17:37	11/15/18 06:50
60286849022	MW-184-201811	Water	11/14/18 09:47	11/15/18 06:50
60286849023	MW-183R-201811	Water	11/14/18 11:23	11/15/18 06:50
60286849024	MW-98-201811	Water	11/14/18 13:51	11/15/18 06:50
60286849025	EB-04-201811	Water	11/14/18 17:40	11/15/18 06:50
60286849026	MW-186-201811	Water	11/14/18 10:05	11/15/18 06:50
60286849027	MW-185-201811	Water	11/14/18 11:40	11/15/18 06:50
60286849028	TMW-34-201811	Water	11/14/18 15:00	11/15/18 06:50
60286849029	MW-194-201811	Water	11/14/18 17:20	11/15/18 06:50
60286849030	MW-89-201811	Water	11/14/18 10:10	11/15/18 06:50
60286849031	IW-73-201811	Water	11/14/18 15:10	11/15/18 06:50
60286849032	RW-69-201811	Water	11/14/18 12:30	11/15/18 06:50
60286849033	TMW-30-201811	Water	11/14/18 12:30	11/15/18 06:50
60286849034	TRIP BLANK	Water	11/14/18 12:30	11/15/18 06:50
60286849035	TRIP BLANK 2	Water	11/14/18 12:30	11/15/18 06:50
60286849036	EB-05-201811	Water	11/14/18 17:10	11/15/18 06:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286849001	MW-188-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849002	TMW-19-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849003	TMW-27-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849004	MW-178-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849005	MW-84-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849006	MW-83-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849007	MW-22-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849008	MW-56R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849009	MW-57R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849010	MW-46R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849011	MW-60R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849012	MW-40R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849013	MW-62R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849014	MW-63R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849015	MW-26-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849016	DUP-09-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849017	ITMW-20-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849018	EB-03-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849019	MW-191-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849020	TMW-14-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849021	ITMW-10-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849022	MW-184-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849023	MW-183R-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849024	MW-98-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849025	EB-04-201811	EPA 5030B/8260	PGH	38	PASI-K
60286849026	MW-186-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849027	MW-185-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60286849028	**TMW-34-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849029	**MW-194-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849030	**MW-89-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849031	**IW-73-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849032	**RW-69-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849033	**TMW-30-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60286849034	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60286849035	**TRIP BLANK 2**	EPA 5030B/8260	PGH	38	PASI-K
60286849036	**EB-05-201811**	EPA 5030B/8260	PGH	38	PASI-K

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
8 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
36 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- MW-186-201811 (Lab ID: 60286849026)
- TMW-30-201811 (Lab ID: 60286849033)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 555989

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555989 [MSV/9337 (Lab ID: 2281609)
  - 1,2-Dichloroethane

QC Batch: 555990

B: Analyte was detected in the associated method blank.
- BLANK for HBN 555990 [MSV/9337 (Lab ID: 2281617)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 555990

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
- LCS (Lab ID: 2281618)
  - Trichloroethene

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 24, 2018

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556253

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286849032

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2282309)
  - Trichloroethene

QC Batch: 556701

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556702

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
3 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
7 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- MW-194-201811 (Lab ID: 60286849029)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557820

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287003004,60287011001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2288556)
  - Chloride

QC Batch: 559544

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287946003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2296211)
  - Chloride

Additional Comments:

Analyte Comments:

QC Batch: 559544

E: Analyte concentration exceeded the calibration range. The reported result is estimated.
- MS (Lab ID: 2296211)
  - Chloride

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
7 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the EPA method holding time.
- MW-186-201811 (Lab ID: 60286849026)
- MW-194-201811 (Lab ID: 60286849029)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555770

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2280238)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrate

QC Batch: 560129

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60289438003,60289469002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 2298935)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 555770

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.
- DUP (Lab ID: 2280239)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
8 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 24, 2018

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-186-201811 **Lab ID: 60286849026** Collected: 11/14/18 10:05 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**588000**	ug/L	250	30.7	5	11/28/18 10:35	11/30/18 13:35	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**276**	ug/L	50.0	9.4	5		11/21/18 23:16	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/21/18 23:16	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/21/18 23:16	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/21/18 23:16	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/21/18 23:16	74-83-9	
2-Butanone (MEK)	**1250**	ug/L	50.0	3.0	5		11/21/18 23:16	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/21/18 23:16	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/21/18 23:16	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/21/18 23:16	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/21/18 23:16	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/21/18 23:16	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/21/18 23:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/21/18 23:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/21/18 23:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	75-35-4	
cis-1,2-Dichloroethene	**6.5**	ug/L	5.0	0.40	5		11/21/18 23:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/21/18 23:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/21/18 23:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/21/18 23:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/21/18 23:16	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/21/18 23:16	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/21/18 23:16	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/21/18 23:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/21/18 23:16	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/21/18 23:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/21/18 23:16	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/21/18 23:16	127-18-4	
Toluene	ND	ug/L	5.0	0.85	5		11/21/18 23:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/21/18 23:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/21/18 23:16	79-00-5	
Trichloroethene	**10.2**	ug/L	5.0	0.85	5		11/26/18 03:49	79-01-6	F1
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/21/18 23:16	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/21/18 23:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	104	%	80-119		5		11/21/18 23:16	460-00-4	F1
1,2-Dichloroethane-d4 (S)	107	%	80-117		5		11/21/18 23:16	17060-07-0	
Toluene-d8 (S)	98	%	80-115		5		11/21/18 23:16	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	5		11/21/18 23:16		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**260**	mg/L	20.0	5.8	20		12/01/18 03:29	16887-00-6	
Sulfate	**1.4**	mg/L	1.0	0.24	1		12/12/18 05:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-186-201811 **Lab ID: 60286849026** Collected: 11/14/18 10:05 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 10:12		H1
Nitrogen, Nitrite	**0.14**	mg/L	0.10	0.033	1		11/17/18 10:12		D6,H1
Nitrogen, NO2 plus NO3	**0.13**	mg/L	0.10	0.060	1		11/17/18 10:12		D6,H1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**9150**	mg/L	1000	654	1000		11/29/18 17:05	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**8980**	mg/L	1000	654	1000		11/27/18 13:20	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-185-201811 **Lab ID: 60286849027** Collected: 11/14/18 11:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**46.0J**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:41	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**3.3J**	ug/L	10.0	1.9	1		11/21/18 21:38	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:38	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:38	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:38	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:38	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:38	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:38	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:38	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:38	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:38	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:38	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:38	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:38	75-34-3	
1,2-Dichloroethane	**0.15J**	ug/L	1.0	0.12	1		11/21/18 21:38	107-06-2	B
1,1-Dichloroethene	**0.25J**	ug/L	1.0	0.20	1		11/21/18 21:38	75-35-4	
cis-1,2-Dichloroethene	**2.6**	ug/L	1.0	0.080	1		11/21/18 21:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:38	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:38	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:38	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:38	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:38	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:38	79-00-5	
Trichloroethene	**11.7**	ug/L	1.0	0.17	1		11/26/18 04:03	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:38	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:38	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	103	%	80-119		1		11/21/18 21:38	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 21:38	17060-07-0	
Toluene-d8 (S)	97	%	80-115		1		11/21/18 21:38	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**18.8**	mg/L	1.0	0.29	1		12/12/18 05:31	16887-00-6	
Sulfate	**7.7**	mg/L	1.0	0.24	1		12/12/18 05:31	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-185-201811 **Lab ID: 60286849027** Collected: 11/14/18 11:40 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**5.0**	mg/L	0.50	0.30	5		11/15/18 18:37		
Nitrogen, Nitrite	ND	mg/L	0.50	0.16	5		11/15/18 18:37		
Nitrogen, NO2 plus NO3	**5.1**	mg/L	0.50	0.30	5		11/15/18 18:37		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/26/18 17:46	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 13:33	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-34-201811 **Lab ID: 60286849028** Collected: 11/14/18 15:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**109**	ug/L	50.0	6.1	1	11/28/18 10:35	11/29/18 14:43	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.4J**	ug/L	10.0	1.9	1		11/21/18 22:34	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 22:34	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 22:34	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 22:34	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 22:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 22:34	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 22:34	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 22:34	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 22:34	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:34	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 22:34	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 22:34	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 22:34	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 22:34	75-34-3	
1,2-Dichloroethane	**0.19J**	ug/L	1.0	0.12	1		11/21/18 22:34	107-06-2	B
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:34	75-35-4	
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0	0.080	1		11/21/18 22:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 22:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 22:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 22:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 22:34	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 22:34	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 22:34	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 22:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 22:34	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 22:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 22:34	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 22:34	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 22:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 22:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 22:34	79-00-5	
Trichloroethene	**7.4**	ug/L	1.0	0.17	1		11/26/18 04:17	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 22:34	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 22:34	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	80-119		1		11/21/18 22:34	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	80-117		1		11/21/18 22:34	17060-07-0	
Toluene-d8 (S)	94	%	80-115		1		11/21/18 22:34	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 22:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**22.4**	mg/L	5.0	1.4	5		12/12/18 06:25	16887-00-6	
Sulfate	**9.2**	mg/L	1.0	0.24	1		12/12/18 06:07	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: TMW-34-201811 **Lab ID: 60286849028** Collected: 11/14/18 15:00 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/15/18 18:33		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/15/18 18:33		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/15/18 18:33		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**0.72J**	mg/L	1.0	0.65	1		11/27/18 17:11	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**0.84J**	mg/L	1.0	0.65	1		11/27/18 13:46	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-194-201811 **Lab ID: 60286849029** Collected: 11/14/18 17:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**8260**	ug/L	50.0	6.1	1	11/28/18 10:35	11/28/18 22:36	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	10.0	1.9	1		11/21/18 21:51	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/21/18 21:51	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/21/18 21:51	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/21/18 21:51	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/21/18 21:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	0.59	1		11/21/18 21:51	78-93-3	
Carbon disulfide	ND	ug/L	5.0	0.12	1		11/21/18 21:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/21/18 21:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/21/18 21:51	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:51	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/21/18 21:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/21/18 21:51	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/21/18 21:51	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/21/18 21:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/21/18 21:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:51	75-35-4	
cis-1,2-Dichloroethene	**0.87J**	ug/L	1.0	0.080	1		11/21/18 21:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/21/18 21:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/21/18 21:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/21/18 21:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/21/18 21:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/21/18 21:51	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/21/18 21:51	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/21/18 21:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/21/18 21:51	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/21/18 21:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/21/18 21:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/21/18 21:51	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/21/18 21:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/21/18 21:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/21/18 21:51	79-00-5	
Trichloroethene	**10.7**	ug/L	1.0	0.17	1		11/26/18 04:31	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.13	1		11/21/18 21:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/21/18 21:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		1		11/21/18 21:51	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	80-117		1		11/21/18 21:51	17060-07-0	
Toluene-d8 (S)	101	%	80-115		1		11/21/18 21:51	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/21/18 21:51		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**150**	mg/L	20.0	5.8	20		12/14/18 16:49	16887-00-6	H1
Sulfate	**9.1**	mg/L	1.0	0.24	1		12/17/18 18:02	14808-79-8	H1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Sample: MW-194-201811 **Lab ID: 60286849029** Collected: 11/14/18 17:20 Received: 11/15/18 06:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		12/14/18 09:57		H1
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		12/14/18 09:57		H1
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		12/14/18 09:57		H1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 17:24	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	1.0	0.65	1		11/27/18 13:59	7440-44-0	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281611			2281612							
Parameter	Units	60286849002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.2	20.7	106	104	77-135	2	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.1	21.8	110	109	77-138	1	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.0	18.2	95	91	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.5	19.7	102	99	74-128	4	13	
2-Butanone (MEK)	ug/L	ND	100	100	86.8	83.3	87	83	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	83.3	86.2	83	86	53-133	3	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	90.0	86.9	90	87	62-134	3	15	
Acetone	ug/L	1.9J	100	100	84.9	86.0	83	84	50-127	1	28	
Benzene	ug/L	ND	20	20	20.1	19.6	101	98	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.7	20.8	108	104	75-126	4	12	
Bromoform	ug/L	ND	20	20	17.6	18.7	88	93	70-122	6	14	
Bromomethane	ug/L	ND	20	20	18.2	20.6	91	103	41-155	12	42	
Carbon disulfide	ug/L	ND	20	20	21.0	20.3	105	102	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.0	22.3	115	112	78-139	3	23	
Chlorobenzene	ug/L	ND	20	20	19.9	19.7	100	99	74-130	1	10	
Chloroethane	ug/L	ND	20	20	22.7	21.4	114	107	67-153	6	27	
Chloroform	ug/L	0.19J	20	20	20.5	20.1	102	99	75-127	2	12	
Chloromethane	ug/L	ND	20	20	19.9	18.2	100	91	22-188	9	68	
cis-1,2-Dichloroethene	ug/L	0.69J	20	20	20.1	19.5	97	94	69-135	3	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.7	18.2	93	91	61-129	3	11	
Dibromochloromethane	ug/L	ND	20	20	19.3	19.8	97	99	60-133	3	14	
Ethylbenzene	ug/L	ND	20	20	19.2	19.5	96	98	60-140	1	32	
Methylene chloride	ug/L	ND	20	20	20.5	20.6	102	103	72-131	1	16	
Styrene	ug/L	ND	20	20	19.5	19.3	97	97	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	20.1	20.1	100	100	72-136	0	15	
Toluene	ug/L	ND	20	20	20.3	20.3	101	102	65-135	0	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.3	20.5	106	102	75-137	4	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.1	18.1	91	90	60-128	0	13	
Trichloroethene	ug/L	0.97J	20	20	24.5	23.8	117	114	66-136	3	15	
Vinyl chloride	ug/L	ND	20	20	24.6	24.5	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	55.8	56.6	93	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	102	80-117			
4-Bromofluorobenzene (S)	%						104	103	80-119			
Toluene-d8 (S)	%						95	99	80-115			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281613			2281614							
Parameter	Units	60286849004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.9	21.7	109	109	79-135	1	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.6	17.9	88	90	49-144	2	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.2	18.8	91	94	71-124	3	14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281613			2281614							
Parameter	Units	60286849004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.6	20.6	103	103	77-135	0	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.2	20.9	111	104	77-138	6	14	
1,2-Dichloroethane	ug/L	0.14J	20	20	19.0	18.7	94	93	47-152	2	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.3	20.1	102	100	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	87.7	91.7	88	92	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	86.5	91.9	87	92	53-133	6	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	91.4	96.4	91	96	62-134	5	15	
Acetone	ug/L	ND	100	100	91.9	94.3	92	94	50-127	3	28	
Benzene	ug/L	0.22J	20	20	19.4	19.5	96	96	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	20.4	20.7	102	103	75-126	1	12	
Bromoform	ug/L	ND	20	20	18.4	19.1	92	96	70-122	4	14	
Bromomethane	ug/L	ND	20	20	20.8	21.8	104	109	41-155	5	42	
Carbon disulfide	ug/L	ND	20	20	20.3	20.7	102	103	70-148	2	14	
Carbon tetrachloride	ug/L	ND	20	20	21.9	22.6	109	113	78-139	3	23	
Chlorobenzene	ug/L	ND	20	20	19.9	19.4	100	97	74-130	3	10	
Chloroethane	ug/L	ND	20	20	22.0	22.4	110	112	67-153	2	27	
Chloroform	ug/L	ND	20	20	19.9	20.3	100	101	75-127	2	12	
Chloromethane	ug/L	ND	20	20	25.8	23.0	129	115	22-188	11	68	
cis-1,2-Dichloroethene	ug/L	1.4	20	20	20.3	20.9	94	98	69-135	3	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.5	18.6	93	93	61-129	0	11	
Dibromochloromethane	ug/L	ND	20	20	18.7	18.9	94	95	60-133	1	14	
Ethylbenzene	ug/L	ND	20	20	19.1	19.1	96	96	60-140	0	32	
Methylene chloride	ug/L	ND	20	20	20.7	21.3	104	107	72-131	3	16	
Styrene	ug/L	ND	20	20	19.1	19.0	95	95	59-142	0	12	
Tetrachloroethene	ug/L	ND	20	20	19.1	18.9	95	95	72-136	1	15	
Toluene	ug/L	ND	20	20	19.8	19.6	99	98	65-135	1	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.0	20.9	100	105	75-137	5	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.6	17.8	88	89	60-128	1	13	
Trichloroethene	ug/L	4.5	20	20	26.5	26.6	110	111	66-136	0	15	
Vinyl chloride	ug/L	ND	20	20	25.2	25.1	126	126	65-164	0	16	
Xylene (Total)	ug/L	ND	60	60	57.5	56.4	96	94	69-133	2	31	
1,2-Dichloroethane-d4 (S)	%						103	107	80-117			
4-Bromofluorobenzene (S)	%						102	101	80-119			
Toluene-d8 (S)	%						94	94	80-115			
Preservation pH		1.0			1.0	1.0				0		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		2281615			2281616							
Parameter	Units	60286849012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	21.2	22.2	106	111	79-135	5	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.4	18.1	87	91	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	18.5	20.0	93	100	71-124	8	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281615 2281616

Parameter	Units	60286849012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	20.7	21.5	103	107	77-135	4	12	
1,1-Dichloroethene	ug/L	ND	20	20	19.4	18.7	97	93	77-138	4	14	
1,2-Dichloroethane	ug/L	ND	20	20	18.5	19.5	92	97	47-152	5	27	
1,2-Dichloropropane	ug/L	ND	20	20	19.7	21.4	99	107	74-128	8	13	
2-Butanone (MEK)	ug/L	ND	100	100	88.9	93.1	89	93	60-125	5	17	
2-Hexanone	ug/L	ND	100	100	91.0	96.0	91	96	53-133	5	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	94.8	98.1	95	98	62-134	3	15	
Acetone	ug/L	2.0J	100	100	91.1	86.2	89	84	50-127	5	28	
Benzene	ug/L	ND	20	20	19.1	20.0	96	100	62-138	5	34	
Bromodichloromethane	ug/L	ND	20	20	20.6	21.7	103	108	75-126	5	12	
Bromoform	ug/L	ND	20	20	18.2	18.8	91	94	70-122	3	14	
Bromomethane	ug/L	ND	20	20	22.0	22.2	110	111	41-155	1	42	
Carbon disulfide	ug/L	ND	20	20	20.0	20.9	100	105	70-148	5	14	
Carbon tetrachloride	ug/L	ND	20	20	21.5	23.1	108	116	78-139	7	23	
Chlorobenzene	ug/L	ND	20	20	19.3	19.7	97	98	74-130	2	10	
Chloroethane	ug/L	ND	20	20	22.3	22.2	112	111	67-153	1	27	
Chloroform	ug/L	ND	20	20	19.7	20.6	99	103	75-127	4	12	
Chloromethane	ug/L	ND	20	20	25.5	18.8	128	94	22-188	31	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	19.2	19.3	96	96	69-135	0	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.3	19.4	92	97	61-129	6	11	
Dibromochloromethane	ug/L	ND	20	20	18.7	20.1	93	101	60-133	8	14	
Ethylbenzene	ug/L	ND	20	20	18.9	19.5	94	97	60-140	3	32	
Methylene chloride	ug/L	ND	20	20	21.3	21.5	106	108	72-131	1	16	
Styrene	ug/L	ND	20	20	19.2	19.4	96	97	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	18.9	19.7	95	99	72-136	4	15	
Toluene	ug/L	ND	20	20	19.4	19.9	97	99	65-135	3	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.5	20.8	103	104	75-137	1	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.2	18.6	86	93	60-128	8	13	
Trichloroethene	ug/L	ND	20	20	22.0	22.9	110	114	66-136	4	15	
Vinyl chloride	ug/L	ND	20	20	24.9	24.8	125	124	65-164	0	16	
Xylene (Total)	ug/L	ND	60	60	55.9	55.7	93	93	69-133	0	31	
1,2-Dichloroethane-d4 (S)	%						103	108	80-117			
4-Bromofluorobenzene (S)	%						101	104	80-119			
Toluene-d8 (S)	%						93	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555990 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849015, 60286849016, 60286849017, 60286849018, 60286849019, 60286849020, 60286849021, 60286849022, 60286849023, 60286849024, 60286849025, 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849033

METHOD BLANK: 2281617 Matrix: Water
Associated Lab Samples: 60286849015, 60286849016, 60286849017, 60286849018, 60286849019, 60286849020, 60286849021, 60286849022, 60286849023, 60286849024, 60286849025, 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 19:46	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 19:46	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 19:46	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 19:46	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 19:46	
1,2-Dichloroethane	ug/L	0.18J	1.0	0.12	11/21/18 19:46	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 19:46	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 19:46	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 19:46	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 19:46	
Acetone	ug/L	ND	10.0	1.9	11/21/18 19:46	
Benzene	ug/L	ND	1.0	0.060	11/21/18 19:46	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 19:46	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 19:46	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 19:46	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 19:46	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 19:46	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 19:46	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 19:46	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 19:46	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 19:46	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 19:46	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 19:46	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 19:46	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 19:46	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 19:46	
Styrene	ug/L	ND	1.0	0.12	11/21/18 19:46	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 19:46	
Toluene	ug/L	ND	1.0	0.17	11/21/18 19:46	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 19:46	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 19:46	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 19:46	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 19:46	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 19:46	
1,2-Dichloroethane-d4 (S)	%	103	80-117		11/21/18 19:46	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 19:46	
Toluene-d8 (S)	%	98	80-115		11/21/18 19:46	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2281618

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.8	114	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	21.1	106	74-121	
1,1,2-Trichloroethane	ug/L	20	22.0	110	83-119	
1,1-Dichloroethane	ug/L	20	21.5	108	85-128	
1,1-Dichloroethene	ug/L	20	21.8	109	85-123	
1,2-Dichloroethane	ug/L	20	20.6	103	77-120	
1,2-Dichloropropane	ug/L	20	21.2	106	81-126	
2-Butanone (MEK)	ug/L	100	99.4	99	65-134	
2-Hexanone	ug/L	100	99.3	99	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	101	101	66-139	
Acetone	ug/L	100	98.6	99	62-142	
Benzene	ug/L	20	20.7	103	81-118	
Bromodichloromethane	ug/L	20	22.9	114	85-123	
Bromoform	ug/L	20	21.5	108	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.9	104	85-124	
Carbon tetrachloride	ug/L	20	23.3	117	85-126	
Chlorobenzene	ug/L	20	21.9	109	87-118	
Chloroethane	ug/L	20	21.7	108	73-134	
Chloroform	ug/L	20	21.7	108	85-119	
Chloromethane	ug/L	20	18.3	91	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.1	106	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.2	111	80-124	
Dibromochloromethane	ug/L	20	22.0	110	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	21.9	109	81-126	
Styrene	ug/L	20	21.4	107	85-120	
Tetrachloroethene	ug/L	20	22.7	114	87-120	
Toluene	ug/L	20	22.0	110	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.9	104	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.3	111	80-122	
Trichloroethene	ug/L	20	24.2	121	82-120	L1
Vinyl chloride	ug/L	20	24.3	122	74-147	
Xylene (Total)	ug/L	60	62.0	103	81-120	
1,2-Dichloroethane-d4 (S)	%			103	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			97	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281619 2281620

Parameter	Units	60286849023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.6	23.7	113	119	79-135	5	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	17.0	18.9	85	94	49-144	11	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.8	20.6	99	103	71-124	4	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281619 2281620

Parameter	Units	60286849023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.7	22.2	108	111	77-135	2	12	
1,1-Dichloroethene	ug/L	ND	20	20	22.3	23.6	112	118	77-138	6	14	
1,2-Dichloroethane	ug/L	0.18J	20	20	19.2	19.6	95	97	47-152	2	27	
1,2-Dichloropropane	ug/L	ND	20	20	20.8	20.7	104	103	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	88.5	91.5	89	92	60-125	3	17	
2-Hexanone	ug/L	ND	100	100	91.5	96.6	91	97	53-133	5	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	92.8	96.0	93	96	62-134	3	15	
Acetone	ug/L	6.6J	100	100	88.8	92.5	82	86	50-127	4	28	
Benzene	ug/L	ND	20	20	20.2	20.3	101	101	62-138	1	34	
Bromodichloromethane	ug/L	ND	20	20	22.0	22.3	110	111	75-126	1	12	
Bromoform	ug/L	ND	20	20	20.6	21.8	103	109	70-122	6	14	
Bromomethane	ug/L	ND	20	20	19.4	22.9	97	114	41-155	16	42	
Carbon disulfide	ug/L	ND	20	20	21.8	22.1	109	110	70-148	1	14	
Carbon tetrachloride	ug/L	ND	20	20	24.4	24.0	122	120	78-139	2	23	
Chlorobenzene	ug/L	ND	20	20	20.9	22.2	104	111	74-130	6	10	
Chloroethane	ug/L	ND	20	20	23.6	22.8	118	114	67-153	4	27	
Chloroform	ug/L	ND	20	20	21.3	21.3	106	107	75-127	0	12	
Chloromethane	ug/L	ND	20	20	26.9	21.5	134	108	22-188	22	68	
cis-1,2-Dichloroethene	ug/L	ND	20	20	20.5	20.6	103	103	69-135	0	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.1	94	95	61-129	1	11	
Dibromochloromethane	ug/L	ND	20	20	20.6	22.8	103	114	60-133	10	14	
Ethylbenzene	ug/L	ND	20	20	21.3	21.5	106	107	60-140	1	32	
Methylene chloride	ug/L	ND	20	20	22.4	21.6	112	108	72-131	4	16	
Styrene	ug/L	ND	20	20	20.7	20.9	104	105	59-142	1	12	
Tetrachloroethene	ug/L	ND	20	20	22.4	23.5	112	118	72-136	5	15	
Toluene	ug/L	ND	20	20	21.8	22.6	109	113	65-135	4	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.9	107	109	75-137	2	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	18.9	19.9	94	100	60-128	5	13	
Trichloroethene	ug/L	1.1	20	20	24.5	25.0	117	120	66-136	2	15	
Vinyl chloride	ug/L	ND	20	20	26.4	26.3	132	132	65-164	0	16	
Xylene (Total)	ug/L	ND			62.5	63.6				2	31	
1,2-Dichloroethane-d4 (S)	%						105	104	80-117			
4-Bromofluorobenzene (S)	%						97	101	80-119			
Toluene-d8 (S)	%						100	103	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556253 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849032, 60286849034, 60286849035, 60286849036

METHOD BLANK: 2282307 Matrix: Water
Associated Lab Samples: 60286849032, 60286849034, 60286849035, 60286849036

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 02:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 02:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/21/18 02:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 02:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 02:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 02:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 02:06	
Acetone	ug/L	ND	10.0	1.9	11/21/18 02:06	
Benzene	ug/L	ND	1.0	0.060	11/21/18 02:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 02:06	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 02:06	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 02:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 02:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 02:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 02:06	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 02:06	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 02:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 02:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 02:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 02:06	
Styrene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 02:06	
Toluene	ug/L	ND	1.0	0.17	11/21/18 02:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 02:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 02:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 02:06	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/21/18 02:06	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 02:06	
Toluene-d8 (S)	%	98	80-115		11/21/18 02:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

LABORATORY CONTROL SAMPLE: 2282308

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.7	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.3	102	77-120	
1,2-Dichloropropane	ug/L	20	20.6	103	81-126	
2-Butanone (MEK)	ug/L	100	102	102	65-134	
2-Hexanone	ug/L	100	97.8	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	66-139	
Acetone	ug/L	100	99.0	99	62-142	
Benzene	ug/L	20	19.5	97	81-118	
Bromodichloromethane	ug/L	20	22.2	111	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.7	108	85-126	
Chlorobenzene	ug/L	20	20.3	101	87-118	
Chloroethane	ug/L	20	22.1	110	73-134	
Chloroform	ug/L	20	21.0	105	85-119	
Chloromethane	ug/L	20	22.7	114	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	20.6	103	83-122	
Ethylbenzene	ug/L	20	19.4	97	80-118	
Methylene chloride	ug/L	20	22.2	111	81-126	
Styrene	ug/L	20	20.5	103	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	19.9	100	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	101	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.1	100	80-122	
Trichloroethene	ug/L	20	22.7	113	82-120	
Vinyl chloride	ug/L	20	24.5	122	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	23.2	112	116	79-135	4	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	71-124	1	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.3	21.4	107	107	77-135	0	12	
1,1-Dichloroethene	ug/L	1.3	20	20	20.6	23.8	96	112	77-138	14	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.6	20.3	98	102	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	21.5	106	107	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	95.2	98.9	95	99	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	97.3	98.8	97	99	53-133	2	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	99.2	101	99	101	62-134	2	15	
Acetone	ug/L	3.0J	100	100	90.1	93.1	87	90	50-127	3	28	
Benzene	ug/L	ND	20	20	20.1	20.8	100	104	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.5	22.5	108	112	75-126	4	12	
Bromoform	ug/L	ND	20	20	19.2	20.8	96	104	70-122	8	14	
Bromomethane	ug/L	ND	20	20	19.5	20.9	98	104	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	20.7	21.4	103	107	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.4	116	117	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	20.4	21.5	102	107	74-130	5	10	
Chloroethane	ug/L	ND	20	20	23.0	23.4	115	117	67-153	2	27	
Chloroform	ug/L	ND	20	20	21.1	20.9	106	105	75-127	1	12	
Chloromethane	ug/L	ND	20	20	16.1	16.5	80	83	22-188	3	68	
cis-1,2-Dichloroethene	ug/L	5.4	20	20	25.4	25.7	100	101	69-135	1	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.9	100	105	61-129	4	11	
Dibromochloromethane	ug/L	ND	20	20	20.3	21.7	102	108	60-133	6	14	
Ethylbenzene	ug/L	ND	20	20	19.7	20.5	98	103	60-140	4	32	
Methylene chloride	ug/L	ND	20	20	21.4	21.5	107	107	72-131	0	16	
Styrene	ug/L	ND	20	20	19.4	20.3	97	101	59-142	5	12	
Tetrachloroethene	ug/L	ND	20	20	20.5	21.6	102	108	72-136	5	15	
Toluene	ug/L	ND	20	20	20.6	20.9	103	104	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.0	108	105	75-137	3	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.2	100	101	60-128	1	13	
Trichloroethene	ug/L	141	20	20	169	167	138	130	66-136	1	15	M1
Vinyl chloride	ug/L	0.53J	20	20	25.2	25.0	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	57.2	59.3	95	99	69-133	4	31	
1,2-Dichloroethane-d4 (S)	%						105	105	80-117			
4-Bromofluorobenzene (S)	%						103	101	80-119			
Toluene-d8 (S)	%						95	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556701 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849021, 60286849023

METHOD BLANK: 2284124 Matrix: Water
Associated Lab Samples: 60286849021, 60286849023

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/25/18 13:16	
Xylene (Total)	ug/L	ND	3.0	0.42	11/25/18 13:16	
1,2-Dichloroethane-d4 (S)	%	96	80-117		11/25/18 13:16	
4-Bromofluorobenzene (S)	%	101	80-119		11/25/18 13:16	
Toluene-d8 (S)	%	100	80-115		11/25/18 13:16	

LABORATORY CONTROL SAMPLE: 2284125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.0	100	82-120	
Xylene (Total)	ug/L	60	55.5	92	81-120	
1,2-Dichloroethane-d4 (S)	%			99	80-117	
4-Bromofluorobenzene (S)	%			99	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556702 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031

METHOD BLANK: 2284126 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849030, 60286849031

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 01:00	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 01:00	
4-Bromofluorobenzene (S)	%	97	80-119		11/26/18 01:00	
Toluene-d8 (S)	%	97	80-115		11/26/18 01:00	

LABORATORY CONTROL SAMPLE: 2284127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.2	101	82-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555798 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60286849030, 60286849031, 60286849032

METHOD BLANK: 2280423 Matrix: Water
Associated Lab Samples: 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/17/18 14:22	

LABORATORY CONTROL SAMPLE: 2280424

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.50	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2280425 2280426

Parameter	Units	60286839002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	0.97	0.5	0.5	1.6	1.6	124	123	75-125	0	20	

SAMPLE DUPLICATE: 2280427

Parameter	Units	60286839002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.97	1.1	10	20	

SAMPLE DUPLICATE: 2280428

Parameter	Units	60286849032 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2280429

Parameter	Units	60286839003 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	0.98	ND		20	

SAMPLE DUPLICATE: 2280430

Parameter	Units	60286878004 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

SAMPLE DUPLICATE: 2280431

Parameter	Units	60286878005 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	<0.050	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557820 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849026

METHOD BLANK: 2288554 Matrix: Water
Associated Lab Samples: 60286849026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/01/18 02:25	

LABORATORY CONTROL SAMPLE: 2288555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288556 2288557

Parameter	Units	60287003004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	67.0	25	25	96.8	92.4	119	102	90-110	5	15	M1

MATRIX SPIKE SAMPLE: 2288558

Parameter	Units	60287011001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	21.8	25	46.4	98	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 559544 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849026, 60286849027, 60286849028

METHOD BLANK: 2296207 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.48J	1.0	0.29	12/11/18 22:06	
Sulfate	mg/L	ND	1.0	0.24	12/11/18 22:06	

LABORATORY CONTROL SAMPLE: 2296208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.5	95	90-110	
Sulfate	mg/L	10	9.6	96	90-110	

MATRIX SPIKE SAMPLE: 2296211

Parameter	Units	60287946003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	169	50	226	114	90-110	E,M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 559548 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849030, 60286849031, 60286849032

METHOD BLANK: 2296223 Matrix: Water
Associated Lab Samples: 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/12/18 07:18	

LABORATORY CONTROL SAMPLE: 2296224

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	10	9.1	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2296225 2296226

Parameter	Units	60286849030 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	4.3	5	5	8.9	9.1	93	96	90-110	2	15	

MATRIX SPIKE SAMPLE: 2296227

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1.3	5	5.9	93	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 560256 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849029

METHOD BLANK: 2299507 Matrix: Water
Associated Lab Samples: 60286849029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/14/18 12:58	

LABORATORY CONTROL SAMPLE: 2299508

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2299509 2299510

Parameter	Units	60286849029 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	150	100	100	250	250	101	100	90-110	0	15	H1

MATRIX SPIKE SAMPLE: 2299511

Parameter	Units	60288606001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	890	500	528	-73	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 560506 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60286849029

METHOD BLANK: 2301093 Matrix: Water
Associated Lab Samples: 60286849029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/17/18 16:57	

LABORATORY CONTROL SAMPLE: 2301094

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.8	95	90-110	

MATRIX SPIKE SAMPLE: 2301097

Parameter	Units	60288887003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	ND	100	115	102	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555437 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849027, 60286849028, 60286849030, 60286849031, 60286849032

METHOD BLANK: 2278591 Matrix: Water
Associated Lab Samples: 60286849027, 60286849028, 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/15/18 18:18	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/15/18 18:18	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/15/18 18:18	

LABORATORY CONTROL SAMPLE: 2278592

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.95	95	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE SAMPLE: 2278594

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.99	95	70-130	
Nitrogen, Nitrite	mg/L	ND	1	0.99	98	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.0	96	90-110	

SAMPLE DUPLICATE: 2278593

Parameter	Units	60286849030 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	91.4	92.7	1	20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	92.0	93.3	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 555770
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849026

METHOD BLANK: 2280236 Matrix: Water
Associated Lab Samples: 60286849026

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 10:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 10:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 10:04	

LABORATORY CONTROL SAMPLE: 2280237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.91	91	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	103	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280238

Parameter	Units	60287044031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.16	1	0.55	39	70-130	M1
Nitrogen, Nitrite	mg/L	0.25	1	1.3	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.41	2	1.8	71	90-110	M1

SAMPLE DUPLICATE: 2280239

Parameter	Units	60286849026 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10J		20	H1
Nitrogen, Nitrite	mg/L	0.14	0.22	43	20	D6,H1
Nitrogen, NO2 plus NO3	mg/L	0.13	0.31	85	20	D6,H1

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REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 560129
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60286849029

METHOD BLANK: 2298931 Matrix: Water
Associated Lab Samples: 60286849029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	12/14/18 09:55	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	12/14/18 09:55	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	12/14/18 09:55	

LABORATORY CONTROL SAMPLE: 2298932

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.96	96	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	101	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	99	90-110	

MATRIX SPIKE SAMPLE: 2298935

Parameter	Units	60289438003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.14	1	1.3	117	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.1	113	90-110	M1
Nitrogen, NO2 plus NO3	mg/L	0.14	2	2.4	115	90-110	M1

MATRIX SPIKE SAMPLE: 2298936

Parameter	Units	60289469002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.5	1	2.4	95	70-130	H1
Nitrogen, Nitrite	mg/L	<0.033	1	1.0	103	90-110	H1
Nitrogen, NO2 plus NO3	mg/L	1.5	2	3.5	99	90-110	H1

SAMPLE DUPLICATE: 2298934

Parameter	Units	60289469001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	14.1	14.2	1	20	H1
Nitrogen, Nitrite	mg/L	<0.33	ND		20	H1
Nitrogen, NO2 plus NO3	mg/L	14.2	14.2	0	20	H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556506 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849028, 60286849029, 60286849030, 60286849031, 60286849032

METHOD BLANK: 2283260 Matrix: Water
Associated Lab Samples: 60286849028, 60286849029, 60286849030, 60286849031, 60286849032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 16:46	

LABORATORY CONTROL SAMPLE: 2283261

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2283262

Parameter	Units	60286849032 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	4.3	85	80-120	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556799 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849027

METHOD BLANK: 2284767 Matrix: Water
Associated Lab Samples: 60286849027

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/26/18 13:14	

LABORATORY CONTROL SAMPLE: 2284768

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	107	80-120	

MATRIX SPIKE SAMPLE: 2284769

Parameter	Units	60286668006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	5.6	100	80-120	

SAMPLE DUPLICATE: 2284770

Parameter	Units	60286668007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	ND	0.88J		25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 557381 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60286849026, 60286849033

METHOD BLANK: 2286692 Matrix: Water
Associated Lab Samples: 60286849026, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 16:39	

LABORATORY CONTROL SAMPLE: 2286693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.8	115	80-120	

MATRIX SPIKE SAMPLE: 2286694

Parameter	Units	60287017004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	9.8	5	14.0	84	80-120	

SAMPLE DUPLICATE: 2286695

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13000	13000	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849033

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60286849026, 60286849027, 60286849028, 60286849029, 60286849033

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556701

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 556702

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
H1	Analysis conducted outside the EPA method holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849026	**MW-186-201811**	EPA 3010	557239	EPA 6010	557370
60286849027	**MW-185-201811**	EPA 3010	557239	EPA 6010	557370
60286849028	**TMW-34-201811**	EPA 3010	557239	EPA 6010	557370
60286849029	**MW-194-201811**	EPA 3010	557239	EPA 6010	557370
60286849030	**MW-89-201811**	EPA 3010	557239	EPA 6010	557370
60286849031	**IW-73-201811**	EPA 3010	557239	EPA 6010	557370
60286849032	**RW-69-201811**	EPA 3010	557239	EPA 6010	557370
60286849033	**TMW-30-201811**	EPA 3010	557239	EPA 6010	557370
60286849001	**MW-188-201811**	EPA 5030B/8260	555989		
60286849002	**TMW-19-201811**	EPA 5030B/8260	555989		
60286849003	**TMW-27-201811**	EPA 5030B/8260	555989		
60286849004	**MW-178-201811**	EPA 5030B/8260	555989		
60286849005	**MW-84-201811**	EPA 5030B/8260	555989		
60286849006	**MW-83-201811**	EPA 5030B/8260	555989		
60286849007	**MW-22-201811**	EPA 5030B/8260	555989		
60286849008	**MW-56R-201811**	EPA 5030B/8260	555989		
60286849009	**MW-57R-201811**	EPA 5030B/8260	555989		
60286849010	**MW-46R-201811**	EPA 5030B/8260	555989		
60286849011	**MW-60R-201811**	EPA 5030B/8260	555989		
60286849012	**MW-40R-201811**	EPA 5030B/8260	555989		
60286849013	**MW-62R-201811**	EPA 5030B/8260	555989		
60286849014	**MW-63R-201811**	EPA 5030B/8260	555989		
60286849015	**MW-26-201811**	EPA 5030B/8260	555990		
60286849016	**DUP-09-201811**	EPA 5030B/8260	555990		
60286849017	**ITMW-20-201811**	EPA 5030B/8260	555990		
60286849018	**EB-03-201811**	EPA 5030B/8260	555990		
60286849019	**MW-191-201811**	EPA 5030B/8260	555990		
60286849020	**TMW-14-201811**	EPA 5030B/8260	555990		
60286849021	**ITMW-10-201811**	EPA 5030B/8260	555990		
60286849021	**ITMW-10-201811**	EPA 5030B/8260	556701		
60286849022	**MW-184-201811**	EPA 5030B/8260	555990		
60286849023	**MW-183R-201811**	EPA 5030B/8260	555990		
60286849023	**MW-183R-201811**	EPA 5030B/8260	556701		
60286849024	**MW-98-201811**	EPA 5030B/8260	555990		
60286849025	**EB-04-201811**	EPA 5030B/8260	555990		
60286849026	**MW-186-201811**	EPA 5030B/8260	555990		
60286849026	**MW-186-201811**	EPA 5030B/8260	556702		
60286849027	**MW-185-201811**	EPA 5030B/8260	555990		
60286849027	**MW-185-201811**	EPA 5030B/8260	556702		
60286849028	**TMW-34-201811**	EPA 5030B/8260	555990		
60286849028	**TMW-34-201811**	EPA 5030B/8260	556702		
60286849029	**MW-194-201811**	EPA 5030B/8260	555990		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849029	**MW-194-201811**	EPA 5030B/8260	556702		
60286849030	**MW-89-201811**	EPA 5030B/8260	555990		
60286849030	**MW-89-201811**	EPA 5030B/8260	556702		
60286849031	**IW-73-201811**	EPA 5030B/8260	555990		
60286849031	**IW-73-201811**	EPA 5030B/8260	556702		
60286849032	**RW-69-201811**	EPA 5030B/8260	556253		
60286849033	**TMW-30-201811**	EPA 5030B/8260	555990		
60286849034	**TRIP BLANK**	EPA 5030B/8260	556253		
60286849035	**TRIP BLANK 2**	EPA 5030B/8260	556253		
60286849036	**EB-05-201811**	EPA 5030B/8260	556253		
60286849030	**MW-89-201811**	SM 4500-S-2 D	555798		
60286849031	**IW-73-201811**	SM 4500-S-2 D	555798		
60286849032	**RW-69-201811**	SM 4500-S-2 D	555798		
60286849026	**MW-186-201811**	EPA 300.0	557820		
60286849026	**MW-186-201811**	EPA 300.0	559544		
60286849027	**MW-185-201811**	EPA 300.0	559544		
60286849028	**TMW-34-201811**	EPA 300.0	559544		
60286849029	**MW-194-201811**	EPA 300.0	560256		
60286849029	**MW-194-201811**	EPA 300.0	560506		
60286849030	**MW-89-201811**	EPA 300.0	559548		
60286849031	**IW-73-201811**	EPA 300.0	559548		
60286849032	**RW-69-201811**	EPA 300.0	559548		
60286849026	**MW-186-201811**	EPA 353.2	555770		
60286849027	**MW-185-201811**	EPA 353.2	555437		
60286849028	**TMW-34-201811**	EPA 353.2	555437		
60286849029	**MW-194-201811**	EPA 353.2	560129		
60286849030	**MW-89-201811**	EPA 353.2	555437		
60286849031	**IW-73-201811**	EPA 353.2	555437		
60286849032	**RW-69-201811**	EPA 353.2	555437		
60286849026	**MW-186-201811**	SM 5310C	557381		
60286849027	**MW-185-201811**	SM 5310C	556799		
60286849028	**TMW-34-201811**	SM 5310C	556506		
60286849029	**MW-194-201811**	SM 5310C	556506		
60286849030	**MW-89-201811**	SM 5310C	556506		
60286849031	**IW-73-201811**	SM 5310C	556506		
60286849032	**RW-69-201811**	SM 5310C	556506		
60286849033	**TMW-30-201811**	SM 5310C	557381		
60286849026	**MW-186-201811**	SM 5310C	556798		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60286849

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60286849027	**MW-185-201811**	SM 5310C	556798		
60286849028	**TMW-34-201811**	SM 5310C	556798		
60286849029	**MW-194-201811**	SM 5310C	556798		
60286849033	**TMW-30-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affi ALL S

WO# : 60286849

60286849

MTJL Log-in

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **

(3)

Lab Project Manager:

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com jpavlowsky@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number: 1690001033

State: AR / County/City: Fort Smith / Time Zone Collected: PT MT (CT) ET

Analyses

LAB Profile/Line: 7444 Line 1

Phone: Email: 314-833-7325

Site/Facility ID #: Whirlpool

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): JoPavlowsky

Purchase Order#

DW PWS ID #:

Collected by (signature):

Quote #

DW Location Code #:

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

Turnaround Date Required: Standard

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Immediately Packed on Ice? [X] Yes [ ] No

Field Filtered (if applicable): [X] Yes [ ] No

Analysis: dissolved organic carbon

8260 full list VOCs

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	Y	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips:			
Sample pH Acceptable	(Y)	N	NA
pH Strips: 9881-1			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-188-201811	GW	G	11-14-18	0920				3	X	3DC917
TMW-19-201811				1020				3		
TMW-19-201811-MS				1020				3		
TMW-19-201811-MSD				1020				3		
TMW-27-201811				1130				3		
MW-187-201811				1345				3		
MW-192-201811				1505				3		
DUP-07-201811				1500				3		
ITMW-18-201811				1700				3		
MW-178-201811	GW	G		1120				3		3DC917

Customer Remarks/ Special Conditions/ Possible Hazards:

page 1 of 5

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc, Bubble Bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JPavlowsky IREM	11/14/18 1800	UPS	11-15-18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.4 oC 1.2

Cooler Therm Corr. Factor +0.2 oC 0.2

Cooler Temp Corrected 0.6 oC 1.4

Comments:

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s) YES / NO

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1

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller [see 1st page]

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (A)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns			Lab Sample # / Comments
MW-178-201811-MS	GW	G	11-14-18	1120				3	X		→ DGEH + 3 VOAs
MW-178-201811-MSD				1120				3	X		
MW-84-201811				0920				3		X	3 OTHR ↓
MW-83-201811				1050				3		X	3 DG9H
MW-22-201811				1245				3	X		
MW-56R-201811				1425				3	X		
MW-57R-201811				1540				3	X		
MW-46R-201811				1710				3	X		
MW-60R-201811				0920				3	X		
MW-40R-201811				1050				3	X		3 VOA (9) DG9H

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc Bubblebag

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS (Client) (Courier) [ ] Pace Courier [ ]

cc 11-15-18

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
[signature] /REH	11/14/18	[signature]	11-15-18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor +0.2 °C +0.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight [See page 1]

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Container Preservative Type **: (3)

Lab Project Manager:

**Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 VOCs Full List

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	(N)	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-40R-20181l-MS	GW	G	11-14-18	1050				3	X 30C 9H Bottles
MW-40R-20181l-MSD				1052				3	
MW-62R-20181l				1210				3	
MW-63R-20181l				1340				3	
MW-26-20181l				1525				3	
DUP-09-20181l				1525				3	
TMW-20-20181l				1625				3	
EB-03-20181l				1700				3	
MW-191-20181l				1455				3	
TMW-14-20181l				1551				3	

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc, Bubblebags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client (Courier) [ ] Pace Courier

MTJL LAB USE ONLY

Table #:
ACCT #:
Template:
Prelogin:
PM:
PB:

LAB Sample Temperature Info:
Temp Blank received: (Y) N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor 70.2 °C 70.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		W.C.pt 1 Pass	11.15.18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

(see page #1)

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

(3)	D	U	U	45	1	2	U	U	U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Volatile Fatty Acid	Dissolved Org. Carbon	Sulfate/Nitrate/Chloride	Sulfide	metals (total iron)	total organic carbon	MEG	MEEA	sulfate/nitrate
ITMW-10-201811	GW	G	11-14-18	1737				3	X									
MW-184-201811				0947				3										
MW-183R-201811				1123				3										
MW-183R-201811-MS				1123				3										
MW-183R-201811-MSD				1123				3										
MW-98-201811				1351				3										
EB-09-201811	OT			1740				3										
MW-186-201811	BPJU			1005			BPJN	12	X	X	X	X	X	X	X			
MW-185-201811				1140				12	X	X	X	X	X	X	X			
TMW-3A-201811				1500				12	X	X	X	X	X	X	X			

3D69H

A63S, A63U, 3D69Q, 2D69U

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓
Lab Sample # / Comments

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zplc Bubble Bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y N NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.4 °C 1.2
Cooler Therm Corr. Factor +0.2 °C +0.2
Cooler Temp Corrected 0.6 °C 1.4
Comments: _____

Trip Blank Received: (Y) N N/A
(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		W Zipf / Pace	11.15.18 0650
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page #1)

State / County/City / Time Zone Collected PT MT CT ET

Phone: Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) (D) (U) (U) (4) (5) (7) (2) (U) (U) (U)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

LAB Profile/Line: 7444 Line 1

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 full list VOCs	Volatile Fatty Acids	Dissolved Organic Carbon	Sulfate/Nitrate/Chloride	Sulfide	Metals (total iron)	total organic carbon	MEE	MEEA	Sulfate/nitrate	Lab Sample # / Comments
MW-194-201811	GW	G	11-14-18	1720				12	X	X	X	A6JU	X	X	X	A6JU			3DG9H, BP3U, 2DG9U
MW-89-201811	GW	G		1010				9	X	X			X	X	X	BP3Z	X	X	
IW-73-201811	GW	G		1510				9	X	X			X	X	X		X	X	
RW-69-201811	GW	G		1230				9	X	X			X	X	X		X	X	
RW-69-201811-MS	GW	G		1230				3	X	X									
RW-69-201811-MSD	GW	G		1230				3	X	X									
TMW-30-201811	GW	G						12	X	X	X	2AG3S	X	X	X				
TRIP Blank	OT	-		-				2	X										
TRIP Blank	OT	-		-				2	X										
EB-05-201811	OT	G		1710				3	X										

Customer Remarks/ Special Conditions/ Possible Hazards: Last page

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Zip, Bubble bags

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

LAB Sample Temperature Info:

Temp Blank received: (Y) N NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.4 oC 1.2

Cooler Therm Corr. Factor +0.2 oC +0.2

Cooler Temp Corrected 0.6 oC

Comments: 1.4

Trip Blank Received: Y N N/A

HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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030

5

60286849

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

Date: 11.15.18	Evaluated by: MZ, pf, RGS
Client: Kimball	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

	Collection date/time missing or incorrect		Analyses or analytes: missing or clarification needed		Samples listed on COC do not match samples received (missing, additional, etc.)
	Sample IDs on COC do not match sample labels		Required trip blanks were not received		Required signatures are missing

Comments/Details/Other Issues not listed above: I am missing Samples, 3069H for MW-187-201811 MW-192-201811, Dup-07-201811, ITMW-18-201811

Did not have volume for BP3Z for MW-194-201811, TMW-30-201811

3. Sample integrity issues: check applicable issues below and add details where appropriate:

	Samples: Past holding time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samples: Not field filtered		Containers: Broken or compromised		Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temperature: Samples arrived frozen
	Samples: Cooler damaged or compromised		Custody Seals: Missing or compromised on samples, trip blanks or coolers		Vials received with improper headspace
	Samples: contain chlorine or sulfides		Packing Material: Insufficient/Improper		Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:	
PM Initials:	Date/Time:	

Client Comments/Instructions:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 30, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **FORT SMITH, AR / 60286849**

Pace Workorder: 28752

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, November 19, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/30/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 16

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Energy Services LLC.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

CERTIFICATE OF ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Energy Services LLC.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287520001	MW-186-201811	Water	11/14/2018 10:05	11/19/2018 08:00
287520002	MW-185-201811	Water	11/14/2018 11:40	11/19/2018 08:00
287520003	TMW-34-201811	Water	11/14/2018 15:00	11/19/2018 08:00
287520004	MW-194-201811	Water	11/14/2018 17:20	11/19/2018 08:00

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PROJECT SUMMARY

Workorder: 28752 FORT SMITH, AR / 60286849

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520001** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-186-201811** Date Collected: 11/14/2018 10:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**3500**	mg/l	100	24	1000	11/26/2018 16:38	KB	d,B
Propionic Acid	**14000**	mg/l	1000	44	10000	11/26/2018 17:35	KB	d,B
Butyric Acid	**1000**	mg/l	100	4.7	1000	11/26/2018 16:38	KB	d,B
i-Pentanoic Acid	**22**	mg/l	10	0.75	100	11/26/2018 15:42	KB	d
Pentanoic Acid	**580**	mg/l	100	12	1000	11/26/2018 16:38	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**14000**	ug/l	0.50	0.014	1	11/21/2018 20:41	BW	n
Ethane	**0.50**	ug/l	0.10	0.0070	1	11/21/2018 20:41	BW	n
Ethene	**6.6**	ug/l	0.10	0.0050	1	11/21/2018 20:41	BW	n

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520002** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-185-201811** Date Collected: 11/14/2018 11:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**2.8**	mg/l	1.0	0.24	10	11/21/2018 18:02	KB	d,M3,B,M5
Propionic Acid	**2.5**	mg/l	1.0	0.044	10	11/21/2018 18:02	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 18:02	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 18:02	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 18:02	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**<0.50**	ug/l	0.50	0.014	1	11/21/2018 20:51	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/21/2018 20:51	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/21/2018 20:51	BW	n

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520003** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **TMW-34-201811** Date Collected: 11/14/2018 15:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**1.8**	mg/l	1.0	0.24	10	11/21/2018 18:58	KB	d,M3,B,M5
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/21/2018 18:58	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 18:58	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 18:58	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 18:58	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**4700**	ug/l	0.50	0.014	1	11/21/2018 21:00	BW	n
Ethane	**1.1**	ug/l	0.10	0.0070	1	11/21/2018 21:00	BW	n
Ethene	**0.73**	ug/l	0.10	0.0050	1	11/21/2018 21:00	BW	n

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ANALYTICAL RESULTS

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID: **287520004** Date Received: 11/19/2018 08:00 Matrix: Water

Sample ID: **MW-194-201811** Date Collected: 11/14/2018 17:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Acetic Acid	**2.5**	mg/l	1.0	0.24	10	11/21/2018 19:55	KB	d,M3,B,M5
Propionic Acid	**<1.0**	mg/l	1.0	0.044	10	11/21/2018 19:55	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/21/2018 19:55	KB	d,B
i-Pentanoic Acid	**<1.0**	mg/l	1.0	0.075	10	11/21/2018 19:55	KB	d
Pentanoic Acid	**<1.0**	mg/l	1.0	0.12	10	11/21/2018 19:55	KB	d

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28752 FORT SMITH, AR / 60286849

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
M3	The matrix spike sample recovery was outside laboratory control limits.

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287520002, 287520003, 287520004

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.25	0.10	M3,B,M5
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
i-Pentanoic Acid	mg/l	<0.10	0.10	
Pentanoic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	2.3	114	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.1	105	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
i-Pentanoic Acid	mg/l	2	2.0	100	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Acetic Acid	mg/l	120	20	150	150	145	150	70-130	0.67	30	d,M3,B,M5
Propionic Acid	mg/l	73	20	87	88	70	73	70-130	0.5	30	d,B
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
i-Pentanoic Acid	mg/l	1.6	20	23	23	107	108	70-130	0.99	30	d
Pentanoic Acid	mg/l	1.9	20	24	24	111	112	70-130	0.61	30	d

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: DISG/7224 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287520001, 287520002, 287520003

METHOD BLANK: 58622

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 58624 58626

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	740	97	99	80-120	2.1	20	n
Ethane	ug/l	38	40	40	105	106	80-120	1.3	20	n
Ethene	ug/l	35	38	38	107	108	80-120	1.1	20	n

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QUALITY CONTROL DATA

Workorder: 28752 FORT SMITH, AR / 60286849

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287520001

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
i-Pentanoic Acid	mg/l	<0.10	0.10	
Pentanoic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
i-Pentanoic Acid	mg/l	2	2.0	100	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28752 FORT SMITH, AR / 60286849

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
M3	The matrix spike sample recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28752 FORT SMITH, AR / 60286849

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287520002	MW-185-201811			AM23G	EDON/3943
287520003	TMW-34-201811			AM23G	EDON/3943
287520004	MW-194-201811			AM23G	EDON/3943
287520001	MW-186-201811			AM20GAX	DISG/7224
287520002	MW-185-201811			AM20GAX	DISG/7224
287520003	TMW-34-201811			AM20GAX	DISG/7224
287520001	MW-186-201811			AM23G	EDON/3944

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Chain of Custody

28752

Pace Analytical®
www.pacelabs.com

Workorder: 60286849 **Workorder Name:** FORT SMITH, AR **Results Requested By:** 11/29/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9565	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: TSP	Preserved Containers: Unpres					VFA	VFA & MEE											LAB USE ONLY
1	MW-186-201811	11/14/2018 10:05	60286849026	Water	3	2						X											
2	MW-185-201811	11/14/2018 11:40	60286849027	Water	3	2						X											
3	TMW-34-201811	11/14/2018 15:00	60286849028	Water	3	2						X											
4	MW-194-201811	11/14/2018 17:20	60286849029	Water		2					X												
5																							

Comments

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Fowler Dasi	11/16/18 1800	Lora PAS	11.19.18
2				0800
3				

Cooler Temperature on Receipt 3.0 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

Cooler Receipt Form

Client Name: Pace **Project:** Forth Smith **Lab Work Order:** 28752

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 459227863250

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 3°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : LY **Date:** 11.19.18

Project Manager Review : ERJ **Date:** 11-19-18

F-PAE-Q-009-rev.01, 3Oct2017

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December 24, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60286849**

Pace Workorder: 29013

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, December 17, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 12/24/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 13

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Lab ID	Sample ID	Matrix	Date Collected	Date Received
290130001	MW-194-201811	Water	11/14/2018 17:20	12/17/2018 07:30

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PROJECT SUMMARY

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Workorder Comments

Sample was received 12/17/2018, greater than 30 days into the analysis holding time period. Samples 29013 (0001) were analyzed outside the hold time of 14 days from collection for the Light Hydrocarbons, method AM20GAx.

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ANALYTICAL RESULTS

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Lab ID: **290130001** Date Received: 12/17/2018 07:30 Matrix: Water

Sample ID: **MW-194-201811** Date Collected: 11/14/2018 17:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**870**	ug/l	0.50	0.014	1	12/19/2018 12:10	BW	H2,n
Ethane	**0.26**	ug/l	0.10	0.0070	1	12/19/2018 12:10	BW	H2,n
Ethene	**0.27**	ug/l	0.10	0.0050	1	12/19/2018 12:10	BW	H2,n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
H2	The sample was received or analysis was requested outside the method specific holding time.

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QUALITY CONTROL DATA

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

QC Batch: DISG/7280 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 290130001

METHOD BLANK: 59030

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 59031 59032

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	96	97	80-120	0.36	20	n
Ethane	ug/l	38	39	40	104	104	80-120	0.32	20	n
Ethene	ug/l	35	37	37	104	104	80-120	0.16	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 59083 59084 Original: 289420007

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	370	1500	1700	1700	91	87	70-130	3.7	20	d,n
Ethane	ug/l	16	76	90	87	98	95	70-130	3	20	d,n
Ethene	ug/l	0.086	71	67	65	95	92	70-130	2.3	20	d,n

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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA QUALIFIERS

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

QUALITY CONTROL PARAMETER QUALIFIERS

d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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Fax: (412) 826-3433

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 29013 WHIRLPOOL ANNUAL / 60286849

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
290130001	MW-194-201811			AM20GAX	DISG/7280

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Chain of Custody

29013

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www.pacelabs.com

Workorder: 60286849 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 12/21/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9644	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	Preserved Containers: Unpreserved	VFA	Methane, Ethene, Ethane	LAB USE ONLY
1	MW-194-201811	11/14/2018 17:20	60286849029	Water	3	2	X	X	
2									
3									
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Haley Fouts Pasi	12:14:18 1800	Lesa PAS	12.17.18 0730
2				
3				

Comments

Cooler Temperature on Receipt 2.1 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: PAE Project: Whirlpool Lab Work Order: 29013

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 774687387505

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2.1°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags			✓	
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided		✓		
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

Cooler contents examined/received by : LG **Date:** 12.17.18

Project Manager Review : ERF **Date:** 12-17-18

F-PAE-Q-009-rev.01, 3Oct2017

NON-CONFORMANCE FORM

PAES Work Order #: 29013

Date: 12.17.18 Time of Receipt: 07:30 Receiver: LY

Client: Pace

REASON FOR NON-CONFORMANCE:

1. Received only 3 ISP vials No volume for VFAs request.
2. Sample was out of hold.

ACTION TAKEN:

Client name: Pace KS Date: 12-17-18 Time: 16:35

Emailed client to notify & inquire on how to proceed

Customer Service Initials: ERJ Date: 12-17-18

F-PAE-Q-014-rev.00, 20 Nov2014

Emma Louis - Re: Whirlpool Annual 60286849

From: Richard Mannz
To: Emma Louis
Date: 12/17/2018 4:40 PM
Subject: Re: Whirlpool Annual 60286849

Please proceed for the methane, ethane and ethene analysis out of holding time.

The client also requested the VFA test, but log in said we did not receive sample containers for the VFA test. I guess they failed to cross it off the COC.

Thank you

Rich

Richard Mannz
Project Manager
Pace Analytical Services
4120 Seven Hills Drive, Florissant, MO 63033
(314) 838-7223 | (314) 413-6227
www.pacelabs.com
Rapid Response Line (877) 859-7778

>>> Emma Louis 12/17/2018 3:37 PM >>>
Hi Richard

We received the samples for the project above. We only received 3 TSP vials. There was no volume received for the VFA requested on the COC. Additionally, the samples are out of holding time. Please let us know how to proceed.

Thank you

Emma Louis
Project Coordinator
Pace Analytical Energy Services, LLC
220 William Pitt Way
Pittsburgh, PA 15238
412-826-2378 (O) | 412-826-5245 (Main)
www.pacelabs.com

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Lenexa, KS 66219
(913)599-5665

December 10, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church for
Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287044001	DUP-07-201811	Water	11/14/18 15:00	11/16/18 05:50
60287044002	MW-192-201811	Water	11/14/18 15:05	11/16/18 05:50
60287044003	MW-187-201811	Water	11/14/18 13:45	11/16/18 05:50
60287044004	ITMW-18-201811	Water	11/14/18 17:00	11/16/18 05:50
60287044005	MW-96-201811	Water	11/15/18 09:45	11/16/18 05:50
60287044006	MW-97-201811	Water	11/15/18 11:42	11/16/18 05:50
60287044007	MW-24-201811	Water	11/15/18 13:35	11/16/18 05:50
60287044008	DUP-02-201811	Water	11/15/18 13:25	11/16/18 05:50
60287044009	MW-55R-201811	Water	11/15/18 15:56	11/16/18 05:50
60287044010	DUP-08-201811	Water	11/15/18 15:56	11/16/18 05:50
60287044011	IW-77-201811	Water	11/15/18 17:10	11/16/18 05:50
60287044012	TMW-12-201811	Water	11/15/18 09:30	11/16/18 05:50
60287044013	DUP-04-201811	Water	11/15/18 09:30	11/16/18 05:50
60287044014	MW-82-201811	Water	11/15/18 11:15	11/16/18 05:50
60287044015	ITMW-7-201811	Water	11/15/18 13:30	11/16/18 05:50
60287044016	ITMW-19-201811	Water	11/15/18 14:30	11/16/18 05:50
60287044017	MW-93-201811	Water	11/15/18 15:45	11/16/18 05:50
60287044018	MW-189-201811	Water	11/15/18 16:55	11/16/18 05:50
60287044019	TRIP BLANK	Water	11/15/18 08:00	11/16/18 05:50
60287044020	EB-01-201811	Water	11/15/18 08:00	11/16/18 05:50
60287044021	MW-190-201811	Water	11/15/18 09:25	11/16/18 05:50
60287044022	ITMW-21-201811	Water	11/15/18 11:01	11/16/18 05:50
60287044023	ITMW-1-201811	Water	11/15/18 12:25	11/16/18 05:50
60287044024	ITMW-5-201811	Water	11/15/18 14:25	11/16/18 05:50
60287044025	MW-91-201811	Water	11/15/18 15:45	11/16/18 05:50
60287044026	MW-29-201811	Water	11/15/18 09:10	11/16/18 05:50
60287044027	MW-39R-201811	Water	11/15/18 10:30	11/16/18 05:50
60287044028	MW-182-201811	Water	11/15/18 14:30	11/16/18 05:50
60287044029	IW-78-201811	Water	11/15/18 15:25	11/16/18 05:50
60287044030	TMW-24-201811	Water	11/15/18 17:00	11/16/18 05:50
60287044031	TMW-26-201811	Water	11/15/18 11:15	11/16/18 05:50
60287044032	TMW-25-201811	Water	11/15/18 13:30	11/16/18 05:50
60287044033	TMW-21-201811	Water	11/15/18 15:15	11/16/18 05:50
60287044034	TMW-22R-201811	Water	11/15/18 16:50	11/16/18 05:50
60287044035	MW-58R-201811	Water	11/15/18 14:00	11/16/18 05:50
60287044036	DUP-05-201811	Water	11/15/18 14:00	11/16/18 05:50
60287044037	MW-95-201811	Water	11/15/18 15:55	11/16/18 05:50

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287044038	**ITMW-9-201811**	Water	11/15/18 15:20	11/16/18 05:50
60287044039	**MW-87-201811**	Water	11/15/18 13:30	11/16/18 05:50
60287044040	**MW-38-201811**	Water	11/15/18 09:55	11/16/18 05:50
60287044041	**TRIP BLANK**	Water	11/15/18 08:00	11/16/18 05:50
60287044042	**TRIP BLANK**	Water	11/15/18 08:00	11/16/18 05:50

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287044001	DUP-07-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044002	MW-192-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044003	MW-187-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044004	ITMW-18-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044005	MW-96-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044006	MW-97-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044007	MW-24-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044008	DUP-02-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044009	MW-55R-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044010	DUP-08-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044011	IW-77-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044012	TMW-12-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044013	DUP-04-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044014	MW-82-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044015	ITMW-7-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044016	ITMW-19-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044017	MW-93-201811	EPA 5030B/8260	EAG, PGH	38	PASI-K
60287044018	MW-189-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044019	TRIP BLANK	EPA 5030B/8260	PGH	38	PASI-K
60287044020	EB-01-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044021	MW-190-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044022	ITMW-21-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044023	ITMW-1-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044024	ITMW-5-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044025	MW-91-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044026	MW-29-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044027	MW-39R-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044028	MW-182-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044029	IW-78-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044030	TMW-24-201811	EPA 5030B/8260	PGH	38	PASI-K
60287044031	TMW-26-201811	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044032	TMW-25-201811	EPA 6010	EMR	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044033	**TMW-21-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044034	**TMW-22R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044035	**MW-58R-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044036	**DUP-05-201811**	EPA 5030B/8260	PGH	38	PASI-K
60287044037	**MW-95-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG, PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044038	**ITMW-9-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044039	**MW-87-201811**	EPA 6010	EMR	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044040	**MW-38-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	PGH	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	BLA	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287044041	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K
60287044042	**TRIP BLANK**	EPA 5030B/8260	PGH	38	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 557483

B: Analyte was detected in the associated method blank.
- BLANK for HBN 557483 [MPRP/482 (Lab ID: 2287058)
  - Iron

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
42 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.
- TMW-21-201811 (Lab ID: 60287044033)
- TMW-25-201811 (Lab ID: 60287044032)
- TMW-26-201811 (Lab ID: 60287044031)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: 556704

S0: Surrogate recovery outside laboratory control limits.
- TRIP BLANK (Lab ID: 60287044041)
  - 1,2-Dichloroethane-d4 (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 556488

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556488 [MSV/9341 (Lab ID: 2283209)
  - 1,2-Dichloroethane

QC Batch: 556704

B: Analyte was detected in the associated method blank.
- BLANK for HBN 556704 [MSV/9344 (Lab ID: 2284130)
  - 1,2-Dichloroethane

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

QC Batch: 556489

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 2283212)
  - Trichloroethene

QC Batch: 557295

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 2286313)
  - Carbon disulfide

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 556253

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286849032

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2282309)
  - Trichloroethene

QC Batch: 556483

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556488

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556489

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556702

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556704

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556810

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 556812

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557295

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
5 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 558789

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031,60287132005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2292728)
  - Sulfate
- MS (Lab ID: 2292730)
  - Sulfate
- MSD (Lab ID: 2292729)
  - Sulfate

QC Batch: 559201

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044033,60287044038

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2295157)
  - Sulfate
- MS (Lab ID: 2295159)
  - Sulfate
- MSD (Lab ID: 2295158)
  - Sulfate

Additional Comments:

Analyte Comments:

QC Batch: 558789

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MSD (Lab ID: 2292729)
  - Sulfate

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 555770

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60287044031

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2280238)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrate

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: 555770

D6: The precision between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 2280239)
  - Nitrogen, NO2 plus NO3
  - Nitrogen, Nitrite

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
9 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-26-201811 **Lab ID: 60287044031** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1300000**	ug/L	500	61.5	10	11/29/18 11:42	11/30/18 19:38	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**242**	ug/L	50.0	9.4	5		11/24/18 05:00	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/24/18 05:00	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/24/18 05:00	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/24/18 05:00	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/24/18 05:00	74-83-9	
2-Butanone (MEK)	**1460**	ug/L	50.0	3.0	5		11/24/18 05:00	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/24/18 05:00	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/24/18 05:00	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/24/18 05:00	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/24/18 05:00	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/24/18 05:00	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/24/18 05:00	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/24/18 05:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/24/18 05:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	75-35-4	
cis-1,2-Dichloroethene	**11.1**	ug/L	5.0	0.40	5		11/24/18 05:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/24/18 05:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/24/18 05:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/24/18 05:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/24/18 05:00	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/24/18 05:00	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/24/18 05:00	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/24/18 05:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/24/18 05:00	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/24/18 05:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/24/18 05:00	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/24/18 05:00	127-18-4	
Toluene	**1.1J**	ug/L	5.0	0.85	5		11/24/18 05:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/24/18 05:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/24/18 05:00	79-00-5	
Trichloroethene	**54.4**	ug/L	5.0	0.85	5		11/27/18 21:38	79-01-6	
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/24/18 05:00	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/24/18 05:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	105	%	80-119		5		11/24/18 05:00	460-00-4	F1
1,2-Dichloroethane-d4 (S)	110	%	80-117		5		11/24/18 05:00	17060-07-0	
Toluene-d8 (S)	95	%	80-115		5		11/24/18 05:00	2037-26-5	
Preservation pH	**5.0**		0.10	0.10	5		11/24/18 05:00		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**431**	mg/L	50.0	14.5	50		12/09/18 17:25	16887-00-6	
Sulfate	**239**	mg/L	20.0	4.8	20		12/09/18 16:42	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-26-201811 **Lab ID: 60287044031** Collected: 11/15/18 11:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.16**	mg/L	0.10	0.060	1		11/17/18 10:07		M1
Nitrogen, Nitrite	**0.25**	mg/L	0.10	0.033	1		11/17/18 10:07		
Nitrogen, NO2 plus NO3	**0.41**	mg/L	0.10	0.060	1		11/17/18 10:07		M1
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**11800**	mg/L	1000	654	1000		11/29/18 19:13	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**10100**	mg/L	1000	654	1000		11/27/18 14:24	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-25-201811 **Lab ID: 60287044032** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1410000**	ug/L	500	61.5	10	11/29/18 11:42	11/30/18 19:45	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**193**	ug/L	50.0	9.4	5		11/26/18 11:41	67-64-1	
Benzene	ND	ug/L	5.0	0.30	5		11/26/18 11:41	71-43-2	
Bromodichloromethane	ND	ug/L	5.0	0.95	5		11/26/18 11:41	75-27-4	
Bromoform	ND	ug/L	5.0	0.35	5		11/26/18 11:41	75-25-2	
Bromomethane	ND	ug/L	25.0	0.80	5		11/26/18 11:41	74-83-9	
2-Butanone (MEK)	**328**	ug/L	50.0	3.0	5		11/26/18 11:41	78-93-3	
Carbon disulfide	ND	ug/L	25.0	0.60	5		11/26/18 11:41	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	0.90	5		11/26/18 11:41	56-23-5	
Chlorobenzene	**2.9J**	ug/L	5.0	1.0	5		11/26/18 11:41	108-90-7	
Chloroethane	ND	ug/L	5.0	0.75	5		11/26/18 11:41	75-00-3	
Chloroform	ND	ug/L	5.0	0.70	5		11/26/18 11:41	67-66-3	
Chloromethane	ND	ug/L	5.0	0.40	5		11/26/18 11:41	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	1.0	5		11/26/18 11:41	124-48-1	
1,1-Dichloroethane	ND	ug/L	5.0	0.25	5		11/26/18 11:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.60	5		11/26/18 11:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1.0	5		11/26/18 11:41	75-35-4	
cis-1,2-Dichloroethene	**11.0**	ug/L	5.0	0.40	5		11/26/18 11:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1.0	5		11/26/18 11:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	0.80	5		11/26/18 11:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	0.70	5		11/26/18 11:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	0.60	5		11/26/18 11:41	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	0.90	5		11/26/18 11:41	100-41-4	
2-Hexanone	ND	ug/L	50.0	6.0	5		11/26/18 11:41	591-78-6	
Methylene chloride	ND	ug/L	5.0	0.75	5		11/26/18 11:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	2.1	5		11/26/18 11:41	108-10-1	
Styrene	ND	ug/L	5.0	0.60	5		11/26/18 11:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	0.75	5		11/26/18 11:41	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.50	5		11/26/18 11:41	127-18-4	
Toluene	ND	ug/L	5.0	0.85	5		11/26/18 11:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.55	5		11/26/18 11:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1.0	5		11/26/18 11:41	79-00-5	
Trichloroethene	**58.6**	ug/L	5.0	0.85	5		11/26/18 11:41	79-01-6	
Vinyl chloride	ND	ug/L	5.0	0.65	5		11/26/18 11:41	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.1	5		11/26/18 11:41	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	101	%	80-119		5		11/26/18 11:41	460-00-4	F1
1,2-Dichloroethane-d4 (S)	99	%	80-117		5		11/26/18 11:41	17060-07-0	
Toluene-d8 (S)	100	%	80-115		5		11/26/18 11:41	2037-26-5	
Preservation pH	**6.0**		0.10	0.10	5		11/26/18 11:41		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**441**	mg/L	50.0	14.5	50		12/09/18 18:50	16887-00-6	
Sulfate	**186**	mg/L	20.0	4.8	20		12/09/18 18:36	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-25-201811 **Lab ID: 60287044032** Collected: 11/15/18 13:30 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.14**	mg/L	0.10	0.060	1		11/17/18 10:10		
Nitrogen, Nitrite	**0.18**	mg/L	0.10	0.033	1		11/17/18 10:10		
Nitrogen, NO2 plus NO3	**0.32**	mg/L	0.10	0.060	1		11/17/18 10:10		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**13000**	mg/L	1000	654	1000		11/29/18 19:26	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**11000**	mg/L	1000	654	1000		11/27/18 14:37	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-21-201811 **Lab ID: 60287044033** Collected: 11/15/18 15:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**131000**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:47	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**331**	ug/L	10.0	1.9	1		11/26/18 13:20	67-64-1	
Benzene	**0.11J**	ug/L	1.0	0.060	1		11/26/18 13:20	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 13:20	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 13:20	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 13:20	74-83-9	
2-Butanone (MEK)	**760**	ug/L	10.0	0.59	1		11/26/18 13:20	78-93-3	
Carbon disulfide	**0.78J**	ug/L	5.0	0.12	1		11/26/18 13:20	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 13:20	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 13:20	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:20	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 13:20	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 13:20	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 13:20	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 13:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 13:20	107-06-2	
1,1-Dichloroethene	**0.21J**	ug/L	1.0	0.20	1		11/26/18 13:20	75-35-4	
cis-1,2-Dichloroethene	**86.3**	ug/L	1.0	0.080	1		11/26/18 13:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/26/18 13:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 13:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 13:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 13:20	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/26/18 13:20	100-41-4	
2-Hexanone	**6.5J**	ug/L	10.0	1.2	1		11/26/18 13:20	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 13:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.3J**	ug/L	10.0	0.42	1		11/26/18 13:20	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 13:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 13:20	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 13:20	127-18-4	
Toluene	**0.93J**	ug/L	1.0	0.17	1		11/26/18 13:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 13:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 13:20	79-00-5	
Trichloroethene	**22.1**	ug/L	1.0	0.17	1		11/26/18 13:20	79-01-6	
Vinyl chloride	**0.52J**	ug/L	1.0	0.13	1		11/26/18 13:20	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 13:20	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	102	%	80-119		1		11/26/18 13:20	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-117		1		11/26/18 13:20	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 13:20	2037-26-5	
Preservation pH	**3.0**		0.10	0.10	1		11/26/18 13:20		pH
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**281**	mg/L	20.0	5.8	20		12/09/18 19:05	16887-00-6	
Sulfate	**10.6**	mg/L	1.0	0.24	1		12/10/18 10:04	14808-79-8	M1

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-21-201811 **Lab ID: 60287044033** Collected: 11/15/18 15:15 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:06		
Nitrogen, Nitrite	**0.19**	mg/L	0.10	0.033	1		11/17/18 08:06		
Nitrogen, NO2 plus NO3	**0.13**	mg/L	0.10	0.060	1		11/17/18 08:06		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2770**	mg/L	500	327	500		11/29/18 19:51	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**2670**	mg/L	500	327	500		11/27/18 14:50	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-22R-201811 **Lab ID: 60287044034** Collected: 11/15/18 16:50 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**3510**	ug/L	50.0	6.1	1	11/29/18 11:42	11/30/18 19:49	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**32.8**	ug/L	10.0	1.9	1		11/26/18 14:16	67-64-1	
Benzene	**0.10J**	ug/L	1.0	0.060	1		11/26/18 14:16	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/26/18 14:16	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/26/18 14:16	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/26/18 14:16	74-83-9	
2-Butanone (MEK)	**20.5**	ug/L	10.0	0.59	1		11/26/18 14:16	78-93-3	
Carbon disulfide	**1.3J**	ug/L	5.0	0.12	1		11/26/18 14:16	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/26/18 14:16	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.21	1		11/26/18 14:16	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:16	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/26/18 14:16	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/26/18 14:16	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/26/18 14:16	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/26/18 14:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/26/18 14:16	107-06-2	
1,1-Dichloroethene	**1.3**	ug/L	1.0	0.20	1		11/26/18 14:16	75-35-4	
cis-1,2-Dichloroethene	**71.2**	ug/L	1.0	0.080	1		11/26/18 14:16	156-59-2	
trans-1,2-Dichloroethene	**0.51J**	ug/L	1.0	0.20	1		11/26/18 14:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/26/18 14:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/26/18 14:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/26/18 14:16	10061-02-6	
Ethylbenzene	**0.36J**	ug/L	1.0	0.18	1		11/26/18 14:16	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/26/18 14:16	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/26/18 14:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/26/18 14:16	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/26/18 14:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.15	1		11/26/18 14:16	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/26/18 14:16	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/26/18 14:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/26/18 14:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/26/18 14:16	79-00-5	
Trichloroethene	**347**	ug/L	20.0	3.4	20		11/26/18 14:30	79-01-6	
Vinyl chloride	**0.16J**	ug/L	1.0	0.13	1		11/26/18 14:16	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/26/18 14:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-119		1		11/26/18 14:16	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-117		1		11/26/18 14:16	17060-07-0	
Toluene-d8 (S)	99	%	80-115		1		11/26/18 14:16	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/26/18 14:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**148**	mg/L	20.0	5.8	20		12/09/18 19:33	16887-00-6	
Sulfate	**7.3**	mg/L	1.0	0.24	1		12/09/18 19:19	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Sample: TMW-22R-201811 **Lab ID: 60287044034** Collected: 11/15/18 16:50 Received: 11/16/18 05:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 08:12		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 08:12		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 08:12		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**161**	mg/L	50.0	32.7	50		11/29/18 20:07	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	ND	mg/L	500	327	500		11/27/18 15:03	7440-44-0	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557483 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2287058 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	7.4J	50.0	6.1	12/01/18 14:49	

LABORATORY CONTROL SAMPLE: 2287059

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	10100	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2287060 2287061

Parameter	Units	40179870001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	19000	10000	10000	28400	28800	94	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556253 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044001, 60287044002, 60287044003, 60287044004

METHOD BLANK: 2282307 Matrix: Water
Associated Lab Samples: 60287044001, 60287044002, 60287044003, 60287044004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/21/18 02:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/21/18 02:06	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/21/18 02:06	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/21/18 02:06	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/21/18 02:06	
2-Hexanone	ug/L	ND	10.0	1.2	11/21/18 02:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/21/18 02:06	
Acetone	ug/L	ND	10.0	1.9	11/21/18 02:06	
Benzene	ug/L	ND	1.0	0.060	11/21/18 02:06	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/21/18 02:06	
Bromoform	ug/L	ND	1.0	0.070	11/21/18 02:06	
Bromomethane	ug/L	ND	5.0	0.16	11/21/18 02:06	
Carbon disulfide	ug/L	ND	5.0	0.12	11/21/18 02:06	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/21/18 02:06	
Chlorobenzene	ug/L	ND	1.0	0.21	11/21/18 02:06	
Chloroethane	ug/L	ND	1.0	0.15	11/21/18 02:06	
Chloroform	ug/L	ND	1.0	0.14	11/21/18 02:06	
Chloromethane	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/21/18 02:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/21/18 02:06	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/21/18 02:06	
Ethylbenzene	ug/L	ND	1.0	0.18	11/21/18 02:06	
Methylene chloride	ug/L	ND	1.0	0.15	11/21/18 02:06	
Styrene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/21/18 02:06	
Toluene	ug/L	ND	1.0	0.17	11/21/18 02:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/21/18 02:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/21/18 02:06	
Trichloroethene	ug/L	ND	1.0	0.17	11/21/18 02:06	
Vinyl chloride	ug/L	ND	1.0	0.13	11/21/18 02:06	
Xylene (Total)	ug/L	ND	3.0	0.42	11/21/18 02:06	
1,2-Dichloroethane-d4 (S)	%	102	80-117		11/21/18 02:06	
4-Bromofluorobenzene (S)	%	101	80-119		11/21/18 02:06	
Toluene-d8 (S)	%	98	80-115		11/21/18 02:06	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2282308

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.7	108	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.4	102	83-119	
1,1-Dichloroethane	ug/L	20	21.0	105	85-128	
1,1-Dichloroethene	ug/L	20	20.9	105	85-123	
1,2-Dichloroethane	ug/L	20	20.3	102	77-120	
1,2-Dichloropropane	ug/L	20	20.6	103	81-126	
2-Butanone (MEK)	ug/L	100	102	102	65-134	
2-Hexanone	ug/L	100	97.8	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	106	106	66-139	
Acetone	ug/L	100	99.0	99	62-142	
Benzene	ug/L	20	19.5	97	81-118	
Bromodichloromethane	ug/L	20	22.2	111	85-123	
Bromoform	ug/L	20	20.0	100	83-123	
Bromomethane	ug/L	20	21.3	107	39-149	
Carbon disulfide	ug/L	20	19.9	100	85-124	
Carbon tetrachloride	ug/L	20	21.7	108	85-126	
Chlorobenzene	ug/L	20	20.3	101	87-118	
Chloroethane	ug/L	20	22.1	110	73-134	
Chloroform	ug/L	20	21.0	105	85-119	
Chloromethane	ug/L	20	22.7	114	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.7	98	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.8	104	80-124	
Dibromochloromethane	ug/L	20	20.6	103	83-122	
Ethylbenzene	ug/L	20	19.4	97	80-118	
Methylene chloride	ug/L	20	22.2	111	81-126	
Styrene	ug/L	20	20.5	103	85-120	
Tetrachloroethene	ug/L	20	20.0	100	87-120	
Toluene	ug/L	20	19.9	100	82-118	
trans-1,2-Dichloroethene	ug/L	20	20.3	101	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.1	100	80-122	
Trichloroethene	ug/L	20	22.7	113	82-120	
Vinyl chloride	ug/L	20	24.5	122	74-147	
Xylene (Total)	ug/L	60	58.0	97	81-120	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			95	80-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	ND	20	20	22.4	23.2	112	116	79-135	4	11	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	19.0	99	95	49-144	4	17	
1,1,2-Trichloroethane	ug/L	ND	20	20	20.4	20.6	102	103	71-124	1	14	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282309 2282310

Parameter	Units	60286849032 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethane	ug/L	ND	20	20	21.3	21.4	107	107	77-135	0	12	
1,1-Dichloroethene	ug/L	1.3	20	20	20.6	23.8	96	112	77-138	14	14	
1,2-Dichloroethane	ug/L	ND	20	20	19.6	20.3	98	102	47-152	4	27	
1,2-Dichloropropane	ug/L	ND	20	20	21.2	21.5	106	107	74-128	1	13	
2-Butanone (MEK)	ug/L	ND	100	100	95.2	98.9	95	99	60-125	4	17	
2-Hexanone	ug/L	ND	100	100	97.3	98.8	97	99	53-133	2	15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	99.2	101	99	101	62-134	2	15	
Acetone	ug/L	3.0J	100	100	90.1	93.1	87	90	50-127	3	28	
Benzene	ug/L	ND	20	20	20.1	20.8	100	104	62-138	3	34	
Bromodichloromethane	ug/L	ND	20	20	21.5	22.5	108	112	75-126	4	12	
Bromoform	ug/L	ND	20	20	19.2	20.8	96	104	70-122	8	14	
Bromomethane	ug/L	ND	20	20	19.5	20.9	98	104	41-155	7	42	
Carbon disulfide	ug/L	ND	20	20	20.7	21.4	103	107	70-148	3	14	
Carbon tetrachloride	ug/L	ND	20	20	23.2	23.4	116	117	78-139	1	23	
Chlorobenzene	ug/L	ND	20	20	20.4	21.5	102	107	74-130	5	10	
Chloroethane	ug/L	ND	20	20	23.0	23.4	115	117	67-153	2	27	
Chloroform	ug/L	ND	20	20	21.1	20.9	106	105	75-127	1	12	
Chloromethane	ug/L	ND	20	20	16.1	16.5	80	83	22-188	3	68	
cis-1,2-Dichloroethene	ug/L	5.4	20	20	25.4	25.7	100	101	69-135	1	15	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.9	100	105	61-129	4	11	
Dibromochloromethane	ug/L	ND	20	20	20.3	21.7	102	108	60-133	6	14	
Ethylbenzene	ug/L	ND	20	20	19.7	20.5	98	103	60-140	4	32	
Methylene chloride	ug/L	ND	20	20	21.4	21.5	107	107	72-131	0	16	
Styrene	ug/L	ND	20	20	19.4	20.3	97	101	59-142	5	12	
Tetrachloroethene	ug/L	ND	20	20	20.5	21.6	102	108	72-136	5	15	
Toluene	ug/L	ND	20	20	20.6	20.9	103	104	65-135	2	32	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.6	21.0	108	105	75-137	3	15	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	20.2	100	101	60-128	1	13	
Trichloroethene	ug/L	141	20	20	169	167	138	130	66-136	1	15	M1
Vinyl chloride	ug/L	0.53J	20	20	25.2	25.0	123	122	65-164	1	16	
Xylene (Total)	ug/L	ND	60	60	57.2	59.3	95	99	69-133	4	31	
1,2-Dichloroethane-d4 (S)	%						105	105	80-117			
4-Bromofluorobenzene (S)	%						103	101	80-119			
Toluene-d8 (S)	%						95	96	80-115			
Preservation pH		1.0			1.0	1.0				0		

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556483 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044001, 60287044004

METHOD BLANK: 2283187 Matrix: Water
Associated Lab Samples: 60287044001, 60287044004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/23/18 09:17	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/23/18 09:17	
4-Bromofluorobenzene (S)	%	102	80-119		11/23/18 09:17	
Toluene-d8 (S)	%	98	80-115		11/23/18 09:17	

LABORATORY CONTROL SAMPLE: 2283188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	23.5	117	82-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			96	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556488 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044005, 60287044006, 60287044007, 60287044008, 60287044009, 60287044010, 60287044011

METHOD BLANK: 2283209 Matrix: Water
Associated Lab Samples: 60287044005, 60287044006, 60287044007, 60287044008, 60287044009, 60287044010, 60287044011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/23/18 21:02	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/23/18 21:02	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/23/18 21:02	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/23/18 21:02	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 21:02	
1,2-Dichloroethane	ug/L	0.17J	1.0	0.12	11/23/18 21:02	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/23/18 21:02	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/23/18 21:02	
2-Hexanone	ug/L	ND	10.0	1.2	11/23/18 21:02	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/23/18 21:02	
Acetone	ug/L	ND	10.0	1.9	11/23/18 21:02	
Benzene	ug/L	ND	1.0	0.060	11/23/18 21:02	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/23/18 21:02	
Bromoform	ug/L	ND	1.0	0.070	11/23/18 21:02	
Bromomethane	ug/L	ND	5.0	0.16	11/23/18 21:02	
Carbon disulfide	ug/L	ND	5.0	0.12	11/23/18 21:02	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/23/18 21:02	
Chlorobenzene	ug/L	ND	1.0	0.21	11/23/18 21:02	
Chloroethane	ug/L	ND	1.0	0.15	11/23/18 21:02	
Chloroform	ug/L	ND	1.0	0.14	11/23/18 21:02	
Chloromethane	ug/L	ND	1.0	0.080	11/23/18 21:02	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/23/18 21:02	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/23/18 21:02	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/23/18 21:02	
Ethylbenzene	ug/L	ND	1.0	0.18	11/23/18 21:02	
Methylene chloride	ug/L	ND	1.0	0.15	11/23/18 21:02	
Styrene	ug/L	ND	1.0	0.12	11/23/18 21:02	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/23/18 21:02	
Toluene	ug/L	ND	1.0	0.17	11/23/18 21:02	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/23/18 21:02	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/23/18 21:02	
Trichloroethene	ug/L	ND	1.0	0.17	11/23/18 21:02	
Vinyl chloride	ug/L	ND	1.0	0.13	11/23/18 21:02	
Xylene (Total)	ug/L	ND	3.0	0.42	11/23/18 21:02	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/23/18 21:02	
4-Bromofluorobenzene (S)	%	100	80-119		11/23/18 21:02	
Toluene-d8 (S)	%	96	80-115		11/23/18 21:02	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2283210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	22.9	114	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.0	95	74-121	
1,1,2-Trichloroethane	ug/L	20	20.9	104	83-119	
1,1-Dichloroethane	ug/L	20	22.6	113	85-128	
1,1-Dichloroethene	ug/L	20	22.5	112	85-123	
1,2-Dichloroethane	ug/L	20	22.3	111	77-120	
1,2-Dichloropropane	ug/L	20	21.5	107	81-126	
2-Butanone (MEK)	ug/L	100	111	111	65-134	
2-Hexanone	ug/L	100	104	104	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	108	108	66-139	
Acetone	ug/L	100	116	116	62-142	
Benzene	ug/L	20	20.6	103	81-118	
Bromodichloromethane	ug/L	20	24.1	120	85-123	
Bromoform	ug/L	20	21.9	110	83-123	
Bromomethane	ug/L	20	21.4	107	39-149	
Carbon disulfide	ug/L	20	20.7	103	85-124	
Carbon tetrachloride	ug/L	20	23.7	119	85-126	
Chlorobenzene	ug/L	20	21.6	108	87-118	
Chloroethane	ug/L	20	22.3	111	73-134	
Chloroform	ug/L	20	23.1	116	85-119	
Chloromethane	ug/L	20	26.3	131	20-174	
cis-1,2-Dichloroethene	ug/L	20	21.3	107	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.1	110	80-124	
Dibromochloromethane	ug/L	20	22.7	113	83-122	
Ethylbenzene	ug/L	20	20.8	104	80-118	
Methylene chloride	ug/L	20	23.5	118	81-126	
Styrene	ug/L	20	21.7	108	85-120	
Tetrachloroethene	ug/L	20	21.9	110	87-120	
Toluene	ug/L	20	21.5	107	82-118	
trans-1,2-Dichloroethene	ug/L	20	22.1	110	83-121	
trans-1,3-Dichloropropene	ug/L	20	21.6	108	80-122	
Trichloroethene	ug/L	20	23.8	119	82-120	
Vinyl chloride	ug/L	20	24.9	125	74-147	
Xylene (Total)	ug/L	60	62.4	104	81-120	
1,2-Dichloroethane-d4 (S)	%			109	80-117	
4-Bromofluorobenzene (S)	%			100	80-119	
Toluene-d8 (S)	%			95	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556489 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044012, 60287044013, 60287044014, 60287044015, 60287044016, 60287044018, 60287044019, 60287044020, 60287044021, 60287044022, 60287044023, 60287044025, 60287044026, 60287044027, 60287044028, 60287044029, 60287044031

METHOD BLANK: 2283211 Matrix: Water
Associated Lab Samples: 60287044012, 60287044013, 60287044014, 60287044015, 60287044016, 60287044018, 60287044019, 60287044020, 60287044021, 60287044022, 60287044023, 60287044025, 60287044026, 60287044027, 60287044028, 60287044029, 60287044031

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/24/18 02:12	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/24/18 02:12	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/24/18 02:12	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/24/18 02:12	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/24/18 02:12	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/24/18 02:12	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/24/18 02:12	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/24/18 02:12	
2-Hexanone	ug/L	ND	10.0	1.2	11/24/18 02:12	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/24/18 02:12	
Acetone	ug/L	ND	10.0	1.9	11/24/18 02:12	
Benzene	ug/L	ND	1.0	0.060	11/24/18 02:12	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/24/18 02:12	
Bromoform	ug/L	ND	1.0	0.070	11/24/18 02:12	
Bromomethane	ug/L	ND	5.0	0.16	11/24/18 02:12	
Carbon disulfide	ug/L	ND	5.0	0.12	11/24/18 02:12	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/24/18 02:12	
Chlorobenzene	ug/L	ND	1.0	0.21	11/24/18 02:12	
Chloroethane	ug/L	ND	1.0	0.15	11/24/18 02:12	
Chloroform	ug/L	ND	1.0	0.14	11/24/18 02:12	
Chloromethane	ug/L	ND	1.0	0.080	11/24/18 02:12	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/24/18 02:12	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/24/18 02:12	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/24/18 02:12	
Ethylbenzene	ug/L	ND	1.0	0.18	11/24/18 02:12	
Methylene chloride	ug/L	ND	1.0	0.15	11/24/18 02:12	
Styrene	ug/L	ND	1.0	0.12	11/24/18 02:12	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/24/18 02:12	
Toluene	ug/L	ND	1.0	0.17	11/24/18 02:12	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/24/18 02:12	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/24/18 02:12	
Trichloroethene	ug/L	ND	1.0	0.17	11/24/18 02:12	
Vinyl chloride	ug/L	ND	1.0	0.13	11/24/18 02:12	
Xylene (Total)	ug/L	ND	3.0	0.42	11/24/18 02:12	
1,2-Dichloroethane-d4 (S)	%	106	80-117		11/24/18 02:12	
4-Bromofluorobenzene (S)	%	101	80-119		11/24/18 02:12	
Toluene-d8 (S)	%	94	80-115		11/24/18 02:12	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2283212

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	23.5	118	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.6	103	74-121	
1,1,2-Trichloroethane	ug/L	20	23.3	117	83-119	
1,1-Dichloroethane	ug/L	20	21.7	109	85-128	
1,1-Dichloroethene	ug/L	20	22.4	112	85-123	
1,2-Dichloroethane	ug/L	20	21.9	110	77-120	
1,2-Dichloropropane	ug/L	20	21.9	110	81-126	
2-Butanone (MEK)	ug/L	100	108	108	65-134	
2-Hexanone	ug/L	100	109	109	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	109	109	66-139	
Acetone	ug/L	100	110	110	62-142	
Benzene	ug/L	20	20.4	102	81-118	
Bromodichloromethane	ug/L	20	24.4	122	85-123	
Bromoform	ug/L	20	24.0	120	83-123	
Bromomethane	ug/L	20	16.3	82	39-149	
Carbon disulfide	ug/L	20	19.7	98	85-124	
Carbon tetrachloride	ug/L	20	23.9	120	85-126	
Chlorobenzene	ug/L	20	21.9	110	87-118	
Chloroethane	ug/L	20	22.1	111	73-134	
Chloroform	ug/L	20	22.7	114	85-119	
Chloromethane	ug/L	20	20.1	100	20-174	
cis-1,2-Dichloroethene	ug/L	20	20.7	104	84-121	
cis-1,3-Dichloropropene	ug/L	20	22.5	112	80-124	
Dibromochloromethane	ug/L	20	23.1	116	83-122	
Ethylbenzene	ug/L	20	20.5	103	80-118	
Methylene chloride	ug/L	20	22.1	110	81-126	
Styrene	ug/L	20	21.2	106	85-120	
Tetrachloroethene	ug/L	20	21.5	107	87-120	
Toluene	ug/L	20	21.6	108	82-118	
trans-1,2-Dichloroethene	ug/L	20	21.1	105	83-121	
trans-1,3-Dichloropropene	ug/L	20	22.3	111	80-122	
Trichloroethene	ug/L	20	24.4	122	82-120	L1
Vinyl chloride	ug/L	20	22.9	115	74-147	
Xylene (Total)	ug/L	60	60.5	101	81-120	
1,2-Dichloroethane-d4 (S)	%			108	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556702 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044011, 60287044012, 60287044013

METHOD BLANK: 2284126 Matrix: Water
Associated Lab Samples: 60287044011, 60287044012, 60287044013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 01:00	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 01:00	
4-Bromofluorobenzene (S)	%	97	80-119		11/26/18 01:00	
Toluene-d8 (S)	%	97	80-115		11/26/18 01:00	

LABORATORY CONTROL SAMPLE: 2284127

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.2	101	82-120	
1,2-Dichloroethane-d4 (S)	%			95	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556704 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044024, 60287044030, 60287044032, 60287044033, 60287044034, 60287044035, 60287044036, 60287044037, 60287044038, 60287044039, 60287044040, 60287044041, 60287044042

METHOD BLANK: 2284130 Matrix: Water
Associated Lab Samples: 60287044024, 60287044030, 60287044032, 60287044033, 60287044034, 60287044035, 60287044036, 60287044037, 60287044038, 60287044039, 60287044040, 60287044041, 60287044042

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/26/18 08:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/26/18 08:52	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
1,2-Dichloroethane	ug/L	0.12J	1.0	0.12	11/26/18 08:52	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/26/18 08:52	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/26/18 08:52	
2-Hexanone	ug/L	ND	10.0	1.2	11/26/18 08:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/26/18 08:52	
Acetone	ug/L	ND	10.0	1.9	11/26/18 08:52	
Benzene	ug/L	ND	1.0	0.060	11/26/18 08:52	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/26/18 08:52	
Bromoform	ug/L	ND	1.0	0.070	11/26/18 08:52	
Bromomethane	ug/L	ND	5.0	0.16	11/26/18 08:52	
Carbon disulfide	ug/L	ND	5.0	0.12	11/26/18 08:52	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/26/18 08:52	
Chlorobenzene	ug/L	ND	1.0	0.21	11/26/18 08:52	
Chloroethane	ug/L	ND	1.0	0.15	11/26/18 08:52	
Chloroform	ug/L	ND	1.0	0.14	11/26/18 08:52	
Chloromethane	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/26/18 08:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/26/18 08:52	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/26/18 08:52	
Ethylbenzene	ug/L	ND	1.0	0.18	11/26/18 08:52	
Methylene chloride	ug/L	ND	1.0	0.15	11/26/18 08:52	
Styrene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/26/18 08:52	
Toluene	ug/L	ND	1.0	0.17	11/26/18 08:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/26/18 08:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/26/18 08:52	
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 08:52	
Vinyl chloride	ug/L	ND	1.0	0.13	11/26/18 08:52	
Xylene (Total)	ug/L	ND	3.0	0.42	11/26/18 08:52	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/26/18 08:52	
4-Bromofluorobenzene (S)	%	99	80-119		11/26/18 08:52	
Toluene-d8 (S)	%	99	80-115		11/26/18 08:52	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2284131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.5	97	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	20.2	101	74-121	
1,1,2-Trichloroethane	ug/L	20	19.8	99	83-119	
1,1-Dichloroethane	ug/L	20	19.1	95	85-128	
1,1-Dichloroethene	ug/L	20	17.8	89	85-123	
1,2-Dichloroethane	ug/L	20	19.8	99	77-120	
1,2-Dichloropropane	ug/L	20	19.6	98	81-126	
2-Butanone (MEK)	ug/L	100	91.7	92	65-134	
2-Hexanone	ug/L	100	98.3	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.1	98	66-139	
Acetone	ug/L	100	81.3	81	62-142	
Benzene	ug/L	20	19.4	97	81-118	
Bromodichloromethane	ug/L	20	19.6	98	85-123	
Bromoform	ug/L	20	17.4	87	83-123	
Bromomethane	ug/L	20	24.3	122	39-149	
Carbon disulfide	ug/L	20	18.4	92	85-124	
Carbon tetrachloride	ug/L	20	19.4	97	85-126	
Chlorobenzene	ug/L	20	19.5	98	87-118	
Chloroethane	ug/L	20	22.5	113	73-134	
Chloroform	ug/L	20	19.3	96	85-119	
Chloromethane	ug/L	20	16.8	84	20-174	
cis-1,2-Dichloroethene	ug/L	20	19.9	100	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.3	97	80-124	
Dibromochloromethane	ug/L	20	19.0	95	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.2	101	81-126	
Styrene	ug/L	20	18.9	95	85-120	
Tetrachloroethene	ug/L	20	18.8	94	87-120	
Toluene	ug/L	20	18.7	93	82-118	
trans-1,2-Dichloroethene	ug/L	20	19.3	96	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.8	94	80-122	
Trichloroethene	ug/L	20	20.6	103	82-120	
Vinyl chloride	ug/L	20	22.5	113	74-147	
Xylene (Total)	ug/L	60	55.7	93	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			101	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556810 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044014, 60287044015, 60287044016, 60287044017, 60287044018

METHOD BLANK: 2284786 Matrix: Water
Associated Lab Samples: 60287044014, 60287044015, 60287044016, 60287044017, 60287044018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/26/18 20:36	
1,2-Dichloroethane-d4 (S)	%	101	80-117		11/26/18 20:36	
4-Bromofluorobenzene (S)	%	98	80-119		11/26/18 20:36	
Toluene-d8 (S)	%	98	80-115		11/26/18 20:36	

LABORATORY CONTROL SAMPLE: 2284787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.4	102	82-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			99	80-119	
Toluene-d8 (S)	%			98	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556812 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044022, 60287044023, 60287044025, 60287044028

METHOD BLANK: 2284790 Matrix: Water
Associated Lab Samples: 60287044022, 60287044023, 60287044025, 60287044028

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	0.19J	1.0	0.17	11/27/18 02:15	
1,2-Dichloroethane-d4 (S)	%	99	80-117		11/27/18 02:15	
4-Bromofluorobenzene (S)	%	98	80-119		11/27/18 02:15	
Toluene-d8 (S)	%	100	80-115		11/27/18 02:15	

LABORATORY CONTROL SAMPLE: 2284791

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	20.9	104	82-120	
1,2-Dichloroethane-d4 (S)	%			100	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556988 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044031, 60287044036, 60287044038

METHOD BLANK: 2285301 Matrix: Water
Associated Lab Samples: 60287044031, 60287044036, 60287044038

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	1.0	0.17	11/27/18 18:20	
1,2-Dichloroethane-d4 (S)	%	98	80-117		11/27/18 18:20	
4-Bromofluorobenzene (S)	%	98	80-119		11/27/18 18:20	
Toluene-d8 (S)	%	100	80-115		11/27/18 18:20	

LABORATORY CONTROL SAMPLE: 2285302

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	20	21.5	108	82-120	
1,2-Dichloroethane-d4 (S)	%			104	80-117	
4-Bromofluorobenzene (S)	%			98	80-119	
Toluene-d8 (S)	%			101	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557295 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287044017, 60287044037

METHOD BLANK: 2286312 Matrix: Water
Associated Lab Samples: 60287044017, 60287044037

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 11:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 11:56	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 11:56	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 11:56	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 11:56	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 11:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 11:56	
Acetone	ug/L	ND	10.0	1.9	11/28/18 11:56	
Benzene	ug/L	ND	1.0	0.060	11/28/18 11:56	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 11:56	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 11:56	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 11:56	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 11:56	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 11:56	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 11:56	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 11:56	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 11:56	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 11:56	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 11:56	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 11:56	
Styrene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 11:56	
Toluene	ug/L	ND	1.0	0.17	11/28/18 11:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 11:56	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 11:56	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/28/18 11:56	
4-Bromofluorobenzene (S)	%	101	80-119		11/28/18 11:56	
Toluene-d8 (S)	%	98	80-115		11/28/18 11:56	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

LABORATORY CONTROL SAMPLE: 2286313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.9	94	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	19.7	99	83-119	
1,1-Dichloroethane	ug/L	20	18.9	94	85-128	
1,1-Dichloroethene	ug/L	20	17.2	86	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	19.1	96	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	97.9	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.7	98	66-139	
Acetone	ug/L	100	90.8	91	62-142	
Benzene	ug/L	20	18.9	95	81-118	
Bromodichloromethane	ug/L	20	18.9	95	85-123	
Bromoform	ug/L	20	18.8	94	83-123	
Bromomethane	ug/L	20	10.5	53	39-149	
Carbon disulfide	ug/L	20	15.7	78	85-124	L2
Carbon tetrachloride	ug/L	20	19.2	96	85-126	
Chlorobenzene	ug/L	20	18.7	94	87-118	
Chloroethane	ug/L	20	18.5	92	73-134	
Chloroform	ug/L	20	18.6	93	85-119	
Chloromethane	ug/L	20	12.4	62	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.7	93	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	19.5	97	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	19.2	96	81-126	
Styrene	ug/L	20	18.8	94	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	18.2	91	82-118	
trans-1,2-Dichloroethene	ug/L	20	17.9	89	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.9	95	80-122	
Vinyl chloride	ug/L	20	15.1	76	74-147	
Xylene (Total)	ug/L	60	54.9	92	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555865 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2281117 Matrix: Water
Associated Lab Samples: 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/19/18 09:17	

LABORATORY CONTROL SAMPLE: 2281118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.48	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2281119 2281120

Parameter	Units	60286928002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.47	0.48	95	95	75-125	1	20	

SAMPLE DUPLICATE: 2281121

Parameter	Units	60286928002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2281122

Parameter	Units	60286947002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557759
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044040

METHOD BLANK: 2288315
Matrix: Water
Associated Lab Samples: 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/01/18 02:48	

LABORATORY CONTROL SAMPLE: 2288316

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	10	10.5	105	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 558789 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044039

METHOD BLANK: 2292726 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/09/18 15:02	
Sulfate	mg/L	ND	1.0	0.24	12/09/18 15:02	

LABORATORY CONTROL SAMPLE: 2292727

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2292728 2292729

Parameter	Units	60287044031 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	431	250	250	670	656	96	90	90-110	2	15	
Sulfate	mg/L	239	100	100	386	404	148	166	90-110	5	15	E,M1

MATRIX SPIKE SAMPLE: 2292730

Parameter	Units	60287132005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	2.8	5	7.3	91	90-110	
Sulfate	mg/L	806	500	1230	85	90-110	M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 559201 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287044033, 60287044038

METHOD BLANK: 2295155 Matrix: Water
Associated Lab Samples: 60287044033, 60287044038

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.24	12/10/18 08:43	

LABORATORY CONTROL SAMPLE: 2295156

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2295157 2295158

Parameter	Units	60287044033 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	10.6	5	5	12.7	14.4	44	76	90-110	12	15	M1

MATRIX SPIKE SAMPLE: 2295159

Parameter	Units	60287044038 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	29.0	250	698	267	90-110	M1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555762 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2280185 Matrix: Water
Associated Lab Samples: 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 07:59	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 07:59	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 07:59	

LABORATORY CONTROL SAMPLE: 2280186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.92	92	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	102	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280187

Parameter	Units	60287044040 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	0.97	94	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.061J	2	2.0	97	90-110	

SAMPLE DUPLICATE: 2280188

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	0.14	ND		20	
Nitrogen, Nitrite	mg/L	0.18	0.60	7	20	
Nitrogen, NO2 plus NO3	mg/L	0.32	0.31	2	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 555770 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287044031, 60287044032

METHOD BLANK: 2280236 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 10:04	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 10:04	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 10:04	

LABORATORY CONTROL SAMPLE: 2280237

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.91	91	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	103	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 2280238

Parameter	Units	60287044031 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.16	1	0.55	39	70-130	M1
Nitrogen, Nitrite	mg/L	0.25	1	1.3	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	0.41	2	1.8	71	90-110	M1

SAMPLE DUPLICATE: 2280239

Parameter	Units	60286849026 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10J		20	H1
Nitrogen, Nitrite	mg/L	0.14	0.22	43	20	D6,H1
Nitrogen, NO2 plus NO3	mg/L	0.13	0.31	85	20	D6,H1

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 557381 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

METHOD BLANK: 2286692 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034, 60287044035, 60287044037, 60287044038, 60287044039, 60287044040

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/29/18 16:39	

LABORATORY CONTROL SAMPLE: 2286693

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.8	115	80-120	

MATRIX SPIKE SAMPLE: 2286694

Parameter	Units	60287017004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	9.8	5	14.0	84	80-120	

SAMPLE DUPLICATE: 2286695

Parameter	Units	60287044032 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13000	13000	1	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60287044031, 60287044032, 60287044033, 60287044034

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 556483
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556488
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556489
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556702
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556704
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556810
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 556812
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
Batch: 557295
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
F1	The sample was analyzed at a dilution due to foaming of the sample in the purge vessel.
H1	Analysis conducted outside the EPA method holding time.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044031	**TMW-26-201811**	EPA 3010	557483	EPA 6010	557608
60287044032	**TMW-25-201811**	EPA 3010	557483	EPA 6010	557608
60287044033	**TMW-21-201811**	EPA 3010	557483	EPA 6010	557608
60287044034	**TMW-22R-201811**	EPA 3010	557483	EPA 6010	557608
60287044035	**MW-58R-201811**	EPA 3010	557483	EPA 6010	557608
60287044037	**MW-95-201811**	EPA 3010	557483	EPA 6010	557608
60287044038	**ITMW-9-201811**	EPA 3010	557483	EPA 6010	557608
60287044039	**MW-87-201811**	EPA 3010	557483	EPA 6010	557608
60287044040	**MW-38-201811**	EPA 3010	557483	EPA 6010	557608
60287044001	**DUP-07-201811**	EPA 5030B/8260	556253		
60287044001	**DUP-07-201811**	EPA 5030B/8260	556483		
60287044002	**MW-192-201811**	EPA 5030B/8260	556253		
60287044003	**MW-187-201811**	EPA 5030B/8260	556253		
60287044004	**ITMW-18-201811**	EPA 5030B/8260	556253		
60287044004	**ITMW-18-201811**	EPA 5030B/8260	556483		
60287044005	**MW-96-201811**	EPA 5030B/8260	556488		
60287044006	**MW-97-201811**	EPA 5030B/8260	556488		
60287044007	**MW-24-201811**	EPA 5030B/8260	556488		
60287044008	**DUP-02-201811**	EPA 5030B/8260	556488		
60287044009	**MW-55R-201811**	EPA 5030B/8260	556488		
60287044010	**DUP-08-201811**	EPA 5030B/8260	556488		
60287044011	**IW-77-201811**	EPA 5030B/8260	556488		
60287044011	**IW-77-201811**	EPA 5030B/8260	556702		
60287044012	**TMW-12-201811**	EPA 5030B/8260	556489		
60287044012	**TMW-12-201811**	EPA 5030B/8260	556702		
60287044013	**DUP-04-201811**	EPA 5030B/8260	556489		
60287044013	**DUP-04-201811**	EPA 5030B/8260	556702		
60287044014	**MW-82-201811**	EPA 5030B/8260	556489		
60287044014	**MW-82-201811**	EPA 5030B/8260	556810		
60287044015	**ITMW-7-201811**	EPA 5030B/8260	556489		
60287044015	**ITMW-7-201811**	EPA 5030B/8260	556810		
60287044016	**ITMW-19-201811**	EPA 5030B/8260	556489		
60287044016	**ITMW-19-201811**	EPA 5030B/8260	556810		
60287044017	**MW-93-201811**	EPA 5030B/8260	556810		
60287044017	**MW-93-201811**	EPA 5030B/8260	557295		
60287044018	**MW-189-201811**	EPA 5030B/8260	556489		
60287044018	**MW-189-201811**	EPA 5030B/8260	556810		
60287044019	**TRIP BLANK**	EPA 5030B/8260	556489		
60287044020	**EB-01-201811**	EPA 5030B/8260	556489		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044021	**MW-190-201811**	EPA 5030B/8260	556489		
60287044022	**ITMW-21-201811**	EPA 5030B/8260	556489		
60287044022	**ITMW-21-201811**	EPA 5030B/8260	556812		
60287044023	**ITMW-1-201811**	EPA 5030B/8260	556489		
60287044023	**ITMW-1-201811**	EPA 5030B/8260	556812		
60287044024	**ITMW-5-201811**	EPA 5030B/8260	556704		
60287044025	**MW-91-201811**	EPA 5030B/8260	556489		
60287044025	**MW-91-201811**	EPA 5030B/8260	556812		
60287044026	**MW-29-201811**	EPA 5030B/8260	556489		
60287044027	**MW-39R-201811**	EPA 5030B/8260	556489		
60287044028	**MW-182-201811**	EPA 5030B/8260	556489		
60287044028	**MW-182-201811**	EPA 5030B/8260	556812		
60287044029	**IW-78-201811**	EPA 5030B/8260	556489		
60287044030	**TMW-24-201811**	EPA 5030B/8260	556704		
60287044031	**TMW-26-201811**	EPA 5030B/8260	556489		
60287044031	**TMW-26-201811**	EPA 5030B/8260	556988		
60287044032	**TMW-25-201811**	EPA 5030B/8260	556704		
60287044033	**TMW-21-201811**	EPA 5030B/8260	556704		
60287044034	**TMW-22R-201811**	EPA 5030B/8260	556704		
60287044035	**MW-58R-201811**	EPA 5030B/8260	556704		
60287044036	**DUP-05-201811**	EPA 5030B/8260	556704		
60287044036	**DUP-05-201811**	EPA 5030B/8260	556988		
60287044037	**MW-95-201811**	EPA 5030B/8260	556704		
60287044037	**MW-95-201811**	EPA 5030B/8260	557295		
60287044038	**ITMW-9-201811**	EPA 5030B/8260	556704		
60287044038	**ITMW-9-201811**	EPA 5030B/8260	556988		
60287044039	**MW-87-201811**	EPA 5030B/8260	556704		
60287044040	**MW-38-201811**	EPA 5030B/8260	556704		
60287044041	**TRIP BLANK**	EPA 5030B/8260	556704		
60287044042	**TRIP BLANK**	EPA 5030B/8260	556704		
60287044035	**MW-58R-201811**	SM 4500-S-2 D	555865		
60287044037	**MW-95-201811**	SM 4500-S-2 D	555865		
60287044038	**ITMW-9-201811**	SM 4500-S-2 D	555865		
60287044039	**MW-87-201811**	SM 4500-S-2 D	555865		
60287044040	**MW-38-201811**	SM 4500-S-2 D	555865		
60287044031	**TMW-26-201811**	EPA 300.0	558789		
60287044032	**TMW-25-201811**	EPA 300.0	558789		
60287044033	**TMW-21-201811**	EPA 300.0	558789		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287044033	**TMW-21-201811**	EPA 300.0	559201		
60287044034	**TMW-22R-201811**	EPA 300.0	558789		
60287044035	**MW-58R-201811**	EPA 300.0	558789		
60287044037	**MW-95-201811**	EPA 300.0	558789		
60287044038	**ITMW-9-201811**	EPA 300.0	559201		
60287044039	**MW-87-201811**	EPA 300.0	558789		
60287044040	**MW-38-201811**	EPA 300.0	557759		
60287044031	**TMW-26-201811**	EPA 353.2	555770		
60287044032	**TMW-25-201811**	EPA 353.2	555770		
60287044033	**TMW-21-201811**	EPA 353.2	555762		
60287044034	**TMW-22R-201811**	EPA 353.2	555762		
60287044035	**MW-58R-201811**	EPA 353.2	555762		
60287044037	**MW-95-201811**	EPA 353.2	555762		
60287044038	**ITMW-9-201811**	EPA 353.2	555762		
60287044039	**MW-87-201811**	EPA 353.2	555762		
60287044040	**MW-38-201811**	EPA 353.2	555762		
60287044031	**TMW-26-201811**	SM 5310C	557381		
60287044032	**TMW-25-201811**	SM 5310C	557381		
60287044033	**TMW-21-201811**	SM 5310C	557381		
60287044034	**TMW-22R-201811**	SM 5310C	557381		
60287044035	**MW-58R-201811**	SM 5310C	557381		
60287044037	**MW-95-201811**	SM 5310C	557381		
60287044038	**ITMW-9-201811**	SM 5310C	557381		
60287044039	**MW-87-201811**	SM 5310C	557381		
60287044040	**MW-38-201811**	SM 5310C	557381		
60287044031	**TMW-26-201811**	SM 5310C	556798		
60287044032	**TMW-25-201811**	SM 5310C	556798		
60287044033	**TMW-21-201811**	SM 5310C	556798		
60287044034	**TMW-22R-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY — WO# : 60287044 — 60287044

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool Annual

Customer Project Name/Number:

State: AR County/City: Fort Smith Time Zone Collected: PT MT (CT) ET

Phone: Email: 314-833-7325

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): Jo Pavlowsky

Purchase Order #:

DW PWS ID #:

Quote #:

DW Location Code #:

Collected by (signature): Jo Pavlowsky

Turnaround Date Required: Standard

Immediately Packed on Ice? [X] Yes [ ] No

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: 8881-1			
Sample pH Acceptable	(Y)	N	NA
pH Strips:			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips:			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	LAB USE ONLY: Lab Sample # / Comments
DUP-07-201811	GW	G	11-14-18	1500				3	-001
MW-192-201811	GW	G	11-14-18	1505				3	-002
MW-187-201811	GW	G	11-14-18	1345				3	-003
ITMW-18-201811	GW	G	11-14-18	1700				3	-004
MW-96-201811	GW	G	11-15-18	0946				3	-005
MW-97-201811	GW	G		1142				3	-006
MW-24-201811	GW	G		1325				3	-007
DUP-02-201811	GW	G		1325				3	-008
MW-55R-201811	GW	G		1556				3	-009
DUP-08-201811	GW	G		1556				3	-010

3D69H; 8260+HR; 3D69H

Customer Remarks/ Special Conditions/ Possible Hazards: MW-24-201811 & DUP-02 were both ascorbic acid bottles, not HCl bottles

Type of Ice Used: (Wet) Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zplc

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client (X) Courier [ ] Pace Courier [ ]

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Jo Pavlowsky (Ramb)	11-15-18 1400	UPS of 1 pcs.	11-16-18 0550
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4, 1.8 oC

Comments: _____

Trip Blank Received: (Y) N N/A HCL MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page 1)

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 Full List VOCs; 8260 Full List VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	N	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	8260 Full List VOCs		↓ LAB USE ONLY: ↓ Lab Sample # / Comments
IW-77-201811	GW	G	11-15-18	1710				3	X		3D69H	-011
TMW-12-201811				0930				3	X			-012
DUP-04-201811				0930				3	X			-013
MW-82-201811				1115				3	X			-014
ITMW-7-201811				1330				3	X			-015
ITMW-19-201811				1430				3		X	3D7HR	-016
MW-93-201811				1545				3		X		-017
MW-189-201811				1655				3	X		3D69H	-018
---- Trip Blank				—				2	X		2D69H	-019
EB-01-201811								3	X		3D69H	-020

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zpcl

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T300

Cooler Temp Upon Receipt 0.5, 1.2 °C 1.6

Cooler Therm Corr. Factor +0.2 °C

Cooler Temp Corrected 0.7, 1.4 °C 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

(HCl) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature) Client / Pace	11.16.18 0550
Relinquished by/Company : (Signature) (see page 1)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: (see page 1)

State / County/City / Time Zone Collected PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: (3) (A)

Lab Project Manager: 60287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Analyses: 8260 full list VOCs; 8260 full list VOCs

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns			Lab Sample # / Comments
MW-190-201811	GW	G	11-15-18	0925				3	X	3D69H	-021
ITMW-21-201811				1101					X		-022
ITMW-1-201811				1225					X		-023
ITMW-5-201811				1425					X		-024
MW-91-201811				1545					X		-025
MW-29-201811				0910					X		-026
MW-39R-201811				1030					X		-027
MW-182-201811				1430					X		-028
IW-78-201811				1525					X	3D69H	-029
TMW-24-201811				1700					X		-030

Customer Remarks/ Special Conditions/ Possible Hazards: IW-78 has ascorbic acid VOAs, not HCl

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags, Zpk

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)		Received / Pass.	11-16-18 0550
Relinquished by/Company : (Signature) (see page 1)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y (N) NA

Therm ID #: T500

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

HCL MeOH TSP Other

NonConformance(s) YES / NO

Page _____ of _____

CHAIN-OF-CUSTODY Analytical Request Document

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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number:

State: KS | County/City | Time Zone Collected: / PT MT CT ET

Phone: see page #1

Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive _____ [ ] Hold _____

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: Dissolved org carbon

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3) D D | U U 2 U U U 45

Lab Project Manager: 60287044

**Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

LAB Profile/Line: 7444 Line 1

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	8260 Full List VOCs	Methane Ethane Ethene	MEE, A	Metals- TOTAL IRON	Sulfate/Nitrate/Chloride	TOTAL ORGANIC CARBON	Volatile fatty acids	dissolved organic carbon	Sulfate/Nitrate	Sulfide	Lab Sample # / Comments
TMW-26-201811	SP3U	GW	G	11-15-18	1115				X	X	AG3U	X	X	X	X	X			-031
TMW-25-201811					1330				X	X		X	X	X	X	X			-032
TMW-21-201811					1515				X	X		X	X	X	X	X			-033
TMW-22R-201811					1650				X	X		X	X	X	X	X			-034
MW-58R-201811					1400				X		X	X		X	BP3B		X	X	-035
DUP-05-201811					1400			3	X										-036
MW-95-201811					1555				X	X		X		X			X	X	-037
ITMW-9-201811					1520				X	X		X		X			X	X	-038
MW-87-201811					1330				X	X		X		X			X	X	-039
MW-36-201811					0955				X	X		X		X			X	X	-046

2D69U, 1D69Q, AG3S, BP3U

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

↓ LAB USE ONLY: ↓

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: (Wet) [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble Bags Zac

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
		UC of / Pac.	11-16-18 0550
Relinquished by/Company : (Signature) see page #1	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: TJ00

Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6

Cooler Therm Corr. Factor +0.2 oC

Cooler Temp Corrected 0.7, 1.4 oC 1.8

Comments: _____

Trip Blank Received: (Y) N N/A

(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

4

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller

Site Collection Info/Address:

Customer Project Name/Number: see page

State / County/City / Time Zone Collected: PT MT CT ET

Phone: see page
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: (3)

Lab Project Manager: L00287044

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Analyses: 8260 full list VOC

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples received on ice	(Y)	N	NA
VOA - Headspace Acceptable	(Y)	N	NA
USDA Regulated Soils	Y	N	(NA)
Samples in holding time	(Y)	N	NA
Residual Chlorine Present	Y	N	(NA)
Cl Strips: _____			
Sample pH Acceptable	(Y)	N	NA
pH Strips: _____			
Sulfide Present	Y	N	(NA)
Lead Acetate Strips: _____			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
Trip Blank	-	-	-	-				2	X	2D68H -041
Trip Blank	-	-	-	-				2	X	-042

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [ ] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used: Bubble bags Zpk

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [ ] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #: _____
ACCT #: _____
Template: _____
Prelogin: _____
PM: _____
PB: _____

LAB Sample Temperature Info:
Temp Blank received: Y (N) NA
Therm ID #: T300
Cooler Temp Upon Receipt 0.5, 1.2 oC 1.6
Cooler Therm Corr. Factor +0.2 oC
Cooler Temp Corrected 0.7, 1.4 oC 1.8
Comments: _____

Trip Blank Received: (Y) N N/A
(HCL) MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature) NCI pf Pace	11-16-18 0550
Relinquished by/Company : (Signature) see page	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

November 30, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60287044**

Pace Workorder: 28772

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, November 20, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 11/30/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 21

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Energy Services LLC.

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

SAMPLE SUMMARY

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287720001	TMW-26-201811	Water	11/15/2018 11:15	11/20/2018 11:45
287720002	TMW-25-201811	Water	11/15/2018 13:30	11/20/2018 11:45
287720003	TMW-21-201811	Water	11/15/2018 15:15	11/20/2018 11:45
287720004	TMW-22R-201811	Water	11/15/2018 16:50	11/20/2018 11:45
287720005	MW-58R-201811	Water	11/15/2018 14:00	11/20/2018 11:45
287720006	MW-95-201811	Water	11/15/2018 15:55	11/20/2018 11:45
287720007	ITMW-9-201811	Water	11/15/2018 15:20	11/20/2018 11:45
287720008	MW-87-201811	Water	11/15/2018 13:30	11/20/2018 11:45
287720009	MW-38-201811	Water	11/15/2018 09:55	11/20/2018 11:45

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PROJECT SUMMARY

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Workorder Comments

The container pH for samples 28772 (0001-0003) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720001** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-26-201811** Date Collected: 11/15/2018 11:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<200**	mg/l	200	14	1000	11/27/2018 02:02	KB	d
Acetic Acid	**4000**	mg/l	100	24	1000	11/27/2018 02:02	KB	d,B
Propionic Acid	**16000**	mg/l	1000	44	10000	11/27/2018 02:58	KB	d,B
Butyric Acid	**1600**	mg/l	100	4.7	1000	11/27/2018 02:02	KB	d,B
Pyruvic Acid	**83**	mg/l	10	0.57	100	11/27/2018 01:05	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**11000**	ug/l	0.50	0.014	1	11/29/2018 09:48	BW	n
Ethane	**1.5**	ug/l	0.10	0.0070	1	11/29/2018 09:48	BW	n
Ethene	**15**	ug/l	0.10	0.0050	1	11/29/2018 09:48	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720002** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-25-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**220**	mg/l	20	1.4	100	11/27/2018 03:54	KB	d
Acetic Acid	**3800**	mg/l	100	24	1000	11/27/2018 04:50	KB	d,B
Propionic Acid	**19000**	mg/l	1000	44	10000	11/27/2018 05:47	KB	d,B
Butyric Acid	**1200**	mg/l	100	4.7	1000	11/27/2018 04:50	KB	d,B
Pyruvic Acid	**<100**	mg/l	100	5.7	1000	11/27/2018 04:50	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**900**	ug/l	0.50	0.014	1	11/29/2018 11:02	BW	n
Ethane	**6.3**	ug/l	0.10	0.0070	1	11/29/2018 11:02	BW	n
Ethene	**31**	ug/l	0.10	0.0050	1	11/29/2018 11:02	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720003** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-21-201811** Date Collected: 11/15/2018 15:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<20**	mg/l	20	1.4	100	11/27/2018 06:43	KB	d
Acetic Acid	**260**	mg/l	10	2.4	100	11/27/2018 06:43	KB	d,B
Propionic Acid	**4600**	mg/l	100	4.4	1000	11/27/2018 07:39	KB	d,B
Butyric Acid	**130**	mg/l	10	0.47	100	11/27/2018 06:43	KB	d,B
Pyruvic Acid	**38**	mg/l	10	0.57	100	11/27/2018 06:43	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**15000**	ug/l	0.50	0.014	1	11/29/2018 11:15	BW	n
Ethane	**0.49**	ug/l	0.10	0.0070	1	11/29/2018 11:15	BW	n
Ethene	**1.9**	ug/l	0.10	0.0050	1	11/29/2018 11:15	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720004** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-22R-201811** Date Collected: 11/15/2018 16:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/22/2018 08:08	KB	d
Acetic Acid	**62**	mg/l	10	2.4	100	11/27/2018 08:36	KB	d,B
Propionic Acid	**230**	mg/l	10	0.44	100	11/27/2018 08:36	KB	d,B
Butyric Acid	**12**	mg/l	1.0	0.047	10	11/22/2018 08:08	KB	d,B
Pyruvic Acid	**2.1**	mg/l	1.0	0.057	10	11/22/2018 08:08	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**700**	ug/l	0.50	0.014	1	11/29/2018 11:28	BW	n
Ethane	**1.6**	ug/l	0.10	0.0070	1	11/29/2018 11:28	BW	n
Ethene	**4.2**	ug/l	0.10	0.0050	1	11/29/2018 11:28	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720005** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-58R-201811** Date Collected: 11/15/2018 14:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**24**	ug/l	0.50	0.014	1	11/29/2018 11:43	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 11:43	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 11:43	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 11:43	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720006** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-95-201811** Date Collected: 11/15/2018 15:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**7.3**	ug/l	0.50	0.014	1	11/29/2018 11:56	BW	n
Ethane	**0.64**	ug/l	0.10	0.0070	1	11/29/2018 11:56	BW	n
Ethene	**0.10**	ug/l	0.10	0.0050	1	11/29/2018 11:56	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 11:56	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720007** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **ITMW-9-201811** Date Collected: 11/15/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**29**	ug/l	0.50	0.014	1	11/29/2018 12:09	BW	n
Ethane	**0.13**	ug/l	0.10	0.0070	1	11/29/2018 12:09	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 12:09	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:09	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720008** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-87-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**2.0**	ug/l	0.50	0.014	1	11/29/2018 12:21	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 12:21	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 12:21	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:21	BW	n

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ANALYTICAL RESULTS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID: **287720009** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-38-201811** Date Collected: 11/15/2018 09:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**18**	ug/l	0.50	0.014	1	11/29/2018 12:37	BW	n
Ethane	**0.62**	ug/l	0.10	0.0070	1	11/29/2018 12:37	BW	n
Ethene	**16**	ug/l	0.10	0.0050	1	11/29/2018 12:37	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 12:37	BW	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287720004

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	110	70-130	
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.036	20	21	21	107	106	70-130	1.2	30	d
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
Pyruvic Acid	mg/l	1	20	21	21	100	99	70-130	0.28	30	d

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: DISG/7237 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287720001, 287720002, 287720003, 287720004, 287720005, 287720006, 287720007, 287720008, 287720009

METHOD BLANK: 58691

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58692 58693

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	97	96	80-120	0.86	20	n
Ethane	ug/l	38	41	41	108	109	80-120	0.88	20	n
Ethene	ug/l	35	38	39	109	109	80-120	0.49	20	n
Acetylene	ug/l	33	37	37	113	114	80-120	1.3	20	n

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QUALITY CONTROL DATA

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287720001, 287720002, 287720003, 287720004

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	109	70-130	
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28772 WHIRLPOOL ANNUAL / 60287044

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287720004	TMW-22R-201811			AM23G	EDON/3943
287720001	TMW-26-201811			AM20GAX	DISG/7237
287720002	TMW-25-201811			AM20GAX	DISG/7237
287720003	TMW-21-201811			AM20GAX	DISG/7237
287720004	TMW-22R-201811			AM20GAX	DISG/7237
287720005	MW-58R-201811			AM20GAX	DISG/7237
287720006	MW-95-201811			AM20GAX	DISG/7237
287720007	ITMW-9-201811			AM20GAX	DISG/7237
287720008	MW-87-201811			AM20GAX	DISG/7237
287720009	MW-38-201811			AM20GAX	DISG/7237
287720001	TMW-26-201811			AM23G	EDON/3944
287720002	TMW-25-201811			AM23G	EDON/3944
287720003	TMW-21-201811			AM23G	EDON/3944
287720004	TMW-22R-201811			AM23G	EDON/3944

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Chain of Custody

28772

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Workorder: 60287044 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 11/30/2018

Report / Invoice To	Subcontract To	Requested Analysis
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	Pace Energy P.O. SUB-9567	

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: TSP	Volatile Fatty Acids	Methane, Ethane, Ethene	M,E,A	LAB USE ONLY
1	TMW-26-201811	11/15/2018 11:15	60287044031	Water	2	3	X	X		
2	TMW-25-201811	11/15/2018 13:30	60287044032	Water	2	3	X	X		
3	TMW-21-201811	11/15/2018 15:15	60287044033	Water	2	3	X	X		
4	TMW-22R-201811	11/15/2018 16:50	60287044034	Water	2	3	X	X		
5	MW-58R-201811	11/15/2018 14:00	60287044035	Water		3			X	
6	MW-95-201811	11/15/2018 15:55	60287044037	Water		3			X	
7	ITMW-9-201811	11/15/2018 15:20	60287044038	Water		3			X	
8	MW-87-201811	11/15/2018 13:30	60287044039	Water		3			X	
9	MW-38-201811	11/15/2018 09:55	60287044040	Water		3			X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	Holly Faulkenberry	11.9.18 1800	[illegible]	11.20.18 1145
2				
3				

Comments

Cooler Temperature on Receipt 2 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact Y or N

Cooler Receipt Form

Client Name: Pace **Project:** Whirlpool Annual **Lab Work Order:** 28772

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227864392

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : CG **Date:** 11.20.18

Project Manager Review : ERJ **Date:** 11-20-18

F-PAE-Q-009-rev.01, 3Oct2017

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

December 10, 2018

Nick Zurweller
Ramboll Environ
7500 College Blvd.
Ste. 295
Overland Park, KS 66210

RE: Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Dear Nick Zurweller:
Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church for
Richard Mannz
richard.mannz@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Kristen Drucquer, Ramboll
Tamara House-Knight, Ramboll Environ
M. Wilson

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CERTIFICATIONS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116 / E10426
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

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SAMPLE SUMMARY

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60287140001	TMW-23-201811	Water	11/16/18 09:55	11/17/18 09:00
60287140002	DUP-03-201811	Water	11/16/18 09:55	11/17/18 09:00
60287140003	EB-08-201811	Water	11/16/18 10:30	11/17/18 09:00
60287140004	EB-02-201811	Water	11/16/18 10:53	11/17/18 09:00
60287140005	MW-86-201811	Water	11/16/18 09:40	11/17/18 09:00
60287140006	MW-25-201811	Water	11/16/18 09:25	11/17/18 09:00
60287140007	TMW-16-201811	Water	11/16/18 10:25	11/17/18 09:00
60287140008	TMW-32-201811	Water	11/16/18 09:35	11/17/18 09:00
60287140009	MW-89-201811	Water	11/16/18 09:35	11/17/18 09:00
60287140010	MW-50R-201811	Water	11/16/18 12:10	11/17/18 09:00
60287140011	MW-87-201811	Air	11/15/18 13:30	11/17/18 09:00
60287140012	MW-86-201811	Air	11/16/18 09:40	11/17/18 09:00
60287140013	MW-25-201811	Air	11/16/18 08:00	11/17/18 09:00
60287140014	RW-69-201811	Water	11/16/18 13:15	11/17/18 09:00
60287140015	MW-73-201811	Water	11/16/18 13:20	11/17/18 09:00
60287140016	IW-73-201811	Air	11/14/18 15:10	11/17/18 09:00
60287140017	MW-58R-201811	Air	11/15/18 14:00	11/17/18 09:00
60287140018	RW-69-201811	Air	11/14/18 12:30	11/17/18 09:00
60287140019	MW-95-201811	Air	11/15/18 08:00	11/17/18 09:00
60287140020	ITMW-9-201811	Air	11/15/18 15:20	11/17/18 09:00
60287140021	MW-38-201811	Air	11/15/18 09:55	11/17/18 09:00
60287140022	MW-89-201811	Air	11/14/18 10:10	11/17/18 09:00
60287140023	MW-50R-201811	Air	11/13/18 14:10	11/17/18 09:00
60287140024	TMW-11-201811	Air	11/13/18 16:45	11/17/18 09:00
60287140025	TMW-10-201811	Air	11/13/18 16:55	11/17/18 09:00

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SAMPLE ANALYTE COUNT

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60287140001	**TMW-23-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140002	**DUP-03-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140003	**EB-08-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140004	**EB-02-201811**	EPA 5030B/8260	EAG	38	PASI-K
60287140005	**MW-86-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	1	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140006	**MW-25-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		SM 4500-S-2 D	RMT	1	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140007	**TMW-16-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K
60287140008	**TMW-32-201811**	EPA 6010	EMR	1	PASI-K
		EPA 5030B/8260	EAG	38	PASI-K
		EPA 300.0	WNM	2	PASI-K
		EPA 353.2	LDB	3	PASI-K
		SM 5310C	JDA	1	PASI-K
		SM 5310C	JDA	1	PASI-K

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 6010**
Description: 6010 MET ICP
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 5030B/8260**
Description: 8260 MSV
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
8 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 557295

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 2286313)
  - Carbon disulfide

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557295

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557298

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 557528

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 4500-S-2 D**
Description: 4500S2D Sulfide, Total
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
2 samples were analyzed for SM 4500-S-2 D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 557819

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 60286569009,60286770001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2288550)
  - Chloride
- MSD (Lab ID: 2288551)
  - Chloride

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **EPA 353.2**
Description: 353.2 Nitrogen, NO2/NO3 unpres
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for EPA 353.2. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 5310C**
Description: 5310C TOC
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
4 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Method: **SM 5310C**
Description: 5310C Dissolved Organic Carbon
Client: Ramboll Environ_AR
Date: December 10, 2018

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-16-201811 **Lab ID: 60287140007** Collected: 11/16/18 10:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**186000**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 16:29	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**146**	ug/L	10.0	1.9	1		11/28/18 20:38	67-64-1	
Benzene	**0.13J**	ug/L	1.0	0.060	1		11/28/18 20:38	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 20:38	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:38	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:38	74-83-9	
2-Butanone (MEK)	**1090**	ug/L	100	5.9	10		11/29/18 14:19	78-93-3	
Carbon disulfide	**0.97J**	ug/L	5.0	0.12	1		11/28/18 20:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:38	56-23-5	
Chlorobenzene	**0.33J**	ug/L	1.0	0.21	1		11/28/18 20:38	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:38	75-00-3	
Chloroform	**0.15J**	ug/L	1.0	0.14	1		11/28/18 20:38	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 20:38	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:38	124-48-1	
1,1-Dichloroethane	**0.25J**	ug/L	1.0	0.050	1		11/28/18 20:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:38	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	2.0	10		11/29/18 14:19	75-35-4	
cis-1,2-Dichloroethene	**29.1**	ug/L	10.0	0.80	10		11/29/18 14:19	156-59-2	
trans-1,2-Dichloroethene	**6.8J**	ug/L	10.0	2.0	10		11/29/18 14:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 20:38	100-41-4	
2-Hexanone	**22.0**	ug/L	10.0	1.2	1		11/28/18 20:38	591-78-6	
Methylene chloride	**0.72J**	ug/L	1.0	0.15	1		11/28/18 20:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 20:38	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:38	100-42-5	
1,1,2,2-Tetrachloroethane	**1.6**	ug/L	1.0	0.15	1		11/28/18 20:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 20:38	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 20:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 20:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 20:38	79-00-5	
Trichloroethene	**368**	ug/L	10.0	1.7	10		11/29/18 14:19	79-01-6	
Vinyl chloride	**1.6J**	ug/L	10.0	1.3	10		11/29/18 14:19	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:38	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	106	%	80-119		1		11/28/18 20:38	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	80-117		1		11/28/18 20:38	17060-07-0	
Toluene-d8 (S)	96	%	80-115		1		11/28/18 20:38	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:38		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**480**	mg/L	50.0	14.5	50		12/06/18 19:09	16887-00-6	
Sulfate	**10.9**	mg/L	10.0	2.4	10		12/01/18 19:44	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-16-201811 **Lab ID: 60287140007** Collected: 11/16/18 10:25 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**0.072J**	mg/L	0.10	0.060	1		11/17/18 12:57		
Nitrogen, Nitrite	**0.10**	mg/L	0.10	0.033	1		11/17/18 12:57		
Nitrogen, NO2 plus NO3	**0.18**	mg/L	0.10	0.060	1		11/17/18 12:57		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2980**	mg/L	500	327	500		11/30/18 06:00	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**5910**	mg/L	1000	654	1000		11/27/18 15:16	7440-44-0	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-32-201811 **Lab ID: 60287140008** Collected: 11/16/18 09:35 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**7780**	ug/L	50.0	6.1	1	11/30/18 14:31	12/03/18 16:31	7439-89-6	
8260 MSV	Analytical Method: EPA 5030B/8260								
Acetone	**6.6J**	ug/L	10.0	1.9	1		11/28/18 20:52	67-64-1	
Benzene	ND	ug/L	1.0	0.060	1		11/28/18 20:52	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	0.19	1		11/28/18 20:52	75-27-4	
Bromoform	ND	ug/L	1.0	0.070	1		11/28/18 20:52	75-25-2	
Bromomethane	ND	ug/L	5.0	0.16	1		11/28/18 20:52	74-83-9	
2-Butanone (MEK)	**21.4**	ug/L	10.0	0.59	1		11/28/18 20:52	78-93-3	
Carbon disulfide	**1.2J**	ug/L	5.0	0.12	1		11/28/18 20:52	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.18	1		11/28/18 20:52	56-23-5	
Chlorobenzene	**1.9**	ug/L	1.0	0.21	1		11/28/18 20:52	108-90-7	
Chloroethane	ND	ug/L	1.0	0.15	1		11/28/18 20:52	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		11/28/18 20:52	67-66-3	
Chloromethane	ND	ug/L	1.0	0.080	1		11/28/18 20:52	74-87-3	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		11/28/18 20:52	124-48-1	
1,1-Dichloroethane	ND	ug/L	1.0	0.050	1		11/28/18 20:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		11/28/18 20:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 20:52	75-35-4	
cis-1,2-Dichloroethene	**1.9**	ug/L	1.0	0.080	1		11/29/18 14:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.20	1		11/28/18 20:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.16	1		11/28/18 20:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.14	1		11/28/18 20:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		11/28/18 20:52	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.18	1		11/28/18 20:52	100-41-4	
2-Hexanone	ND	ug/L	10.0	1.2	1		11/28/18 20:52	591-78-6	
Methylene chloride	ND	ug/L	1.0	0.15	1		11/28/18 20:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	0.42	1		11/28/18 20:52	108-10-1	
Styrene	ND	ug/L	1.0	0.12	1		11/28/18 20:52	100-42-5	
1,1,2,2-Tetrachloroethane	**0.41J**	ug/L	1.0	0.15	1		11/28/18 20:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.10	1		11/28/18 20:52	127-18-4	
Toluene	ND	ug/L	1.0	0.17	1		11/28/18 20:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.11	1		11/28/18 20:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.20	1		11/28/18 20:52	79-00-5	
Trichloroethene	**16.0**	ug/L	1.0	0.17	1		11/29/18 14:33	79-01-6	
Vinyl chloride	**0.35J**	ug/L	1.0	0.13	1		11/28/18 20:52	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.42	1		11/28/18 20:52	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	106	%	80-119		1		11/28/18 20:52	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	80-117		1		11/28/18 20:52	17060-07-0	
Toluene-d8 (S)	95	%	80-115		1		11/28/18 20:52	2037-26-5	
Preservation pH	**1.0**		0.10	0.10	1		11/28/18 20:52		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**98.9**	mg/L	10.0	2.9	10		12/01/18 20:00	16887-00-6	
Sulfate	**22.3**	mg/L	10.0	2.4	10		12/01/18 20:00	14808-79-8	

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ANALYTICAL RESULTS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Sample: TMW-32-201811 **Lab ID: 60287140008** Collected: 11/16/18 09:35 Received: 11/17/18 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	mg/L	0.10	0.060	1		11/17/18 12:53		
Nitrogen, Nitrite	ND	mg/L	0.10	0.033	1		11/17/18 12:53		
Nitrogen, NO2 plus NO3	ND	mg/L	0.10	0.060	1		11/17/18 12:53		
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.8**	mg/L	1.0	0.65	1		11/30/18 14:50	7440-44-0	
5310C Dissolved Organic Carbon	Analytical Method: SM 5310C								
Dissolved Organic Carbon	**4.6**	mg/L	1.0	0.65	1		11/27/18 15:54	7440-44-0	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557711 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2288074 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	ND	50.0	6.1	12/03/18 11:43	

LABORATORY CONTROL SAMPLE: 2288075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9960	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288076 2288077

Parameter	Units	60287171008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	371	10000	10000	10200	10300	98	99	75-125	1	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557716 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2288094 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	ug/L	55.1	50.0	6.1	12/03/18 16:24	

LABORATORY CONTROL SAMPLE: 2288095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	ug/L	10000	9630	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288096 2288097

Parameter	Units	60287155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	ug/L	13400	10000	10000	23000	23800	95	104	75-125	4	20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557295 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140001, 60287140002, 60287140003, 60287140004

METHOD BLANK: 2286312 Matrix: Water
Associated Lab Samples: 60287140001, 60287140002, 60287140003, 60287140004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 11:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 11:56	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 11:56	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 11:56	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 11:56	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 11:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 11:56	
Acetone	ug/L	ND	10.0	1.9	11/28/18 11:56	
Benzene	ug/L	ND	1.0	0.060	11/28/18 11:56	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 11:56	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 11:56	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 11:56	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 11:56	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 11:56	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 11:56	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 11:56	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 11:56	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 11:56	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 11:56	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 11:56	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 11:56	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 11:56	
Styrene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 11:56	
Toluene	ug/L	ND	1.0	0.17	11/28/18 11:56	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 11:56	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 11:56	
Trichloroethene	ug/L	ND	1.0	0.17	11/28/18 11:56	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 11:56	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 11:56	
1,2-Dichloroethane-d4 (S)	%	104	80-117		11/28/18 11:56	
4-Bromofluorobenzene (S)	%	101	80-119		11/28/18 11:56	
Toluene-d8 (S)	%	98	80-115		11/28/18 11:56	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

LABORATORY CONTROL SAMPLE: 2286313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	18.9	94	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	19.1	96	74-121	
1,1,2-Trichloroethane	ug/L	20	19.7	99	83-119	
1,1-Dichloroethane	ug/L	20	18.9	94	85-128	
1,1-Dichloroethene	ug/L	20	17.2	86	85-123	
1,2-Dichloroethane	ug/L	20	19.4	97	77-120	
1,2-Dichloropropane	ug/L	20	19.1	96	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	97.9	98	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	97.7	98	66-139	
Acetone	ug/L	100	90.8	91	62-142	
Benzene	ug/L	20	18.9	95	81-118	
Bromodichloromethane	ug/L	20	18.9	95	85-123	
Bromoform	ug/L	20	18.8	94	83-123	
Bromomethane	ug/L	20	10.5	53	39-149	
Carbon disulfide	ug/L	20	15.7	78	85-124	L2
Carbon tetrachloride	ug/L	20	19.2	96	85-126	
Chlorobenzene	ug/L	20	18.7	94	87-118	
Chloroethane	ug/L	20	18.5	92	73-134	
Chloroform	ug/L	20	18.6	93	85-119	
Chloromethane	ug/L	20	12.4	62	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.7	93	84-121	
cis-1,3-Dichloropropene	ug/L	20	19.4	97	80-124	
Dibromochloromethane	ug/L	20	19.5	97	83-122	
Ethylbenzene	ug/L	20	19.1	96	80-118	
Methylene chloride	ug/L	20	19.2	96	81-126	
Styrene	ug/L	20	18.8	94	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	18.2	91	82-118	
trans-1,2-Dichloroethene	ug/L	20	17.9	89	83-121	
trans-1,3-Dichloropropene	ug/L	20	18.9	95	80-122	
Trichloroethene	ug/L	20	20.4	102	82-120	
Vinyl chloride	ug/L	20	15.1	76	74-147	
Xylene (Total)	ug/L	60	54.9	92	81-120	
1,2-Dichloroethane-d4 (S)	%			101	80-117	
4-Bromofluorobenzene (S)	%			102	80-119	
Toluene-d8 (S)	%			99	80-115	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557298 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

METHOD BLANK: 2286322 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	1.0	0.11	11/28/18 17:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.15	11/28/18 17:34	
1,1,2-Trichloroethane	ug/L	ND	1.0	0.20	11/28/18 17:34	
1,1-Dichloroethane	ug/L	ND	1.0	0.050	11/28/18 17:34	
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 17:34	
1,2-Dichloroethane	ug/L	ND	1.0	0.12	11/28/18 17:34	
1,2-Dichloropropane	ug/L	ND	1.0	0.16	11/28/18 17:34	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/28/18 17:34	
2-Hexanone	ug/L	ND	10.0	1.2	11/28/18 17:34	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	0.42	11/28/18 17:34	
Acetone	ug/L	ND	10.0	1.9	11/28/18 17:34	
Benzene	ug/L	ND	1.0	0.060	11/28/18 17:34	
Bromodichloromethane	ug/L	ND	1.0	0.19	11/28/18 17:34	
Bromoform	ug/L	ND	1.0	0.070	11/28/18 17:34	
Bromomethane	ug/L	ND	5.0	0.16	11/28/18 17:34	
Carbon disulfide	ug/L	ND	5.0	0.12	11/28/18 17:34	
Carbon tetrachloride	ug/L	ND	1.0	0.18	11/28/18 17:34	
Chlorobenzene	ug/L	ND	1.0	0.21	11/28/18 17:34	
Chloroethane	ug/L	ND	1.0	0.15	11/28/18 17:34	
Chloroform	ug/L	ND	1.0	0.14	11/28/18 17:34	
Chloromethane	ug/L	ND	1.0	0.080	11/28/18 17:34	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/28/18 17:34	
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.14	11/28/18 17:34	
Dibromochloromethane	ug/L	ND	1.0	0.21	11/28/18 17:34	
Ethylbenzene	ug/L	ND	1.0	0.18	11/28/18 17:34	
Methylene chloride	ug/L	ND	1.0	0.15	11/28/18 17:34	
Styrene	ug/L	ND	1.0	0.12	11/28/18 17:34	
Tetrachloroethene	ug/L	ND	1.0	0.10	11/28/18 17:34	
Toluene	ug/L	ND	1.0	0.17	11/28/18 17:34	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/28/18 17:34	
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.12	11/28/18 17:34	
Trichloroethene	ug/L	0.39J	1.0	0.17	11/28/18 17:34	
Vinyl chloride	ug/L	ND	1.0	0.13	11/28/18 17:34	
Xylene (Total)	ug/L	ND	3.0	0.42	11/28/18 17:34	
1,2-Dichloroethane-d4 (S)	%	107	80-117		11/28/18 17:34	
4-Bromofluorobenzene (S)	%	106	80-119		11/28/18 17:34	
Toluene-d8 (S)	%	102	80-115		11/28/18 17:34	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

LABORATORY CONTROL SAMPLE: 2286323

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.7	98	87-122	
1,1,2,2-Tetrachloroethane	ug/L	20	22.1	110	74-121	
1,1,2-Trichloroethane	ug/L	20	19.9	100	83-119	
1,1-Dichloroethane	ug/L	20	20.0	100	85-128	
1,1-Dichloroethene	ug/L	20	20.0	100	85-123	
1,2-Dichloroethane	ug/L	20	21.4	107	77-120	
1,2-Dichloropropane	ug/L	20	20.2	101	81-126	
2-Butanone (MEK)	ug/L	100	101	101	65-134	
2-Hexanone	ug/L	100	105	105	68-132	
4-Methyl-2-pentanone (MIBK)	ug/L	100	103	103	66-139	
Acetone	ug/L	100	89.4	89	62-142	
Benzene	ug/L	20	20.5	102	81-118	
Bromodichloromethane	ug/L	20	19.3	96	85-123	
Bromoform	ug/L	20	18.9	95	83-123	
Bromomethane	ug/L	20	10.8	54	39-149	
Carbon disulfide	ug/L	20	19.3	97	85-124	
Carbon tetrachloride	ug/L	20	19.8	99	85-126	
Chlorobenzene	ug/L	20	19.1	95	87-118	
Chloroethane	ug/L	20	24.7	124	73-134	
Chloroform	ug/L	20	19.0	95	85-119	
Chloromethane	ug/L	20	24.8	124	20-174	
cis-1,2-Dichloroethene	ug/L	20	18.8	94	84-121	
cis-1,3-Dichloropropene	ug/L	20	20.1	101	80-124	
Dibromochloromethane	ug/L	20	19.1	96	83-122	
Ethylbenzene	ug/L	20	19.2	96	80-118	
Methylene chloride	ug/L	20	20.8	104	81-126	
Styrene	ug/L	20	19.4	97	85-120	
Tetrachloroethene	ug/L	20	17.9	89	87-120	
Toluene	ug/L	20	19.1	95	82-118	
trans-1,2-Dichloroethene	ug/L	20	18.9	94	83-121	
trans-1,3-Dichloropropene	ug/L	20	20.4	102	80-122	
Trichloroethene	ug/L	20	21.7	108	82-120	
Vinyl chloride	ug/L	20	26.1	130	74-147	
Xylene (Total)	ug/L	60	55.9	93	81-120	
1,2-Dichloroethane-d4 (S)	%			102	80-117	
4-Bromofluorobenzene (S)	%			104	80-119	
Toluene-d8 (S)	%			98	80-115	

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557528 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 10 mL Purge
Associated Lab Samples: 60287140006, 60287140007, 60287140008

METHOD BLANK: 2287263 Matrix: Water
Associated Lab Samples: 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	ND	1.0	0.20	11/29/18 12:12	
2-Butanone (MEK)	ug/L	ND	10.0	0.59	11/29/18 12:12	
cis-1,2-Dichloroethene	ug/L	ND	1.0	0.080	11/29/18 12:12	
trans-1,2-Dichloroethene	ug/L	ND	1.0	0.20	11/29/18 12:12	
Trichloroethene	ug/L	0.43J	1.0	0.17	11/29/18 12:12	
Vinyl chloride	ug/L	ND	1.0	0.13	11/29/18 12:12	
1,2-Dichloroethane-d4 (S)	%	109	80-117		11/29/18 12:12	
4-Bromofluorobenzene (S)	%	105	80-119		11/29/18 12:12	
Toluene-d8 (S)	%	98	80-115		11/29/18 12:12	

LABORATORY CONTROL SAMPLE: 2287264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	20	19.4	97	85-123	
2-Butanone (MEK)	ug/L	100	112	112	65-134	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	84-121	
trans-1,2-Dichloroethene	ug/L	20	18.4	92	83-121	
Trichloroethene	ug/L	20	20.9	104	82-120	
Vinyl chloride	ug/L	20	21.5	108	74-147	
1,2-Dichloroethane-d4 (S)	%			107	80-117	
4-Bromofluorobenzene (S)	%			106	80-119	
Toluene-d8 (S)	%			100	80-115	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 556356 Analysis Method: SM 4500-S-2 D
QC Batch Method: SM 4500-S-2 D Analysis Description: 4500S2D Sulfide, Total
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2282714 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	mg/L	ND	0.050	0.023	11/20/18 16:36	

LABORATORY CONTROL SAMPLE: 2282715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	.5	0.48	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2282716 2282717

Parameter	Units	60287027001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide, Total	mg/L	ND	.5	.5	0.48	0.48	95	96	75-125	0	20	

SAMPLE DUPLICATE: 2282718

Parameter	Units	60287027001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	2.7		20	

SAMPLE DUPLICATE: 2282719

Parameter	Units	60287027002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	2.7	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557819 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2288548 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/01/18 16:31	
Sulfate	mg/L	ND	1.0	0.24	12/01/18 16:31	

LABORATORY CONTROL SAMPLE: 2288549

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.6	96	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2288550 2288551

Parameter	Units	60286569009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	<0.29	5	5	4.4	4.4	89	88	90-110	1	15	M1
Sulfate	mg/L	<0.24	5	5	4.8	4.8	96	95	90-110	1	15	

MATRIX SPIKE SAMPLE: 2288552

Parameter	Units	60286770001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	24.0	25	50.8	107	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557949
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140007

METHOD BLANK: 2289235 Matrix: Water
Associated Lab Samples: 60287140007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/06/18 15:48	

LABORATORY CONTROL SAMPLE: 2289236

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	11.0	110	90-110	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 558973 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60287140005, 60287140006

METHOD BLANK: 2293697 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.29	12/08/18 01:22	
Sulfate	mg/L	ND	1.0	0.24	12/08/18 01:22	

LABORATORY CONTROL SAMPLE: 2293698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2293699 2293700

Parameter	Units	60286737028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	183	100	100	290	287	106	103	90-110	1	15	
Sulfate	mg/L	149	100	100	249	247	100	98	90-110	1	15	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 555800 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

METHOD BLANK: 2280436 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.060	11/17/18 12:46	
Nitrogen, Nitrite	mg/L	ND	0.10	0.033	11/17/18 12:46	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.060	11/17/18 12:46	

LABORATORY CONTROL SAMPLE: 2280437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.96	96	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	100	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	98	90-110	

MATRIX SPIKE SAMPLE: 2280438

Parameter	Units	60287143001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	1.0	101	70-130	
Nitrogen, Nitrite	mg/L	ND	1	1.0	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.1	102	90-110	

SAMPLE DUPLICATE: 2280439

Parameter	Units	60287143003 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		20	
Nitrogen, Nitrite	mg/L	ND	ND		20	
Nitrogen, NO2 plus NO3	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557615 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287140005, 60287140006, 60287140007

METHOD BLANK: 2287655 Matrix: Water
Associated Lab Samples: 60287140005, 60287140006, 60287140007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/30/18 00:51	

LABORATORY CONTROL SAMPLE: 2287656

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	107	80-120	

MATRIX SPIKE SAMPLE: 2287657

Parameter	Units	60287477002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	106	50	152	90	80-120	

SAMPLE DUPLICATE: 2287658

Parameter	Units	60287477003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	6.5	6.6	2	25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 557682 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60287140008

METHOD BLANK: 2287966 Matrix: Water
Associated Lab Samples: 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	0.65	11/30/18 12:41	

LABORATORY CONTROL SAMPLE: 2287967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	102	80-120	

MATRIX SPIKE SAMPLE: 2287968

Parameter	Units	60287257002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	5	5.5	97	80-120	

SAMPLE DUPLICATE: 2287969

Parameter	Units	60287257003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	0.88J	0.85J		25	

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QUALITY CONTROL DATA

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

QC Batch: 556798 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Dissolved Organic Carbon
Associated Lab Samples: 60287140007, 60287140008

METHOD BLANK: 2284763 Matrix: Water
Associated Lab Samples: 60287140007, 60287140008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.65	11/27/18 10:46	

LABORATORY CONTROL SAMPLE: 2284764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	5	5.2	104	80-120	

MATRIX SPIKE SAMPLE: 2284765

Parameter	Units	60286720002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	0.81J	5	5.9	103	80-120	

SAMPLE DUPLICATE: 2284766

Parameter	Units	60286720007 Result	Dup Result	RPD	Max RPD	Qualifiers
Dissolved Organic Carbon	mg/L	9.2	9.6	5	25	

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QUALIFIERS

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

BATCH QUALIFIERS

Batch: 557295

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 557298

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 557528

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WHIRLPOOL ANNUAL
Pace Project No.: 60287140

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60287140005	**MW-86-201811**	EPA 3010	557711	EPA 6010	557885
60287140006	**MW-25-201811**	EPA 3010	557711	EPA 6010	557885
60287140007	**TMW-16-201811**	EPA 3010	557716	EPA 6010	557883
60287140008	**TMW-32-201811**	EPA 3010	557716	EPA 6010	557883
60287140001	**TMW-23-201811**	EPA 5030B/8260	557295		
60287140002	**DUP-03-201811**	EPA 5030B/8260	557295		
60287140003	**EB-08-201811**	EPA 5030B/8260	557295		
60287140004	**EB-02-201811**	EPA 5030B/8260	557295		
60287140005	**MW-86-201811**	EPA 5030B/8260	557298		
60287140006	**MW-25-201811**	EPA 5030B/8260	557298		
60287140006	**MW-25-201811**	EPA 5030B/8260	557528		
60287140007	**TMW-16-201811**	EPA 5030B/8260	557298		
60287140007	**TMW-16-201811**	EPA 5030B/8260	557528		
60287140008	**TMW-32-201811**	EPA 5030B/8260	557298		
60287140008	**TMW-32-201811**	EPA 5030B/8260	557528		
60287140005	**MW-86-201811**	SM 4500-S-2 D	556356		
60287140006	**MW-25-201811**	SM 4500-S-2 D	556356		
60287140005	**MW-86-201811**	EPA 300.0	558973		
60287140006	**MW-25-201811**	EPA 300.0	558973		
60287140007	**TMW-16-201811**	EPA 300.0	557819		
60287140007	**TMW-16-201811**	EPA 300.0	557949		
60287140008	**TMW-32-201811**	EPA 300.0	557819		
60287140005	**MW-86-201811**	EPA 353.2	555800		
60287140006	**MW-25-201811**	EPA 353.2	555800		
60287140007	**TMW-16-201811**	EPA 353.2	555800		
60287140008	**TMW-32-201811**	EPA 353.2	555800		
60287140005	**MW-86-201811**	SM 5310C	557615		
60287140006	**MW-25-201811**	SM 5310C	557615		
60287140007	**TMW-16-201811**	SM 5310C	557615		
60287140008	**TMW-32-201811**	SM 5310C	557682		
60287140007	**TMW-16-201811**	SM 5310C	556798		
60287140008	**TMW-32-201811**	SM 5310C	556798		

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CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder

WO# : 60287140

60287140

ALL SHADE

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller nzurweller@ramboll.com

Site Collection Info/Address: Whirlpool

Customer Project Name/Number: 1690010333

State: AR County/City: Fort Smith Time Zone Collected: PT MT CT ET

Phone: 314-633-7325

Email:

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [X] No

Collected by (print): JO Pavlowsky

Purchase Order #:

DW PWS ID #:

Collected by (signature):

Quote #:

DW Location Code #:

Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive [ ] Hold

Turnaround Date Required: Standard

Immediately Packed on Ice? [ ] Yes [ ] No

RUSH: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: DOC

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **

(3)	U	U	I	D	D	U	U	2	4,5

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Project Manager: Rm

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	X	N	NA
Samples in holding time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	8260 Full List VOCs	Volatile Fatty Acids	Dissolved Organic Carbon	Iron (mg/L) TOTAL METALS (mg/L)	Mn, E, E	Mn, E, E, A	Sulfate, nitrate	Sulfate, nitrate, chloride	TOTAL Organic carbon	Sulfide
MW-23-201811	GW	G	11-16-18	0955				3	X									
DUP-03-201811				0955				3	X									
EB-08-201811				1030				3	X									
EB-02-201811				1053				3	X									
Trip Blank				-				2	X									
MW-86-201811				0940				10	X			X		X	X		X	X
MW-25-201811				0925				10	X			X		X	X		X	X
MW-16-201811				1025				12	X	X	X	X	X			X	X	
MW-32-201811				0935				12	X	X	X	X	X			X	X	
MW-89-201811	GW	G		1218				3						X				

↓ LAB USE ONLY: ↓ Lab Sample # / Comments

(3)DG9H (3)DG9Q AG3S BP3U BP3Z BP3N (2)DG9H (3)DG9Q

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet [X] Blue [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used:

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier [ ]

MTJL LAB USE ONLY

Table #:

ACCT #:

Template:

Prelogin:

PM:

PB:

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: 301

Cooler Temp Upon Receipt: 4.9 oC

Cooler Therm Corr. Factor: 0.0 oC

Cooler Temp Corrected: 4.9 oC

Comments:

Trip Blank Received: Y (N) N/A HCL MeOH TSP Other

NonConformance(s): YES / NO

Page: of

Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
JO Pavlowsky / REM	11/16/18 1300		11/17/18 0980
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:
Relinquished by/Company : (Signature)	Date/Time:	Received by/Company : (Signature)	Date/Time:

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F-ALL-C-010-rev.00, 05Jul2018

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT- Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Ramboll

Billing Information: Tamara House-Knight

Address: 7500 College Blvd., Ste 925 Overland Park, KS 66210

Report To: Tamara House-Knight

Email To: thouseknight@ramboll.com

Copy To: Nick Zurweller (see page 1)

Site Collection Info/Address:

Customer Project Name/Number:

State / County/City / Time Zone Collected: PT MT CT ET

Phone:
Email:

Site/Facility ID #

Compliance Monitoring? [ ] Yes [ ] No

Collected by (print):

Purchase Order #

DW PWS ID #:

Quote #

DW Location Code #:

Collected by (signature):

Turnaround Date Required:

Immediately Packed on Ice? [ ] Yes [ ] No

Sample Disposal:
[ ] Dispose as appropriate [ ] Return
[ ] Archive _____
[ ] Hold _____

RUSH:
Same Day Next Day 2 Day 3 Day 4 Day 5 Day
(Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

Container Preservative Type **: D U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses: MEA, nydrogen

LAB Profile/Line: 7444 Line 1

LAB Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples received on ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in holding time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix*	Comp/ Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	MEA	nydrogen	↓ LAB USE ONLY: ↓ Lab Sample # / Comments
MW-50R-20181l	GW	G	11-16-18	1210				3	X		(3)D6Q
MW-87-20181l	A	G	11-15-18	1320				1		X	
MW-86-20181l	A	G	11-16-18	0940				1		X	OTHR
MW-25-20181l	A	G	11-16-18					1		X	
RW-69-20181l	GW	G	11-16-18	1315				3	X		
MW-73-20181l	GW	G	11-16-18	1320				3	X		

Customer Remarks/ Special Conditions/ Possible Hazards:

Type of Ice Used: Wet (Blue) [ ] Dry [ ] None [ ]

SHORT HOLDS PRESENT (< 72 hours): (Y) N N/A

Packing Material Used:

LAB Tracking #:

Radchem sample(s) screened: (<500 cpm): [ ] Y [ ] N [ ] NA

Samples received via: FEDEX [ ] UPS [ ] Client [X] Courier [ ] Pace Courier [ ]

	Date/Time:		Date/Time:
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	11/17 0900
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	
Relinquished by/Company : (Signature)		Received by/Company : (Signature)	

(see page 1)

MTJL LAB USE ONLY

Table #: _____

ACCT #: _____

Template: _____

Prelogin: _____

PM: _____

PB: _____

LAB Sample Temperature Info:

Temp Blank received: Y N NA

Therm ID #: 301

Cooler Temp Upon Receipt: 9.0 oC

Cooler Therm Corr. Factor: 0.0 oC

Cooler Temp Corrected: 9.0 oC

Comments: _____

Trip Blank Received: Y (N) N/A
HCL MeOH TSP Other

NonConformance(s): YES / NO

Page _____ of _____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Report To (optional)		Bill To (optional)	
Contact:	nzurweller@rampoll.com	Contact:	
Company:		Company:	
Address:		Address:	
Address:		Address:	
Phone:	314-833-7325	Phone:	
Fax:		Fax:	
E-Mail:	jpavlowsky@rampoll.com	PO#/Reference#	

Lab Job #: _____

Chain of Custody Number: _____

Page _____ of _____

Temperature °C of Cooler: _____

Client	Client Project #	Preservative	8									
Rampoll	169001033											
Project Name		Parameter	Hydrogen									
Whirlpool Annual												
Project Location/State	Lab Project #											
Fort Smith, AR	(see page 1)											
Sampler	Lab PM											
Johanna Pavlowsky	Richard Mannz											

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	Hydrogen								Comments
		IW-73-201811	11-14-18	1510	1	A	X			THE					
		MW-58R-201811	11-15-18	1400	1										
		RW-69-201811	11-14-18	1230											
		MW-95-201811	11-15-18												
		IMW-9-201811	11-15-18	1520											
		MW-38-201811	11-15-18	0955											
		MW-89-201811	11-14-18	1010											
		MW-50R-201811	11-13-18	1410											
		TMW-11-201811	11-13-18	1645											
		TMW-10-201811	11-13-18	1655	↓	↓	↓			↓					

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days) Standard

___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other

Requested Due Date _____

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
J Pavlowsky	REH	B30 11/16/18				11/17	0900
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier _____

Shipped _____

Hand Delivered _____

Matrix Key

WW – Wastewater	SE – Sediment
W – Water	SO – Soil
S – Solid	L – Leachate
SL – Sludge	WI – Wipe
MS – Miscellaneous	DW – Drinking Water
OL – Oil	O – Other
A – Air	

Client Comments

Lab Comments:

TAL-4124-500 (1209)

Pace Analytical

Sample Receiving Non-Conformance Form (NCF)

Date: 11/17	Evaluated by: JDB
Client: Campbell	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

	Collection date/time missing or incorrect		Analyses or analytes: missing or clarification needed		Samples listed on COC do not match samples received (missing, additional, etc.)
	Sample IDs on COC do not match sample labels		Required trip blanks were not received	X	Required signatures are missing

Comments/Details/Other Issues not listed above: No Trip Blanks received, listed on COC

3. Sample integrity issues: check applicable issues below and add details where appropriate:

	Samples: Past holding time		Samples: Condition needs to be brought to lab personnel's attention (details below)		Preservation: Improper
	Samples: Not field filtered		Containers: Broken or compromised		Temperature: not within acceptance criteria (typically 0-6C)
	Samples: Insufficient volume received		Containers: Incorrect		Temperature: Samples arrived frozen
	Samples: Cooler damaged or compromised		Custody Seals: Missing or compromised on samples, trip blanks or coolers		Vials received with improper headspace
	Samples: contain chlorine or sulfides		Packing Material: Insufficient/Improper		Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:	
PM Initials:	Date/Time:	

Client Comments/Instructions:

Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

December 4, 2018

Richard Mannz
Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

RE: **WHIRLPOOL ANNUAL / 60287140**

Pace Workorder: 28771

Dear Richard Mannz:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, November 20, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 12/04/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 37

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).

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SAMPLE SUMMARY

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID	Sample ID	Matrix	Date Collected	Date Received
287710001	MW-86-201811	Water	11/16/2018 09:40	11/20/2018 11:45
287710002	MW-25-201811	Water	11/16/2018 09:25	11/20/2018 11:45
287710003	MW-89-201811	Water	11/16/2018 09:35	11/20/2018 11:45
287710004	MW-50R-201811	Water	11/16/2018 12:10	11/20/2018 11:45
287710005	RW-69-201811	Water	11/16/2018 13:15	11/20/2018 11:45
287710006	MW-73-201811	Water	11/16/2018 13:20	11/20/2018 11:45
287710007	TMW-16-201811	Water	11/16/2018 10:25	11/20/2018 11:45
287710008	TMW-32-201811	Water	11/16/2018 09:35	11/20/2018 11:45
287710009	MW-87-201811	Bubble Strip	11/15/2018 13:30	11/20/2018 11:45
287710010	MW-86-201811	Bubble Strip	11/16/2018 09:40	11/20/2018 11:45
287710011	MW-25-201811	Bubble Strip	11/16/2018 08:00	11/20/2018 11:45
287710012	IW-73-201811	Bubble Strip	11/14/2018 15:10	11/20/2018 11:45
287710013	MW-58R-201811	Bubble Strip	11/15/2018 14:00	11/20/2018 11:45
287710014	RW-69-201811	Bubble Strip	11/14/2018 12:30	11/20/2018 11:45
287710015	MW-95-201811	Bubble Strip	11/15/2018 08:00	11/20/2018 11:45
287710016	ITMW-9-201811	Bubble Strip	11/15/2018 15:20	11/20/2018 11:45
287710017	MW-38-201811	Bubble Strip	11/15/2018 09:55	11/20/2018 11:45
287710018	MW-89-201811	Bubble Strip	11/14/2018 10:10	11/20/2018 11:45
287710019	MW-50R-201811	Bubble Strip	11/13/2018 14:10	11/20/2018 11:45
287710020	TMW-11-201811	Bubble Strip	11/13/2018 16:45	11/20/2018 11:45
287710021	TMW-10-201811	Bubble Strip	11/13/2018 16:55	11/20/2018 11:45

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PROJECT SUMMARY

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Workorder Comments

The container pH for samples 28771 (0001, 0007) were measured as below the expected pH (< 10) for those samples preserved with trisodium phosphate, as assigned to PAES method AM20GAx.

Sample Comments

Lab ID: 287710013 **Sample ID:** MW-58R-201811 **Sample Type:** N

Sample headspace vial not sufficiently pressurized for analysis. Vial pressurized with an equal volume of UHP Nitrogen and analyzed. Results reported at a dilution.

Batch Comments

Batch: EDON/3943 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 287660001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3944 - Low Level Volatile Fatty Acids

The method blank contains a concentration above the reporting limit. Analyte Acetic acid. Results for this analyte in associated samples may be bias high.

Batch: DISG/7239 - AM20GAX Bubble Strip QC

The percent recovery for the closing calibration verification analysis was above laboratory control limits. Analytes Hydrogen. Results associated to the analytes in samples may be biased high; affected samples flagged accordingly.

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710001** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-86-201811** Date Collected: 11/16/2018 09:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**61**	ug/l	0.50	0.014	1	11/29/2018 08:16	BW	n
Ethane	**9.6**	ug/l	0.10	0.0070	1	11/29/2018 08:16	BW	n
Ethene	**0.78**	ug/l	0.10	0.0050	1	11/29/2018 08:16	BW	n
Acetylene	**3.6**	ug/l	0.50	0.034	1	11/29/2018 08:16	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710002** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-25-201811** Date Collected: 11/16/2018 09:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**72**	ug/l	0.50	0.014	1	11/29/2018 08:28	BW	n
Ethane	**16**	ug/l	0.10	0.0070	1	11/29/2018 08:28	BW	n
Ethene	**1.7**	ug/l	0.10	0.0050	1	11/29/2018 08:28	BW	n
Acetylene	**6.0**	ug/l	0.50	0.034	1	11/29/2018 08:28	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710003** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-89-201811** Date Collected: 11/16/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**12**	ug/l	0.50	0.014	1	11/29/2018 08:46	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 08:46	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 08:46	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 08:46	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710004** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-50R-201811** Date Collected: 11/16/2018 12:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**280**	ug/l	0.50	0.014	1	11/29/2018 08:58	BW	n
Ethane	**0.18**	ug/l	0.10	0.0070	1	11/29/2018 08:58	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 08:58	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 08:58	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710005** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **RW-69-201811** Date Collected: 11/16/2018 13:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**47**	ug/l	0.50	0.014	1	11/29/2018 09:10	BW	n
Ethane	**<0.10**	ug/l	0.10	0.0070	1	11/29/2018 09:10	BW	n
Ethene	**0.16**	ug/l	0.10	0.0050	1	11/29/2018 09:10	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 09:10	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710006** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **MW-73-201811** Date Collected: 11/16/2018 13:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**5.8**	ug/l	0.50	0.014	1	11/29/2018 09:23	BW	n
Ethane	**0.13**	ug/l	0.10	0.0070	1	11/29/2018 09:23	BW	n
Ethene	**<0.10**	ug/l	0.10	0.0050	1	11/29/2018 09:23	BW	n
Acetylene	**<0.50**	ug/l	0.50	0.034	1	11/29/2018 09:23	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710007** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-16-201811** Date Collected: 11/16/2018 10:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<20**	mg/l	20	1.4	100	11/26/2018 23:13	KB	d
Acetic Acid	**1400**	mg/l	100	24	1000	11/27/2018 00:09	KB	d,B
Propionic Acid	**4500**	mg/l	100	4.4	1000	11/27/2018 00:09	KB	d,B
Butyric Acid	**190**	mg/l	100	4.7	1000	11/27/2018 00:09	KB	d,B
Pyruvic Acid	**17**	mg/l	10	0.57	100	11/26/2018 23:13	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**10000**	ug/l	0.50	0.014	1	11/29/2018 09:36	BW	n
Ethane	**5.3**	ug/l	0.10	0.0070	1	11/29/2018 09:36	BW	n
Ethene	**18**	ug/l	0.10	0.0050	1	11/29/2018 09:36	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710008** Date Received: 11/20/2018 11:45 Matrix: Water

Sample ID: **TMW-32-201811** Date Collected: 11/16/2018 09:35

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	**<2.0**	mg/l	2.0	0.14	10	11/22/2018 04:22	KB	d
Acetic Acid	**4.0**	mg/l	1.0	0.24	10	11/22/2018 04:22	KB	d,M3,B,M5
Propionic Acid	**15**	mg/l	1.0	0.044	10	11/22/2018 04:22	KB	d,B
Butyric Acid	**<1.0**	mg/l	1.0	0.047	10	11/22/2018 04:22	KB	d,B
Pyruvic Acid	**<1.0**	mg/l	1.0	0.057	10	11/22/2018 04:22	KB	d
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Methane	**410**	ug/l	0.50	0.014	1	11/30/2018 08:59	BW	n
Ethane	**0.31**	ug/l	0.10	0.0070	1	11/30/2018 08:59	BW	n
Ethene	**0.75**	ug/l	0.10	0.0050	1	11/30/2018 08:59	BW	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710009** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-87-201811** Date Collected: 11/15/2018 13:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**4.7**	nM	1.0	0.65	1	11/27/2018 16:31	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710010** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-86-201811** Date Collected: 11/16/2018 09:40

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**130**	nM	20	13	20	11/29/2018 14:28	MM	d,M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710011** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-25-201811** Date Collected: 11/16/2018 08:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**10**	nM	1.0	0.65	1	11/27/2018 17:09	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710012** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **IW-73-201811** Date Collected: 11/14/2018 15:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**2.6**	nM	1.0	0.65	1	11/27/2018 15:16	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710013** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-58R-201811** Date Collected: 11/15/2018 14:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.6**	nM	2.0	1.3	2	11/29/2018 15:01	MM	d,M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710014** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **RW-69-201811** Date Collected: 11/14/2018 12:30

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**2.6**	nM	1.0	0.65	1	11/27/2018 15:29	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710015** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-95-201811** Date Collected: 11/15/2018 08:00

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.0**	nM	1.0	0.65	1	11/29/2018 15:14	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710016** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **ITMW-9-201811** Date Collected: 11/15/2018 15:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**4.4**	nM	1.0	0.65	1	11/29/2018 15:31	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710017** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-38-201811** Date Collected: 11/15/2018 09:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**5.5**	nM	1.0	0.65	1	11/29/2018 15:44	MM	M1,n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710018** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-89-201811** Date Collected: 11/14/2018 10:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**6.3**	nM	1.0	0.65	1	11/27/2018 15:41	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710019** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **MW-50R-201811** Date Collected: 11/13/2018 14:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**3.3**	nM	1.0	0.65	1	11/27/2018 15:53	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710020** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **TMW-11-201811** Date Collected: 11/13/2018 16:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**6.7**	nM	1.0	0.65	1	11/27/2018 16:06	MM	n

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ANALYTICAL RESULTS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID: **287710021** Date Received: 11/20/2018 11:45 Matrix: Bubble Strip

Sample ID: **TMW-10-201811** Date Collected: 11/13/2018 16:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
RISK - PAES								
Analysis Desc: AM20GAX		Analytical Method: AM20GAX						
Hydrogen	**11**	nM	1.0	0.65	1	11/27/2018 16:19	MM	n

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
ND	Not detected at or above reporting limit.
DF	Dilution Factor.
S	Surrogate.
RPD	Relative Percent Difference.
% Rec	Percent Recovery.
U	Indicates the compound was analyzed for, but not detected at or above the noted concentration.
J	Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.
B	The analyte was detected in the associated blank.
d	The analyte concentration was determined from a dilution.
M1	The continuing calibration verification recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
M3	The matrix spike sample recovery was outside laboratory control limits.

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: EDON/3943 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287710008

METHOD BLANK: 58618

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.25	0.10	M3,B,M5
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58619

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	110	70-130	
Acetic Acid	mg/l	2	2.3	114	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.1	105	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58620 58621 Original: 287660001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.036	20	21	21	107	106	70-130	1.2	30	d
Acetic Acid	mg/l	120	20	150	150	145	150	70-130	0.67	30	d,M3,B,M5
Propionic Acid	mg/l	73	20	87	88	70	73	70-130	0.5	30	d,B
Butyric Acid	mg/l	4.7	20	26	26	106	107	70-130	0.76	30	d,B
Pyruvic Acid	mg/l	1	20	21	21	100	99	70-130	0.28	30	d

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7234 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710009, 287710011, 287710012, 287710014, 287710018, 287710019, 287710020, 287710021

METHOD BLANK: 58669

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 58671 58673

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Hydrogen	nM	24	25	26	103	107	80-120	3.5	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7237 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710001, 287710002, 287710003, 287710004, 287710005, 287710006, 287710007

METHOD BLANK: 58691

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n
Acetylene	ug/l	<0.50	0.50	n

LABORATORY CONTROL SAMPLE & LCSD: 58692 58693

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	720	720	97	96	80-120	0.86	20	n
Ethane	ug/l	38	41	41	108	109	80-120	0.88	20	n
Ethene	ug/l	35	38	39	109	109	80-120	0.49	20	n
Acetylene	ug/l	33	37	37	113	114	80-120	1.3	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: EDON/3944 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 287710007

METHOD BLANK: 58694

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	<0.20	0.20	
Acetic Acid	mg/l	0.32	0.10	B
Propionic Acid	mg/l	<0.10	0.10	B
Butyric Acid	mg/l	<0.10	0.10	B
Pyruvic Acid	mg/l	<0.10	0.10	

LABORATORY CONTROL SAMPLE: 58695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.2	109	70-130	
Acetic Acid	mg/l	2	2.4	119	70-130	B
Propionic Acid	mg/l	2	2.1	106	70-130	B
Butyric Acid	mg/l	2	2.1	104	70-130	B
Pyruvic Acid	mg/l	2	2.0	99	70-130	

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7238 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710008

METHOD BLANK: 58700

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Methane	ug/l	<0.50	0.50	n
Ethane	ug/l	<0.10	0.10	n
Ethene	ug/l	<0.10	0.10	n

LABORATORY CONTROL SAMPLE & LCSD: 58701 58702

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Methane	ug/l	750	730	710	97	95	80-120	2.5	20	n
Ethane	ug/l	38	40	40	106	105	80-120	1.5	20	n
Ethene	ug/l	35	38	37	106	104	80-120	2.4	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58713 58714 Original: 287680007

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	210	750	840	850	85	86	70-130	0.97	20	n
Ethane	ug/l	1.3	38	37	36	94	93	70-130	1.4	20	n
Ethene	ug/l	1.1	35	34	33	93	91	70-130	2.9	20	n

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 58719 58720 Original: 288320003

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK											
Methane	ug/l	300	750	930	970	84	89	70-130	4.3	20	n
Ethane	ug/l	7.4	38	49	50	110	111	70-130	1.2	20	n
Ethene	ug/l	17	35	55	56	108	109	70-130	0.36	20	n

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QUALITY CONTROL DATA

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QC Batch: DISG/7239 Analysis Method: AM20GAX

QC Batch Method: AM20GAX

Associated Lab Samples: 287710010, 287710013, 287710015, 287710016, 287710017

METHOD BLANK: 58707

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
RISK				
Hydrogen	nM	<1.0	1.0	n

LABORATORY CONTROL SAMPLE & LCSD: 58708 58709

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
RISK										
Hydrogen	nM	12	13	13	109	109	80-120	0.27	20	n

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QUALITY CONTROL DATA QUALIFIERS

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

QUALITY CONTROL PARAMETER QUALIFIERS

B	The analyte was detected in the associated blank.
M3	The matrix spike sample recovery was outside laboratory control limits.
M5	The matrix spike duplicate sample recovery was outside laboratory control limits.
d	The analyte concentration was determined from a dilution.
n	The laboratory does not hold NELAP/TNI accreditation for this method or analyte.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 28771 WHIRLPOOL ANNUAL / 60287140

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
287710008	TMW-32-201811			AM23G	EDON/3943
287710009	MW-87-201811			AM20GAX	DISG/7234
287710011	MW-25-201811			AM20GAX	DISG/7234
287710012	IW-73-201811			AM20GAX	DISG/7234
287710014	RW-69-201811			AM20GAX	DISG/7234
287710018	MW-89-201811			AM20GAX	DISG/7234
287710019	MW-50R-201811			AM20GAX	DISG/7234
287710020	TMW-11-201811			AM20GAX	DISG/7234
287710021	TMW-10-201811			AM20GAX	DISG/7234
287710001	MW-86-201811			AM20GAX	DISG/7237
287710002	MW-25-201811			AM20GAX	DISG/7237
287710003	MW-89-201811			AM20GAX	DISG/7237
287710004	MW-50R-201811			AM20GAX	DISG/7237
287710005	RW-69-201811			AM20GAX	DISG/7237
287710006	MW-73-201811			AM20GAX	DISG/7237
287710007	TMW-16-201811			AM20GAX	DISG/7237
287710007	TMW-16-201811			AM23G	EDON/3944
287710008	TMW-32-201811			AM20GAX	DISG/7238
287710010	MW-86-201811			AM20GAX	DISG/7239
287710013	MW-58R-201811			AM20GAX	DISG/7239
287710015	MW-95-201811			AM20GAX	DISG/7239
287710016	ITMW-9-201811			AM20GAX	DISG/7239
287710017	MW-38-201811			AM20GAX	DISG/7239

CERTIFICATE OF ANALYSIS

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Chain of Custody

28771

Pace Analytical®
www.pacelabs.com

Workorder: 60287140 **Workorder Name:** WHIRLPOOL ANNUAL **Results Requested By:** 12/3/2018

Report / Invoice To	Subcontract To
Richard Mannz Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Email: richard.mannz@pacelabs.com	P.O. SUB-9572

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers						Requested Analysis												LAB USE ONLY
					Unpreserved	TSP	Other				M,E,A	Hydrogen		Volatile Fatty Acids		Methane, Ethane, Ethene							
1	MW-86-201811	11/16/2018 09:40	60287140005	Water		3					X												
2	MW-25-201811	11/16/2018 09:25	60287140006	Water		3					X												
3	MW-89-201811	11/16/2018 09:35	60287140009	Water		3					X												
4	MW-50R-201811	11/16/2018 12:10	60287140010	Water		3					X												
5	RW-69-201811	11/16/2018 13:15	60287140014	Water		3					X												
6	MW-73-201811	11/16/2018 13:20	60287140015	Water		3					X												
7	TMW-16-201811	11/16/2018 10:25	60287140007	Water	2	3								X		X							
8	TMW-32-201811	11/16/2018 09:35	60287140008	Water	2	3								X		X							
9	MW-87-201811	11/15/2018 13:30	60287140011	Air			1					X											
10	MW-86-201811	11/16/2018 09:40	60287140012	Air			1					X											
11	MW-25-201811	11/16/2018 08:00	60287140013	Air			1					X											
12	IW-73-201811	11/14/2018 15:10	60287140016	Air			1					X											
13	MW-58R-201811	11/15/2018 14:00	60287140017	Air			1					X											
14	RW-69-201811	11/14/2018 12:30	60287140018	Air			1					X											
15	MW-95-201811	11/15/2018 08:00	60287140019	Air			1					X											
16	ITMW-9-201811	11/15/2018 15:20	60287140020	Air			1					X											
17	MW-38-201811	11/15/2018 09:55	60287140021	Air			1					X											
18	MW-89-201811	11/14/2018 10:10	60287140022	Air			1					X											
19	MW-50R-201811	11/13/2018 14:10	60287140023	Air			1					X											
20	TMW-11-201811	11/13/2018 16:45	60287140024	Air			1					X											
21	TMW-10-201811	11/13/2018 16:55	60287140025	Air			1					X											

28771

					Comments
Transfers	Released By	Date/Time	Received By	Date/Time	
1	Holly Fowler PASI	11/18 1800	[illegible] PASI	11.20.18	1145
2					
3					

Cooler Temperature on Receipt 2 °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N

Cooler Receipt Form

Client Name: Pace **Project:** Whirlpool Annual **Lab Work Order:** 28771

A. **Shipping/Container Information** (circle appropriate response)

Courier: (FedEx) UPS USPS Client Other:_____ **Air bill Present:** (Yes) No

Tracking Number: 454227864392

Custody Seal on Cooler/Box Present: (Yes) No **Seals Intact:** (Yes) No

Cooler/Box Packing Material: (Bubble Wrap) Absorbent Foam Other:_____

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 2°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments:_____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?		✓		

Comments:_____

_____

Cooler contents examined/received by : LY **Date:** 11-20-18

Project Manager Review : ERJ **Date:** 11-20-18

F-PAE-Q-009-rev.01, 3Oct2017

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Nick Zurweller
Ramboll Environ
1807 Park 270 Drive
Suite 450
St. Louis, MO 63146

Phone: 314-590-2977

Fax:

Identifier: 050PK **Date Rec:** 11/14/2018 **Report Date:** 11/21/2018

Client Project #: 1690010633 **Client Project Name:** Whirlpool Fort Smith

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

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MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**TMW-10-201811**	**TMW-11-201811**	**MW-50R-201811**	**RW-69-201811**	**IW-73-201811**
Sample Date:		11/13/2018	11/13/2018	11/13/2018	11/14/2018	11/14/2018
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	<2.00E+00	<2.00E+00	<5.00E-01	**2.00E-01 (J)**	**2.10E+00**
tceA Reductase	TCE	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	**3.00E-01 (J)**
Vinyl Chloride Reductase	VCR	<2.00E+00	<2.00E+00	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**MW-89-201811**	**MW-58R-201811**	**MW-95-201811**	**MW-38-201811**	**MW-87-201811**
Sample Date:		11/14/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	<5.00E-01	**2.67E+01**	<5.00E-01
tceA Reductase	TCE	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01	**3.00E+01**	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Ramboll Environ**
Project: Whirlpool Fort Smith

MI Project Number: **050PK**
Date Received: 11/14/2018

Sample Information

Client Sample ID:		**ITMW-9-201811**	**MW-25-201811**	**MW-86-201811**
Sample Date:		11/15/2018	11/16/2018	11/16/2018
Units:		cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS
Dechlorinating Bacteria				
Dehalococcoides	*DHC*	<5.00E-01	<5.00E-01	<5.00E-01
tceA Reductase	TCE	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	<5.00E-01	<5.00E-01	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **11/14/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/14/2018	11/20/2018	1 °C	112%	non-detect	non-detect
BVC	11/14/2018	11/20/2018	1 °C	102%	non-detect	non-detect
TCE	11/14/2018	11/20/2018	1 °C	101%	non-detect	non-detect
VCR	11/14/2018	11/20/2018	1 °C	97%	non-detect	non-detect

Samples Received **11/15/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/15/2018	11/20/2018	0 °C	98%	non-detect	non-detect
BVC	11/15/2018	11/20/2018	0 °C	102%	non-detect	non-detect
TCE	11/15/2018	11/20/2018	0 °C	101%	non-detect	non-detect
VCR	11/15/2018	11/20/2018	0 °C	97%	non-detect	non-detect

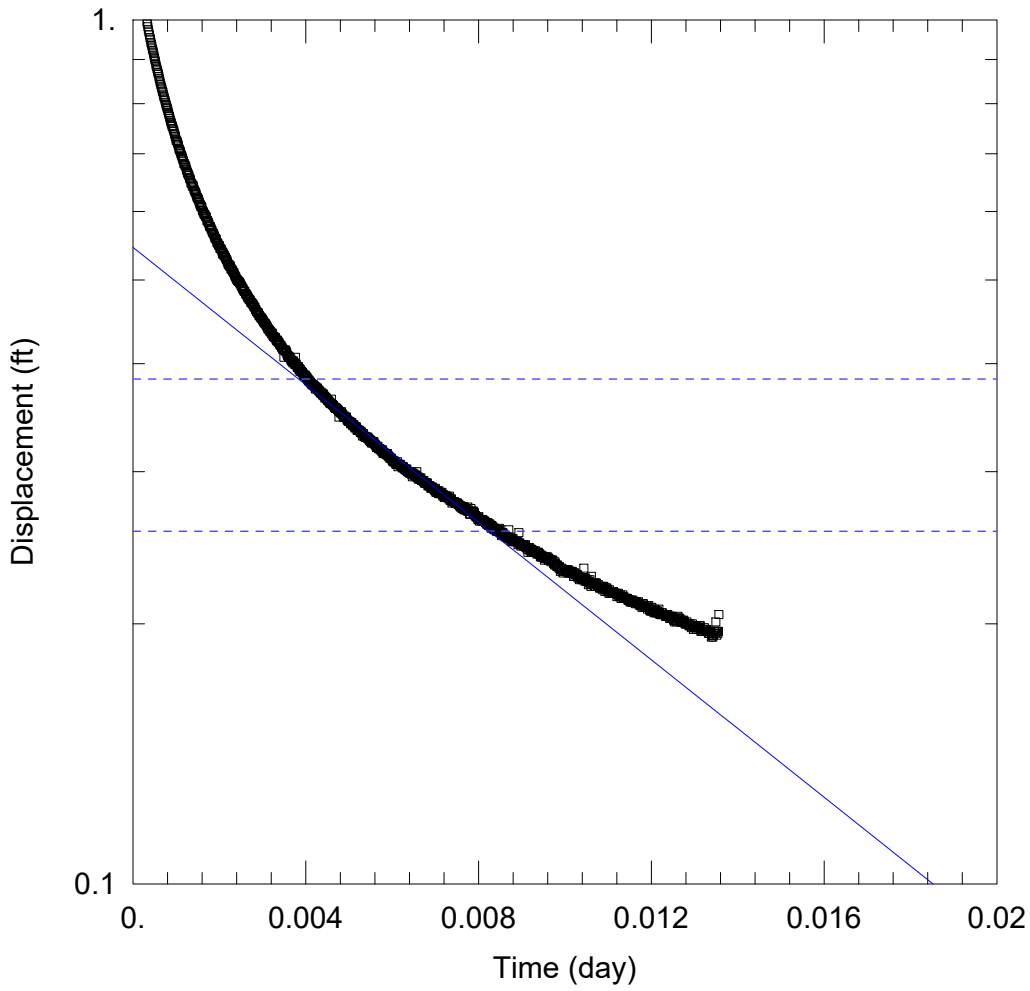
Samples Received **11/16/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/16/2018	11/20/2018	1 °C	103%	non-detect	non-detect
BVC	11/16/2018	11/20/2018	1 °C	101%	non-detect	non-detect
TCE	11/16/2018	11/20/2018	1 °C	100%	non-detect	non-detect
VCR	11/16/2018	11/20/2018	1 °C	97%	non-detect	non-detect
DHC	11/16/2018	11/20/2018	1 °C	99%	non-detect	non-detect

Samples Received **11/17/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	11/17/2018	11/20/2018	0 °C	103%	non-detect	non-detect
BVC	11/17/2018	11/20/2018	0 °C	101%	non-detect	non-detect
TCE	11/17/2018	11/20/2018	0 °C	100%	non-detect	non-detect
VCR	11/17/2018	11/20/2018	0 °C	97%	non-detect	non-detect

Appendix D
Slug Tests



SLUG TEST FOR MW-61R (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\MW-61R_Falling.aqt
Date: 08/30/18 Time: 11:01:57

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: MW-61R

AQUIFER DATA

Saturated Thickness: 8.36 ft Anisotropy Ratio (Kz/Kr): 1.

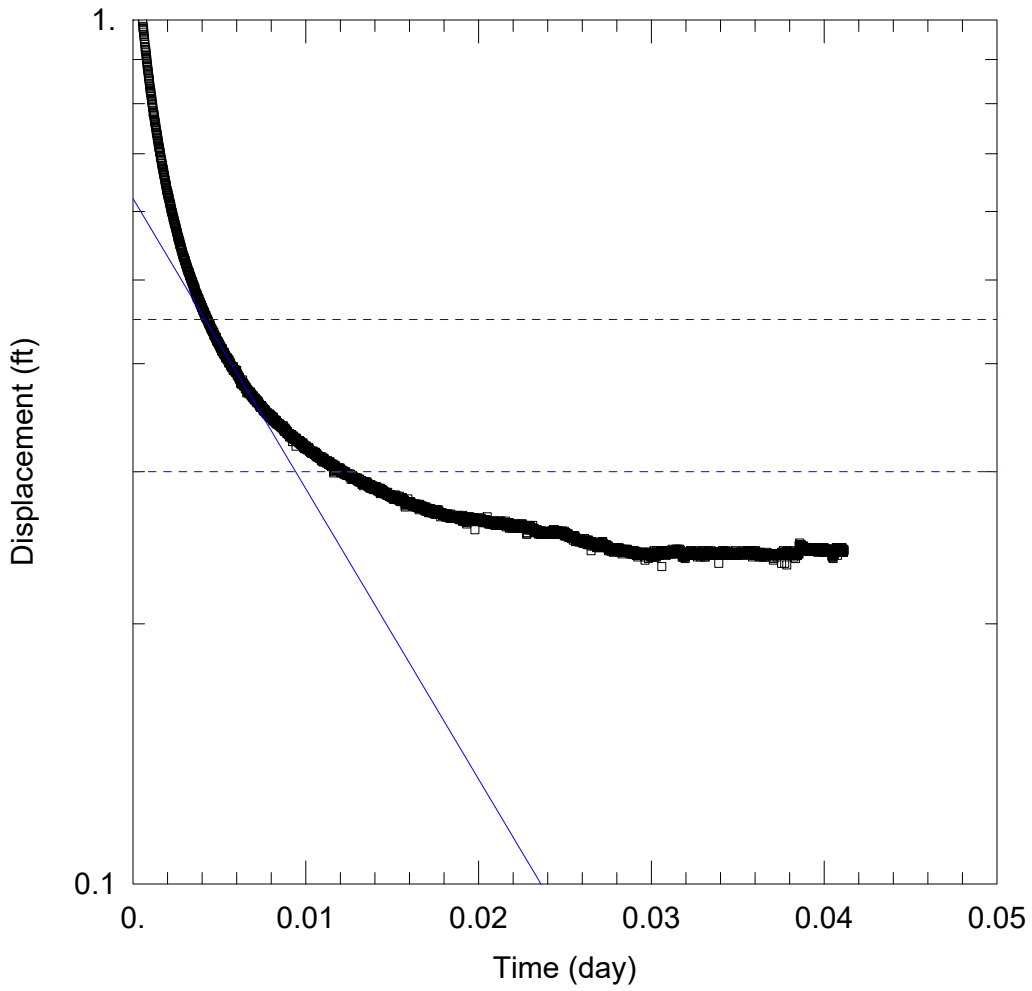
WELL DATA (MW-61R)

Initial Displacement: 1.28 ft
Total Well Penetration Depth: 8.36 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.36 ft
Screen Length: 5. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.1592 ft/day
y0 = 0.5454 ft



SLUG TEST FOR MW-61R (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\MW-61R_Rising.aqt
Date: 08/30/18 Time: 11:15:33

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: MW-61R

AQUIFER DATA

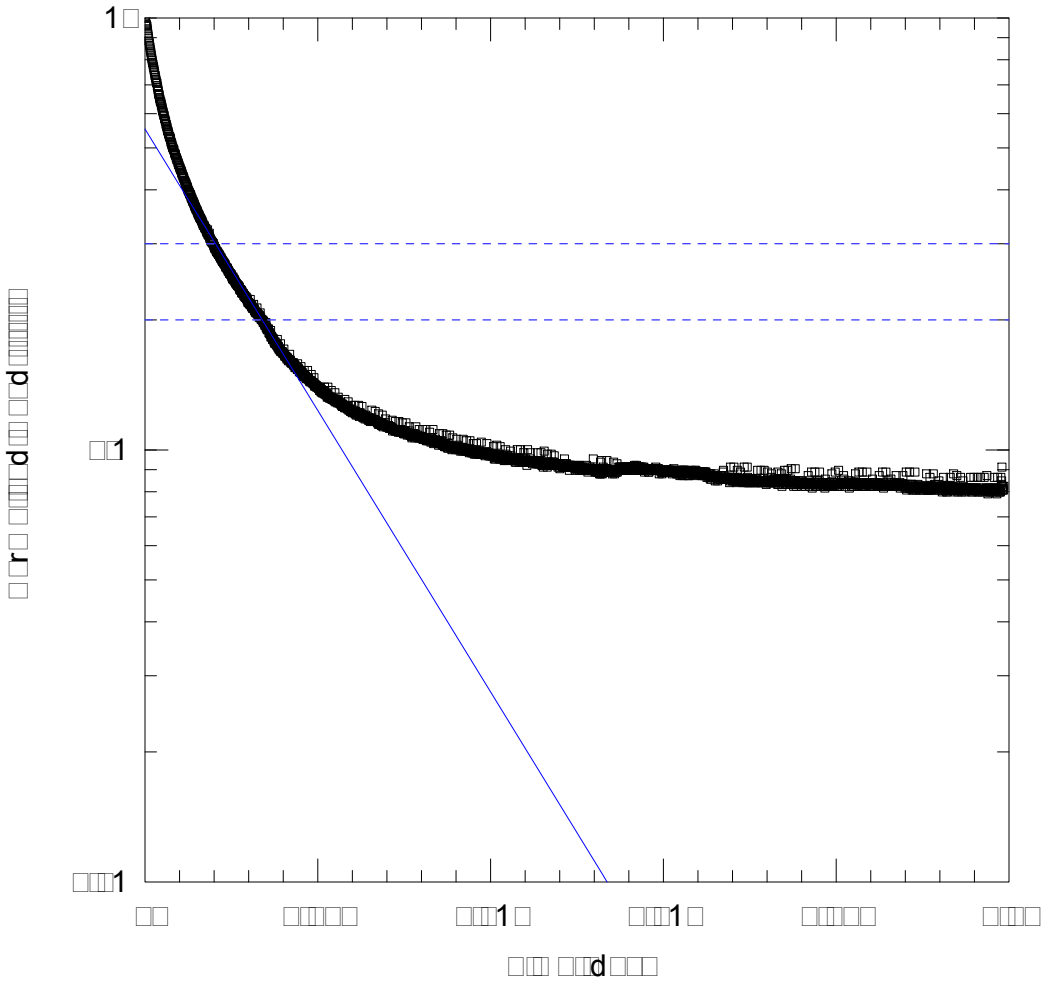
Saturated Thickness: 8.36 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-61R)

Initial Displacement: 1.5 ft
Total Well Penetration Depth: 8.36 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.36 ft
Screen Length: 5. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1345 ft/day
y0 = 0.6213 ft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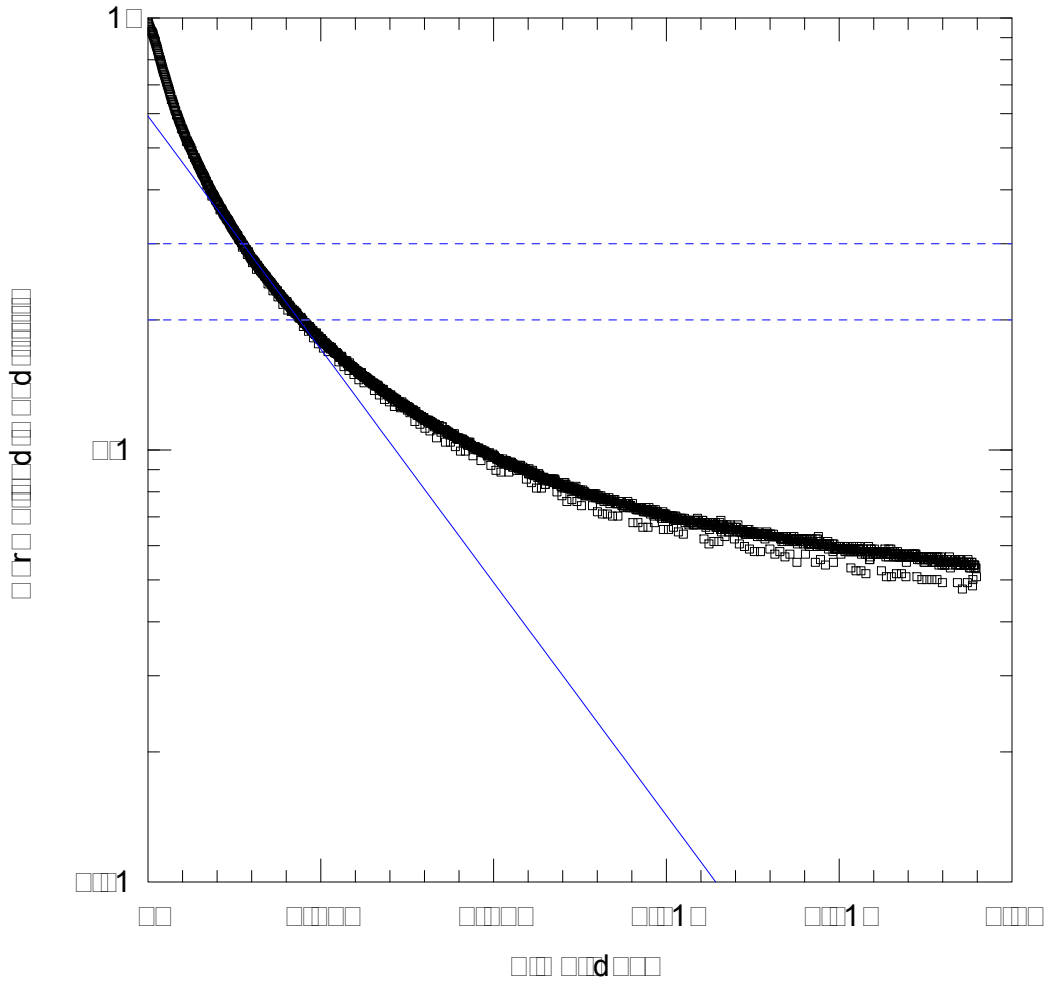
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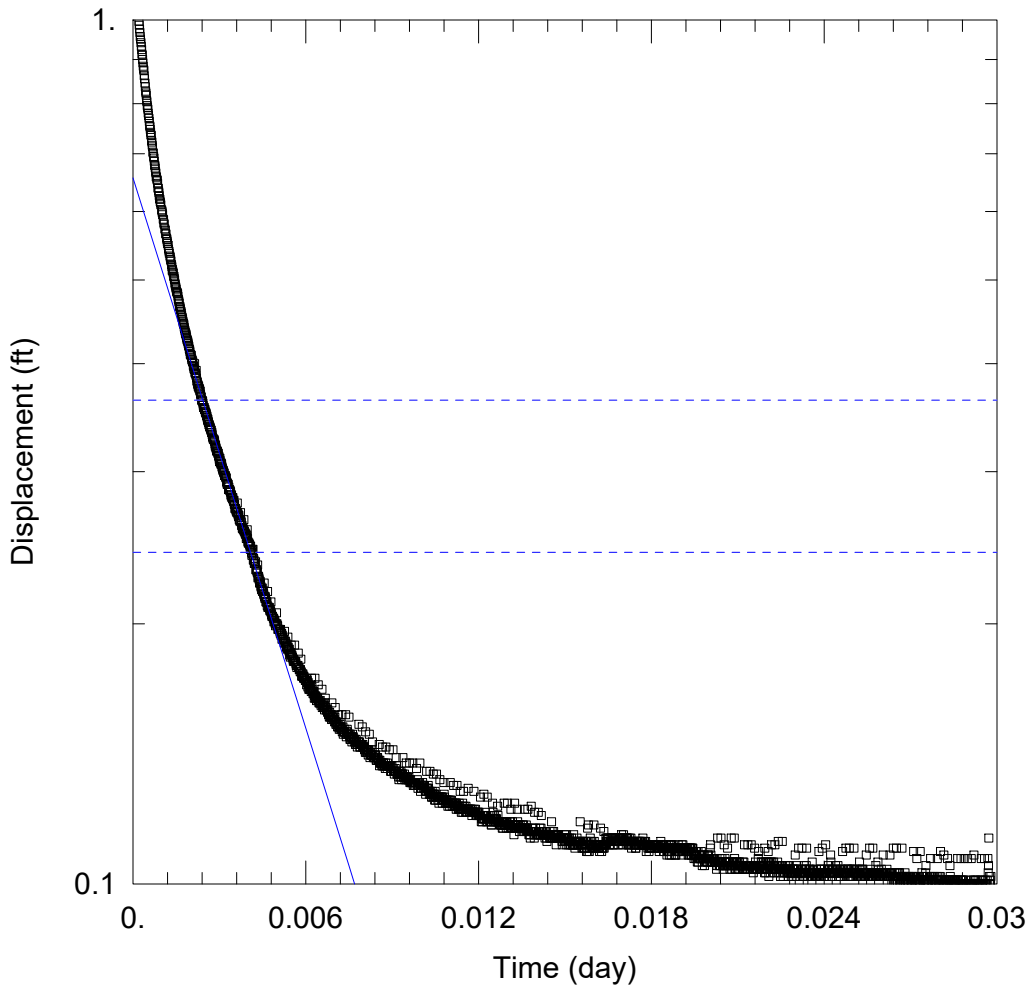


SLUG TEST FOR MW-186 (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\MW-186_Falling.aqt
Date: 09/04/18 Time: 11:57:02

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: MW-186

AQUIFER DATA

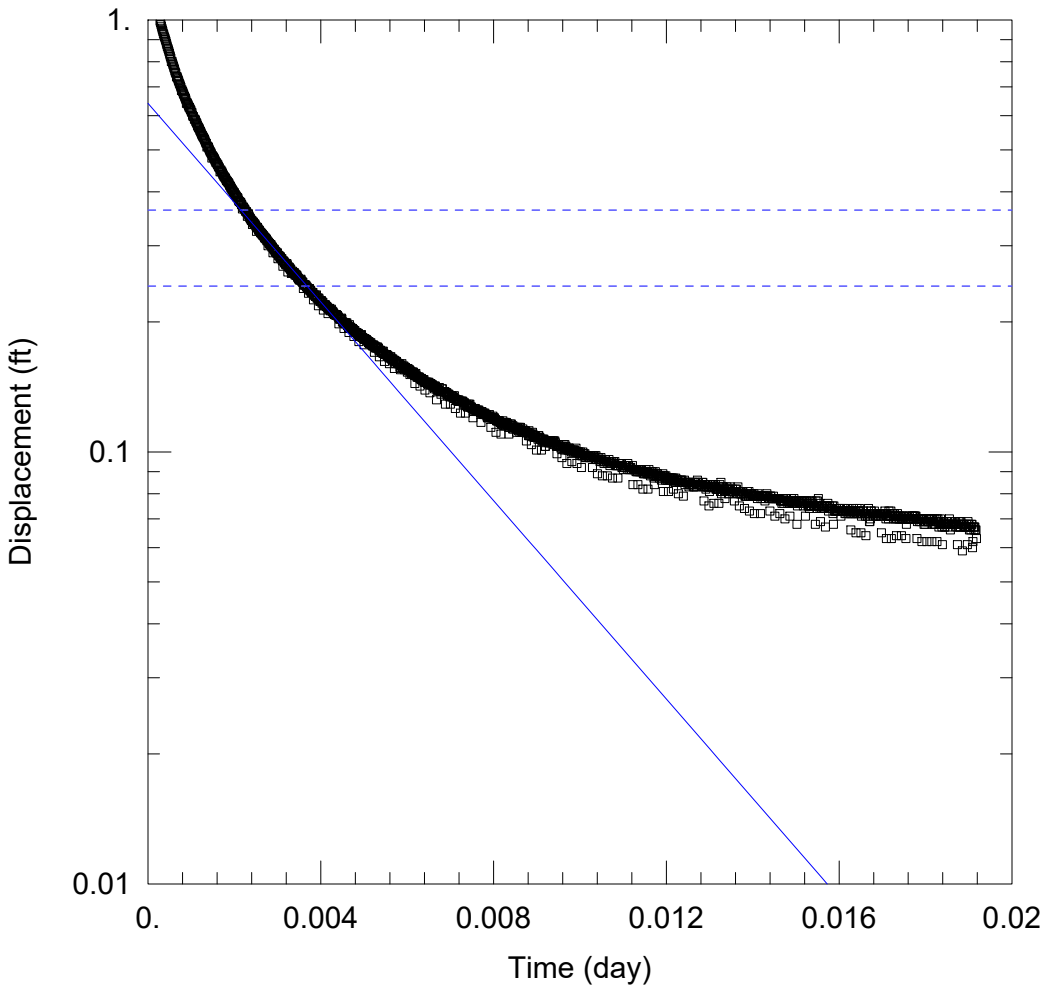
Saturated Thickness: 14.04 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-186)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 14.04 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.04 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2317 ft/day
y0 = 0.6562 ft



SLUG TEST FOR MW-186 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\MW-186_Rising.aqt
Date: 09/04/18 Time: 12:06:56

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: MW-186

AQUIFER DATA

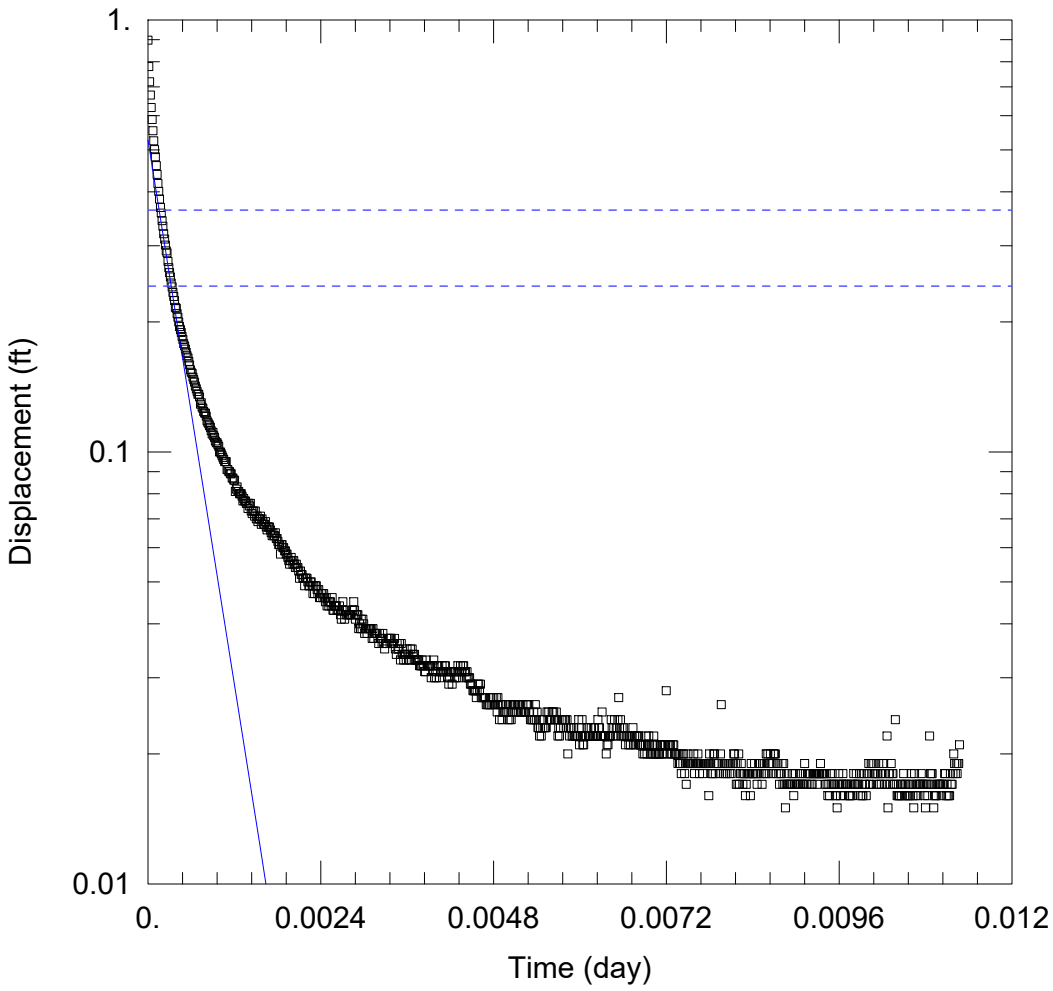
Saturated Thickness: 14.04 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-186)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 14.04 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.04 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2509 ft/day
y0 = 0.641 ft



SLUG TEST FOR MW-194 (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\MW-194_Falling.aqt
Date: 08/29/18 Time: 15:45:29

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: MW-194

AQUIFER DATA

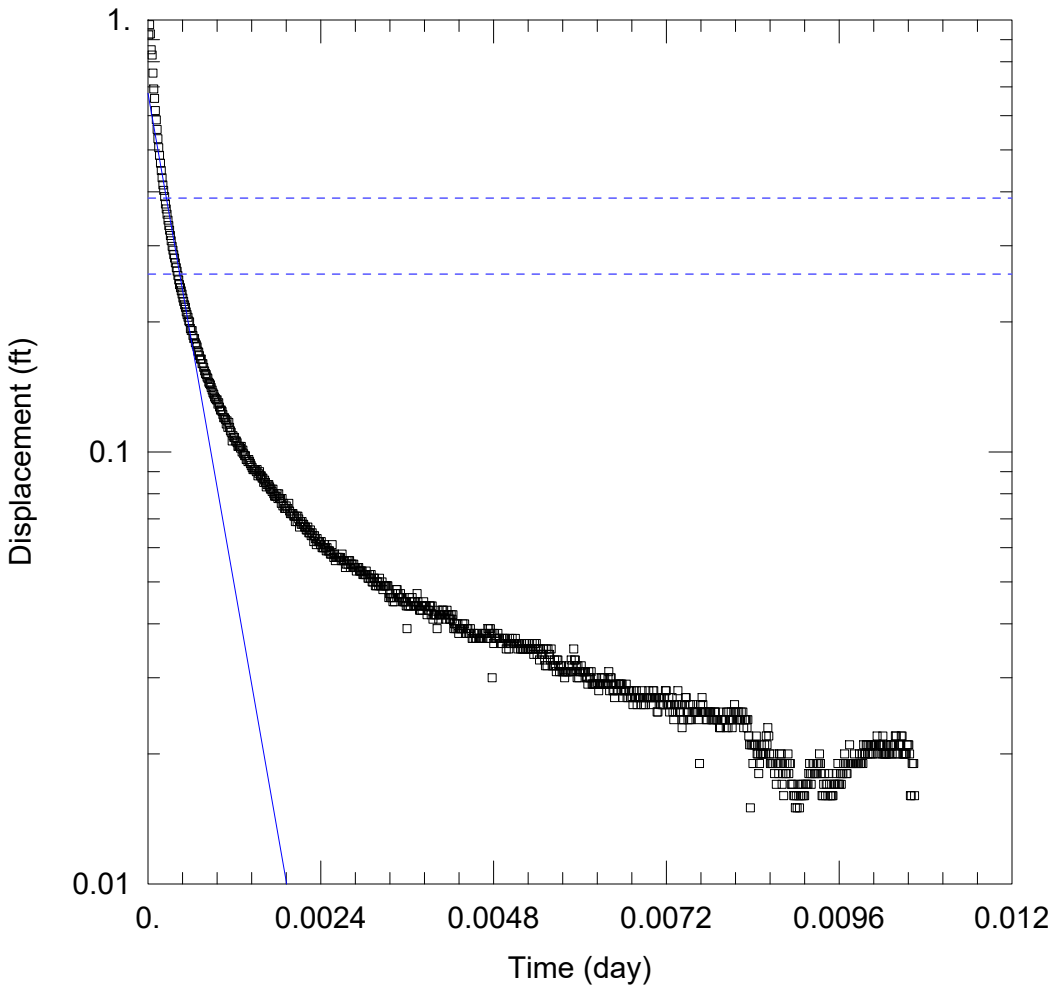
Saturated Thickness: 15.77 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-194)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 15.77 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.77 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.351 ft/day
y0 = 0.5275 ft



SLUG TEST FOR MW-194 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\MW-194_Rising.aqt
Date: 08/29/18 Time: 15:49:03

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: MW-194

AQUIFER DATA

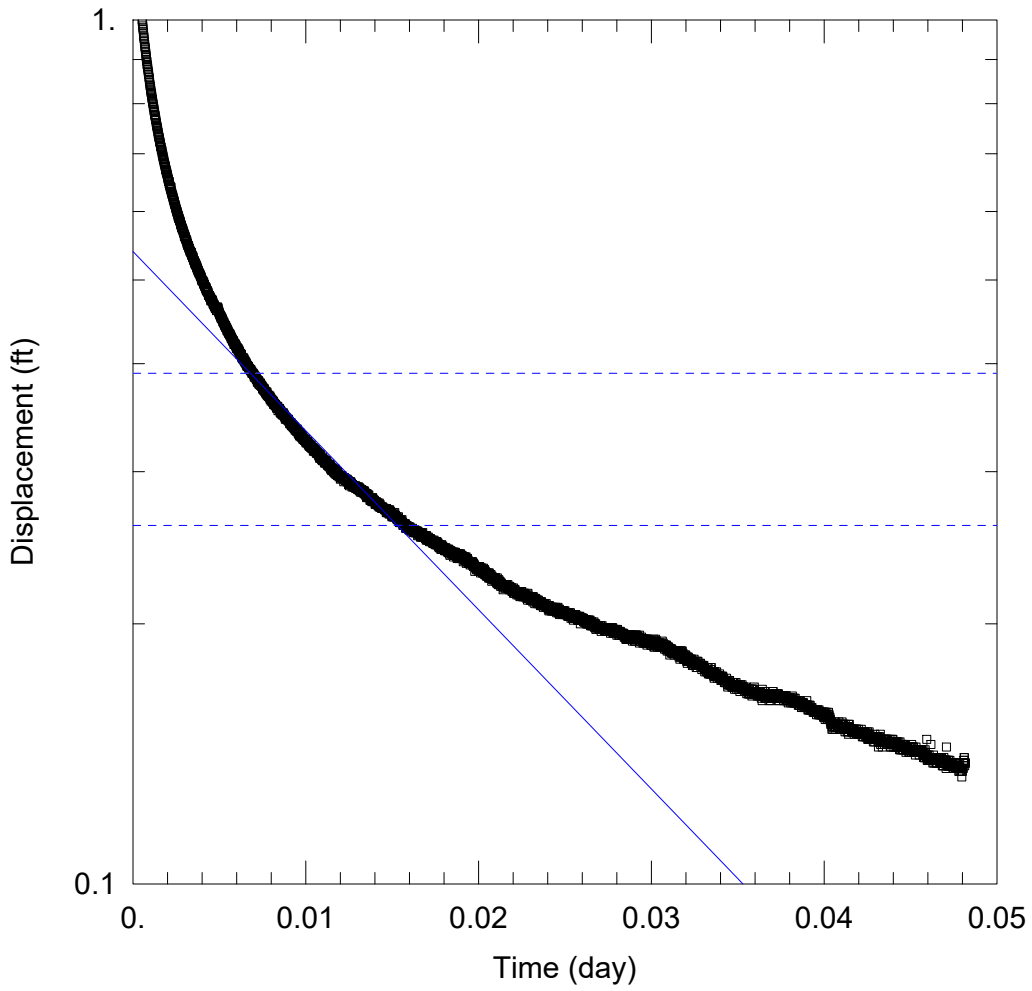
Saturated Thickness: 15.77 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-194)

Initial Displacement: 1.29 ft
Total Well Penetration Depth: 15.77 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.77 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.127 ft/day
y0 = 0.6765 ft



SLUG TEST FOR TMW-10 (FALLING HEAD)

Data Set:
Date: 08/30/18 Time: 10:07:44

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-10

AQUIFER DATA

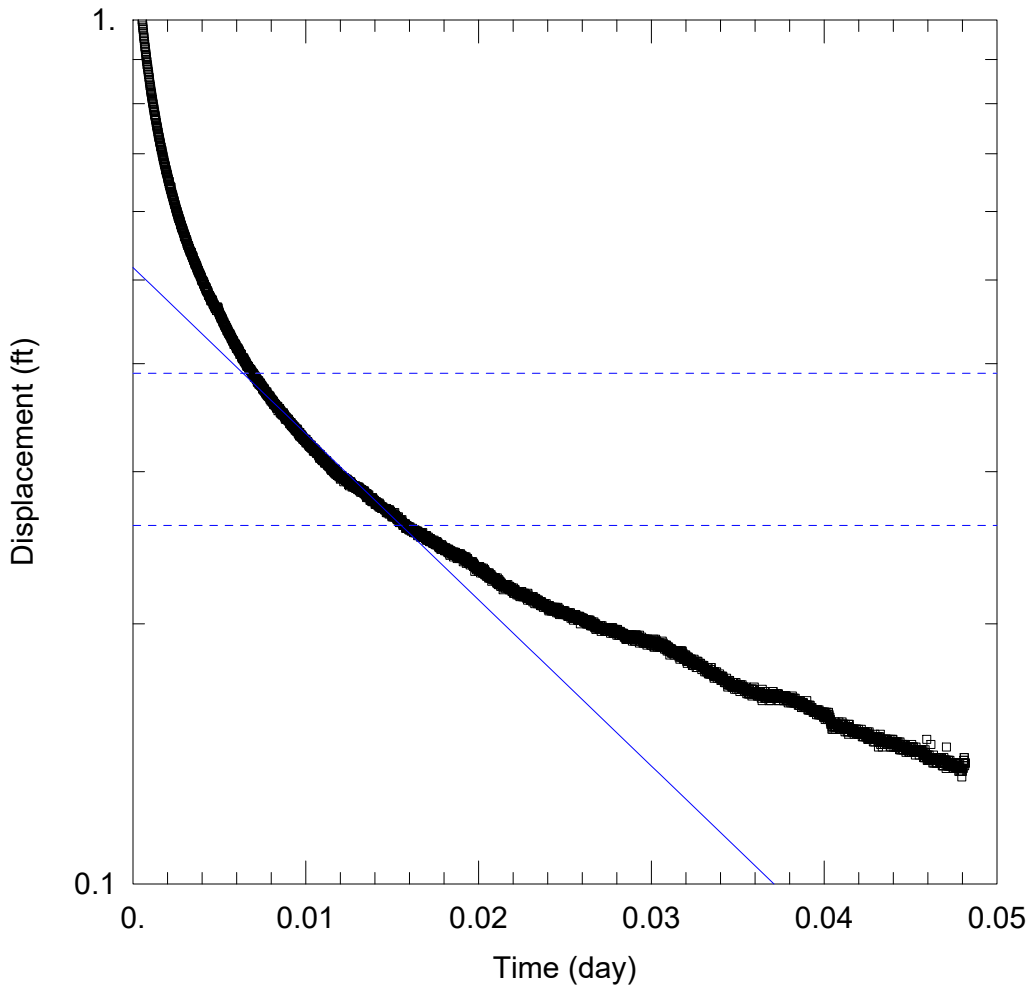
Saturated Thickness: 8.26 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-10)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 8.26 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.26 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07342 ft/day
y0 = 0.5395 ft



SLUG TEST FOR TMW-10 (FALLING HEAD, CONFINED)

Data Set: H:\...\TMW-10_Falling_Confined.aqt
Date: 09/04/18 Time: 13:46:27

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-10

AQUIFER DATA

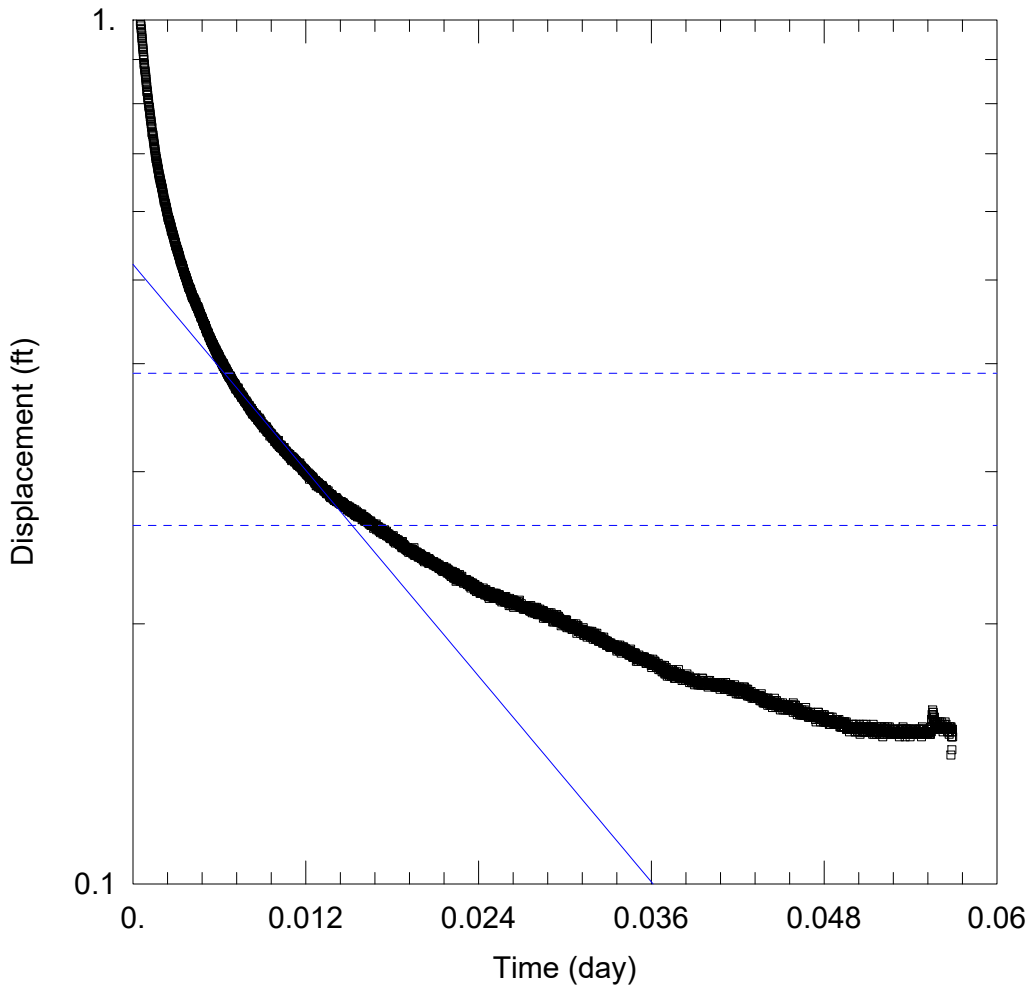
Saturated Thickness: 8.26 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-10)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 8.26 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.26 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0681 ft/day
y0 = 0.517 ft



SLUG TEST FOR TMW-10 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-10_Rising.aqt
Date: 08/30/18 Time: 12:42:49

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-10

AQUIFER DATA

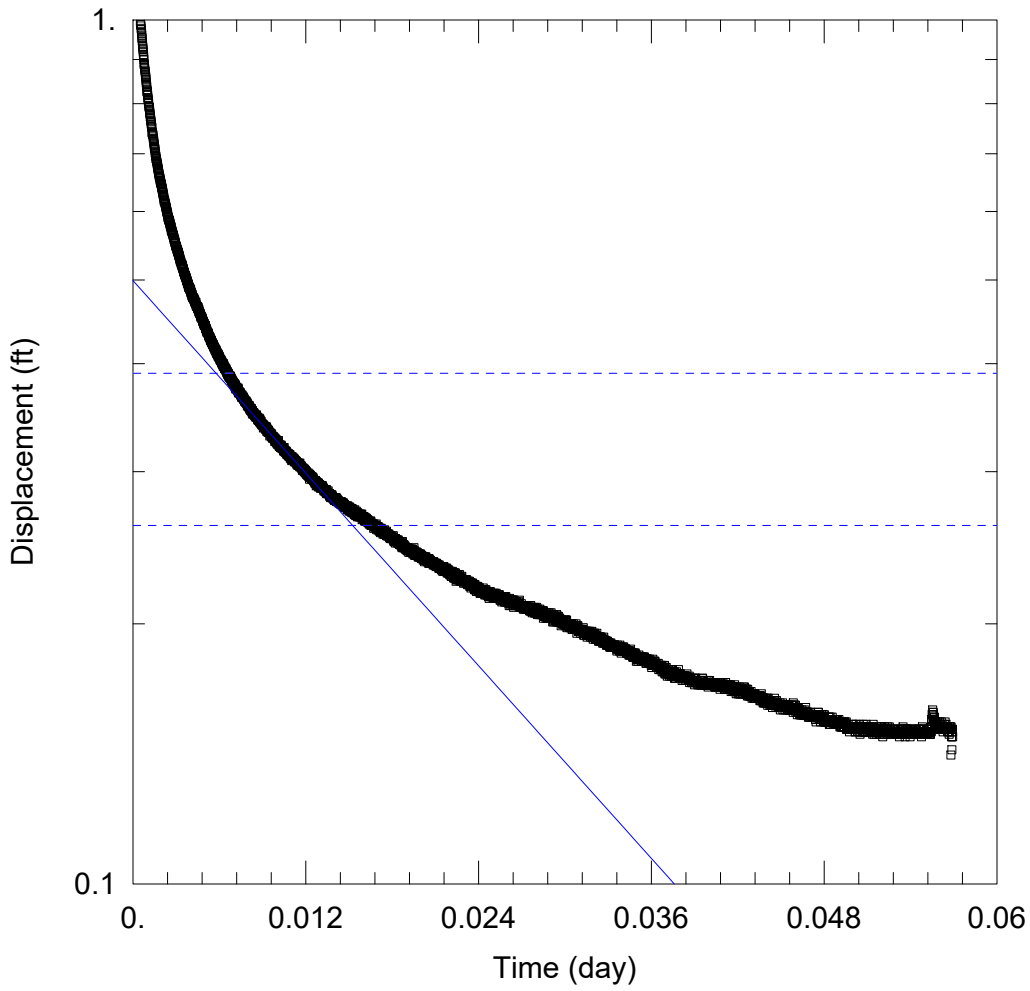
Saturated Thickness: 8.26 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-10)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 8.26 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.26 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0703 ft/day
y0 = 0.5213 ft



SLUG TEST FOR TMW-10 (RISING HEAD, CONFINED)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-10_Rising_confined.aqt
Date: 09/04/18 Time: 12:18:31

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-10

AQUIFER DATA

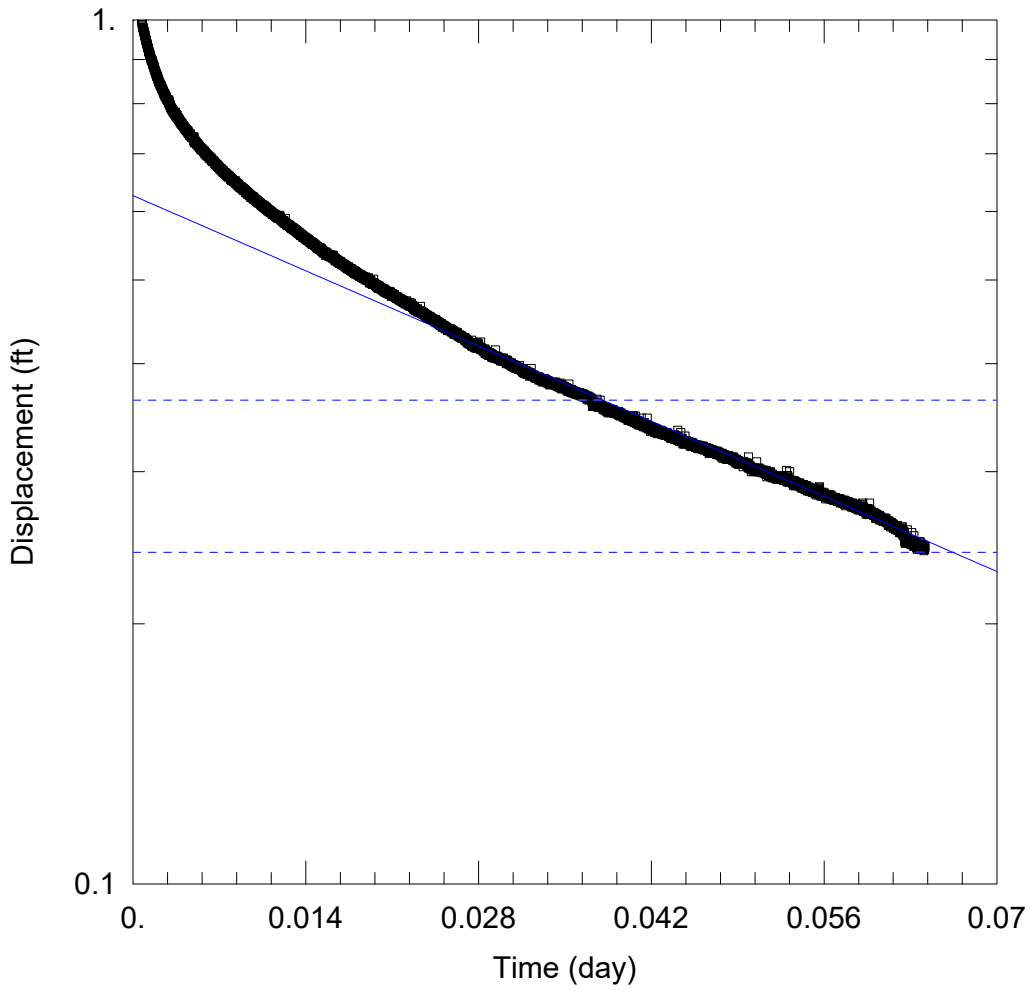
Saturated Thickness: 8.26 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-10)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 8.26 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.26 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.06577 ft/day
y0 = 0.4992 ft



SLUG TEST FOR TMW-11 (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-11_Falling.aqt
Date: 08/30/18 Time: 10:41:33

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-11

AQUIFER DATA

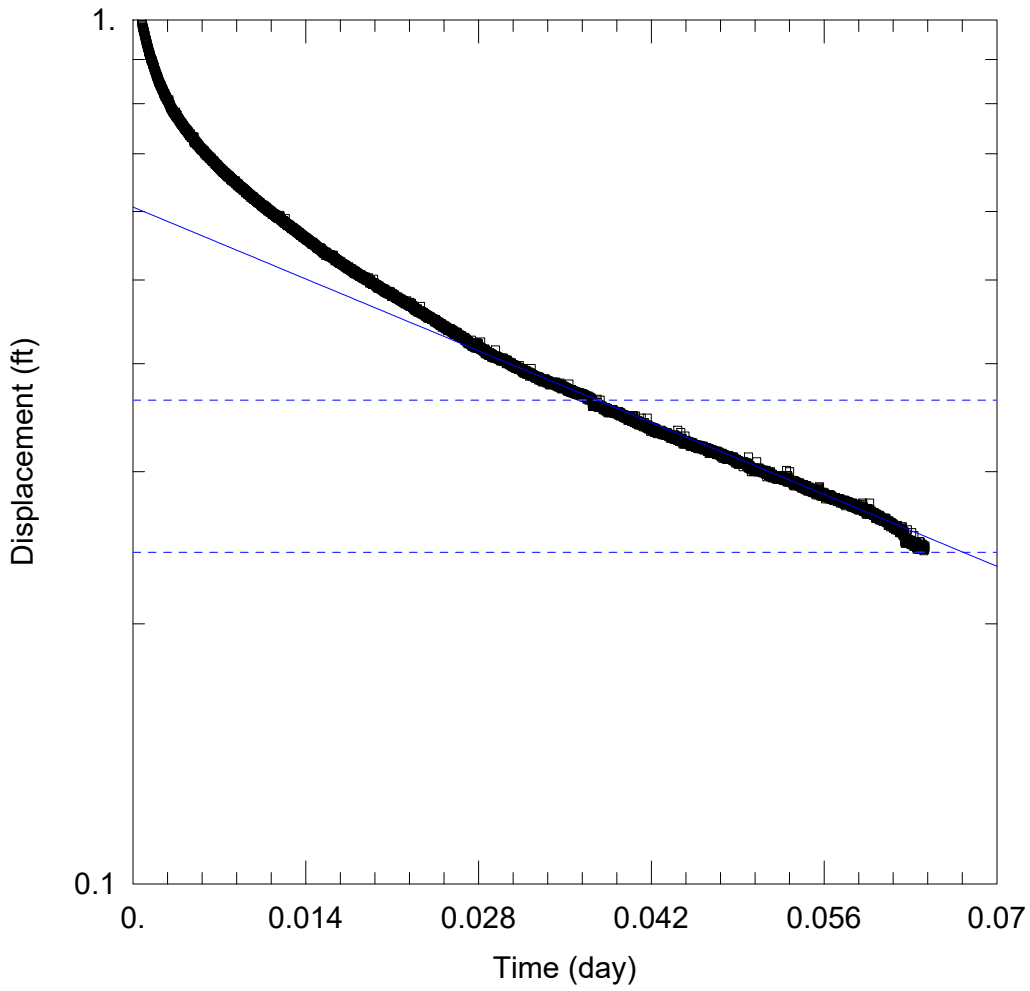
Saturated Thickness: 8.91 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-11)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 8.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.91 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02241 ft/day
y0 = 0.6261 ft



SLUG TEST FOR TMW-11 (FALLING HEAD, CONFINED)

Data Set: H:\...\TMW-11_Falling_Confined.aqt
Date: 09/04/18 Time: 12:22:57

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-11

AQUIFER DATA

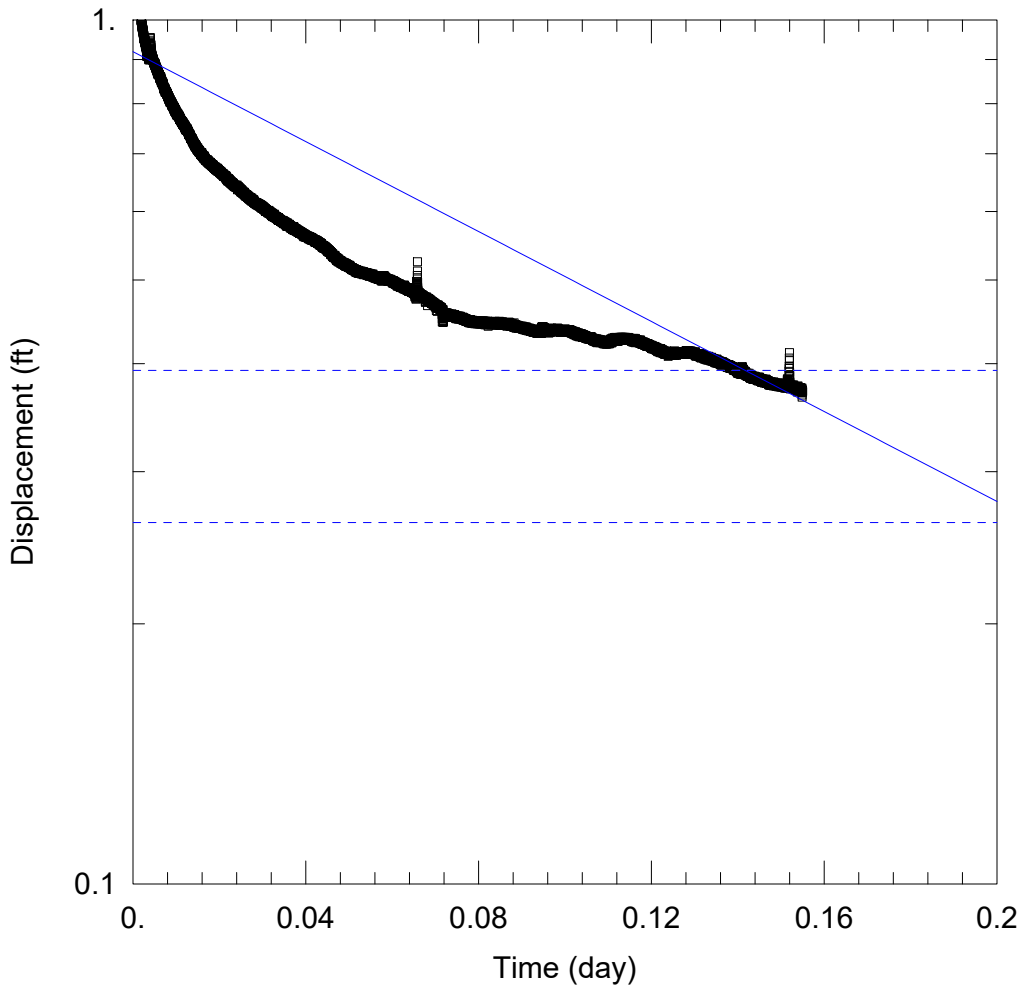
Saturated Thickness: 8.91 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-11)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 8.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.91 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.02141 ft/day
y0 = 0.6073 ft



SLUG TEST FOR TMW-11 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-11_Rising.aqt
Date: 08/30/18 Time: 10:34:41

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-11

AQUIFER DATA

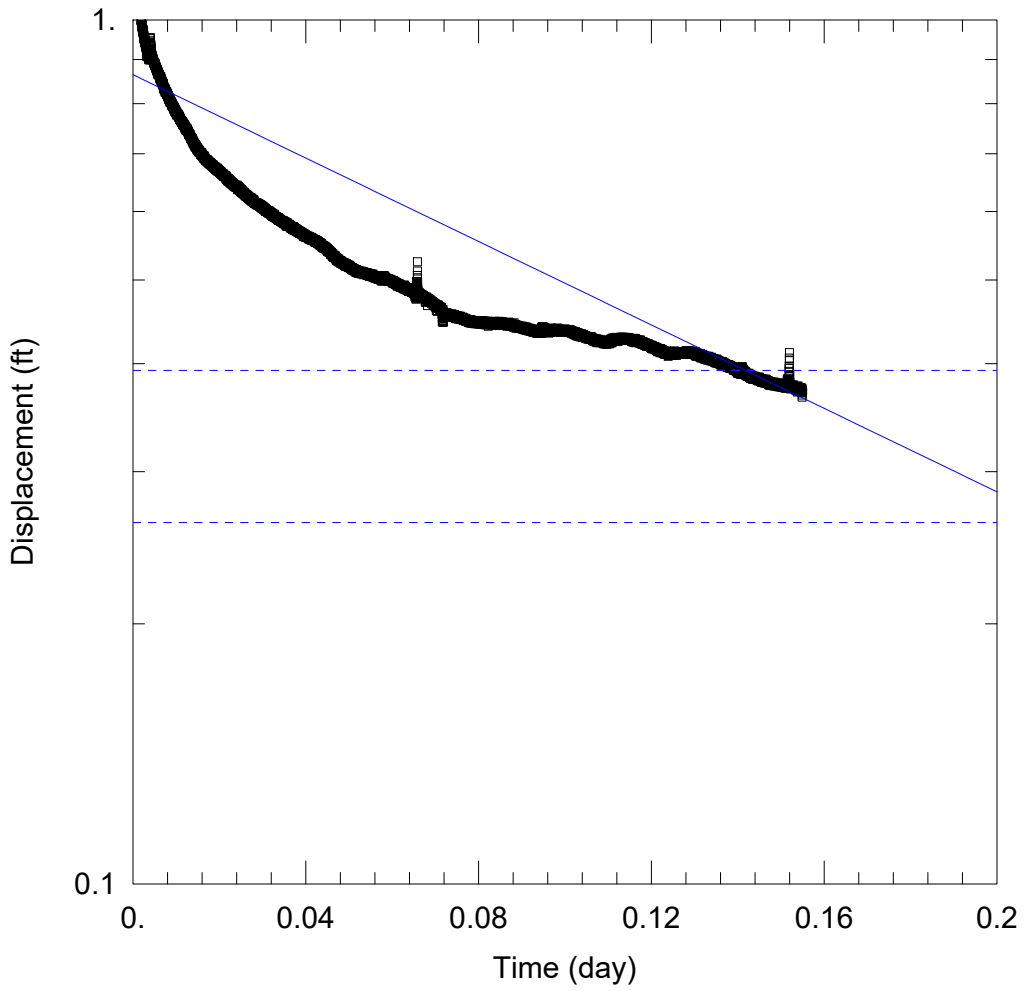
Saturated Thickness: 8.91 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-11)

Initial Displacement: 1.31 ft
Total Well Penetration Depth: 8.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.91 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.009386 ft/day
y0 = 0.919 ft



SLUG TEST FOR TMW-11 (RISING HEAD, CONFINED)

Data Set: H:\...\TMW-11_Rising_Confined.aqt
Date: 09/04/18 Time: 12:27:23

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-11

AQUIFER DATA

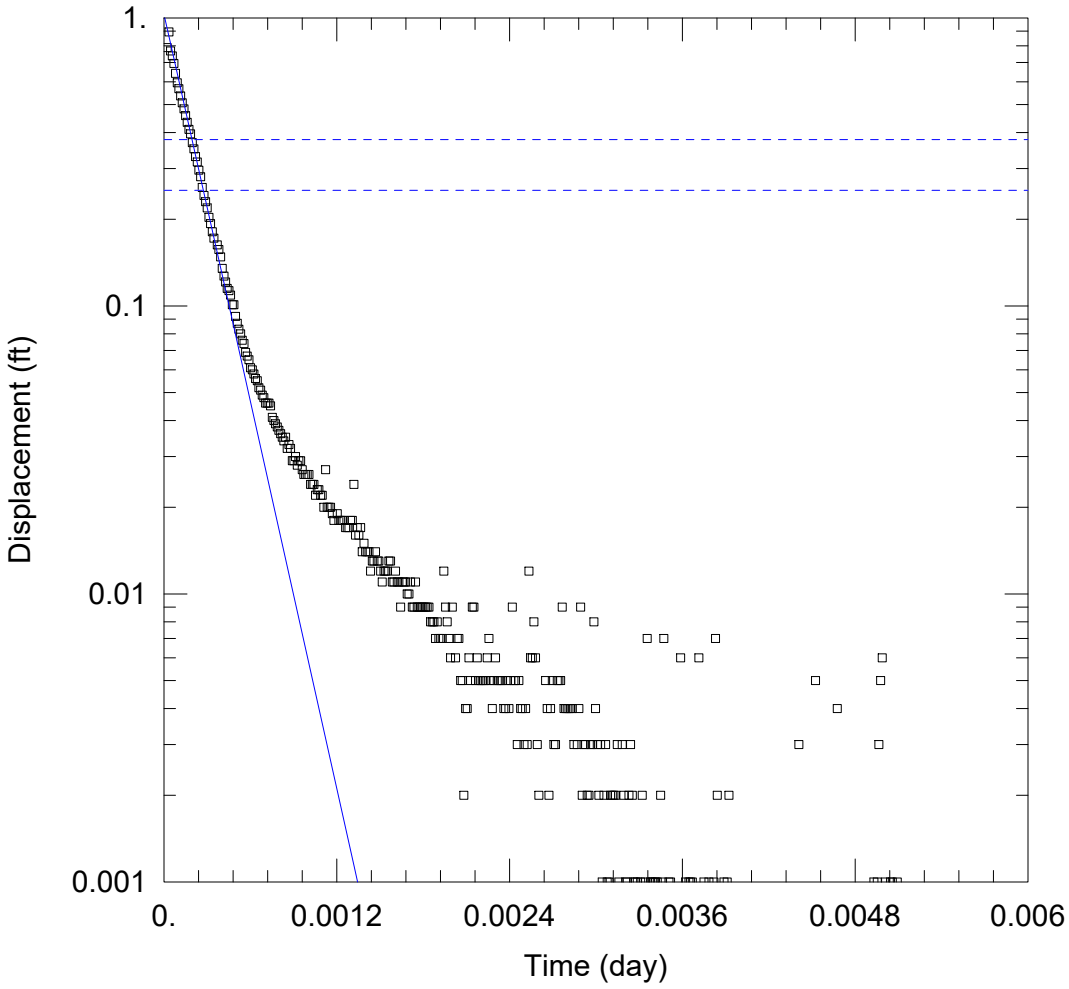
Saturated Thickness: 8.91 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-11)

Initial Displacement: 1.31 ft
Total Well Penetration Depth: 8.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.91 ft
Screen Length: 5. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.008704 ft/day
y0 = 0.8643 ft



SLUG TEST FOR TMW-16 (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-16_Falling.aqt
Date: 08/29/18 Time: 15:55:09

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-16

AQUIFER DATA

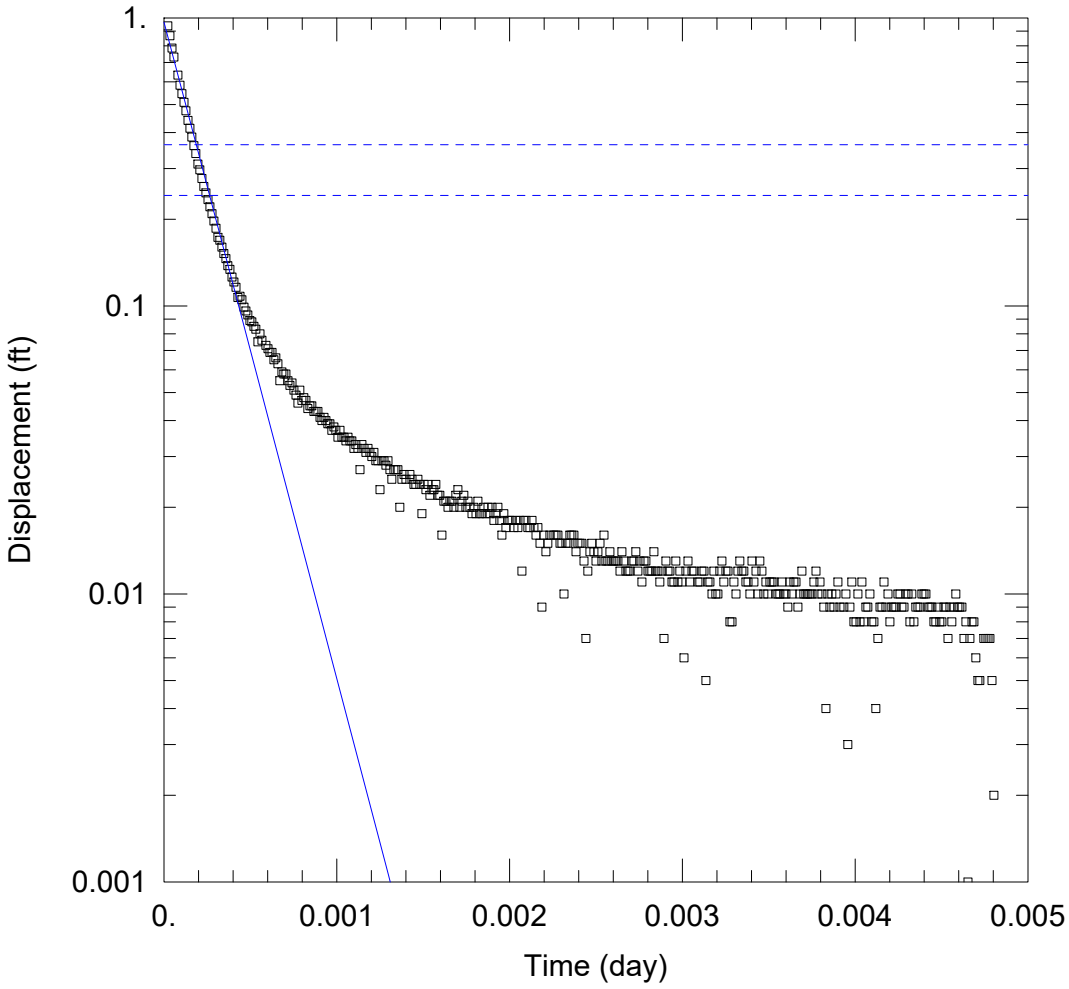
Saturated Thickness: 15.49 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-16)

Initial Displacement: 1.26 ft
Total Well Penetration Depth: 15.49 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.49 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.998 ft/day
y0 = 1.032 ft



SLUG TEST FOR TMW-16 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-16_Rising.aqt
Date: 08/29/18 Time: 16:01:00

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-16

AQUIFER DATA

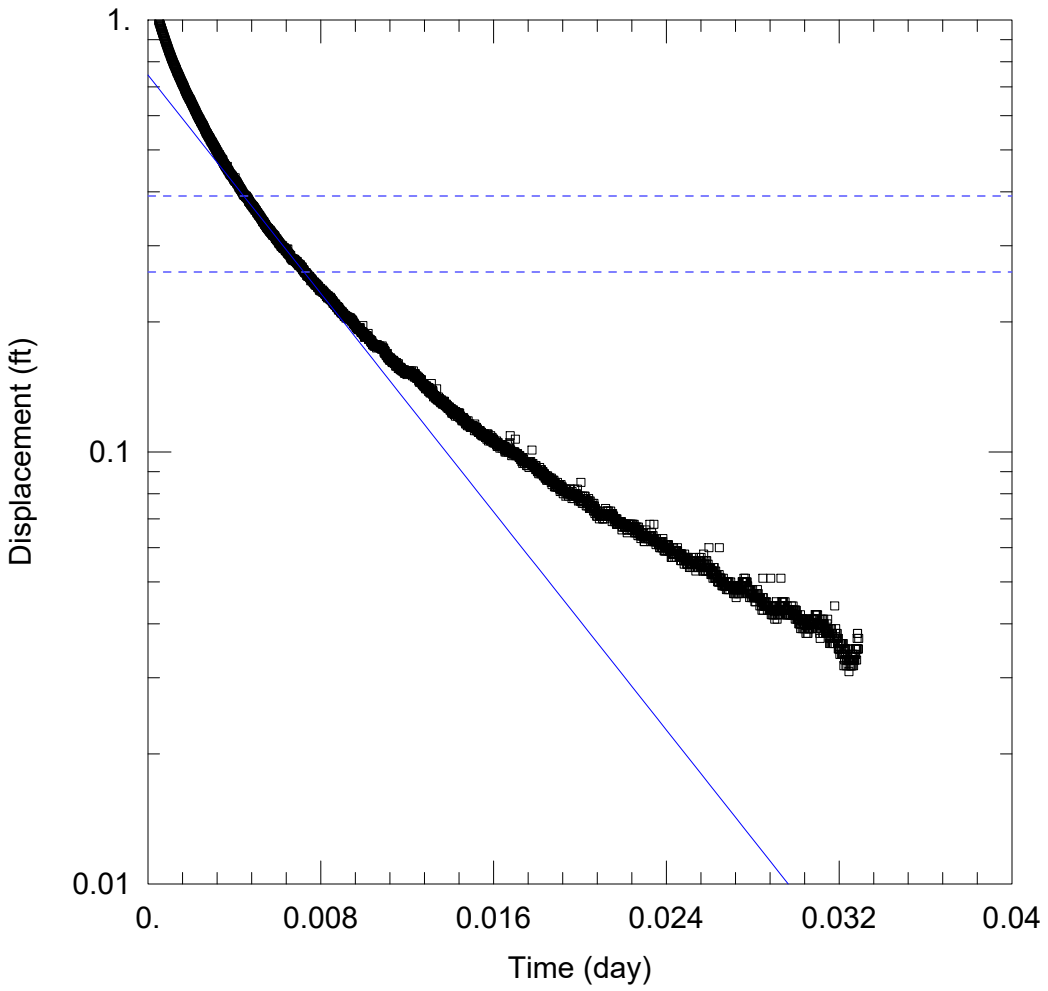
Saturated Thickness: 15.49 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-16)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 15.49 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.49 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.083 ft/day
y0 = 0.9669 ft



SLUG TEST FOR TMW-21 (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-21_Falling.aqt
Date: 08/30/18 Time: 10:35:59

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-21

AQUIFER DATA

Saturated Thickness: 17.61 ft Anisotropy Ratio (Kz/Kr): 1.

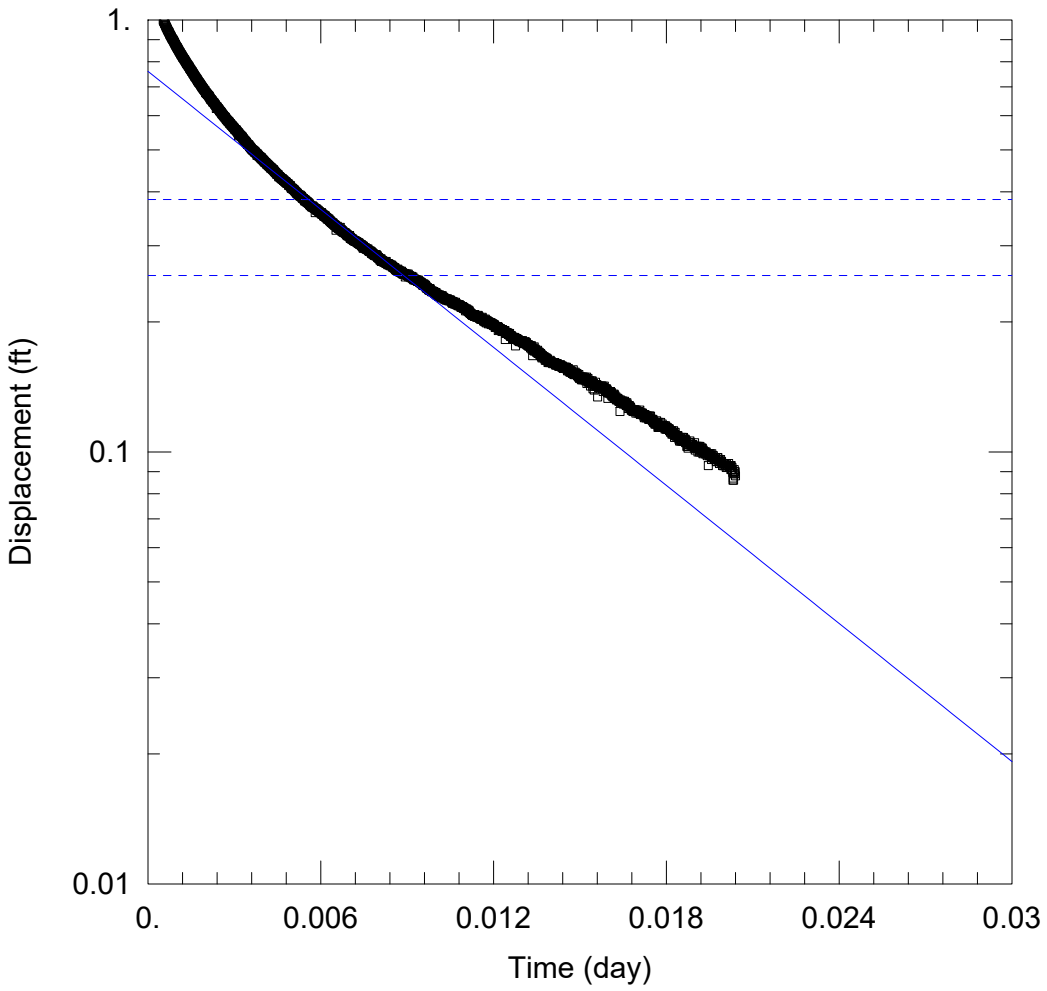
WELL DATA (TMW-21)

Initial Displacement: 1.304 ft
Total Well Penetration Depth: 17.61 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.61 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.1447 ft/day
y0 = 0.7453 ft



SLUG TEST FOR TMW-21 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-21_Rising.aqt
Date: 08/30/18 Time: 10:37:21

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-21

AQUIFER DATA

Saturated Thickness: 17.61 ft Anisotropy Ratio (Kz/Kr): 1.

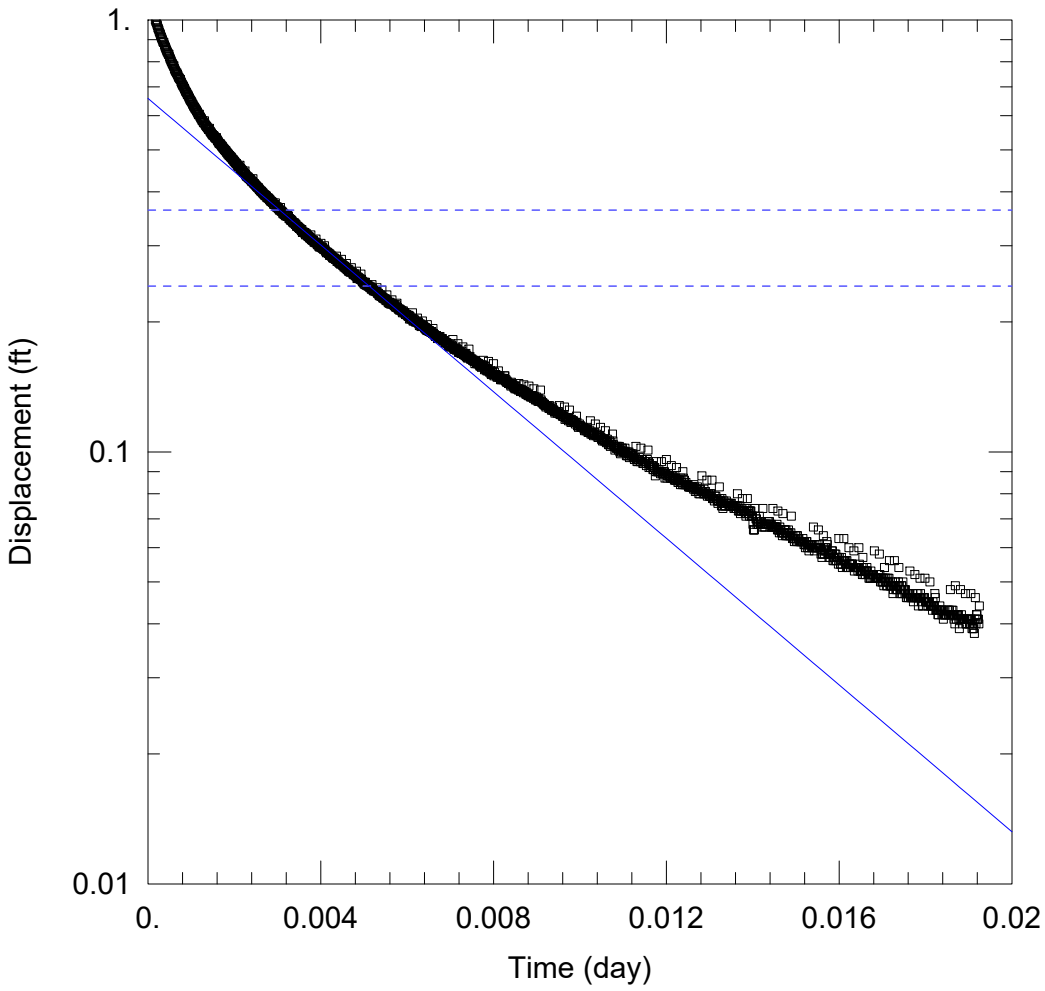
WELL DATA (TMW-21)

Initial Displacement: 1.28 ft
Total Well Penetration Depth: 17.61 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.61 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.122 ft/day
y0 = 0.7603 ft



SLUG TEST FOR TMW-26 (FALLING HEAD 1)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-26_Falling1.aqt
Date: 08/30/18 Time: 09:51:33

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-26

AQUIFER DATA

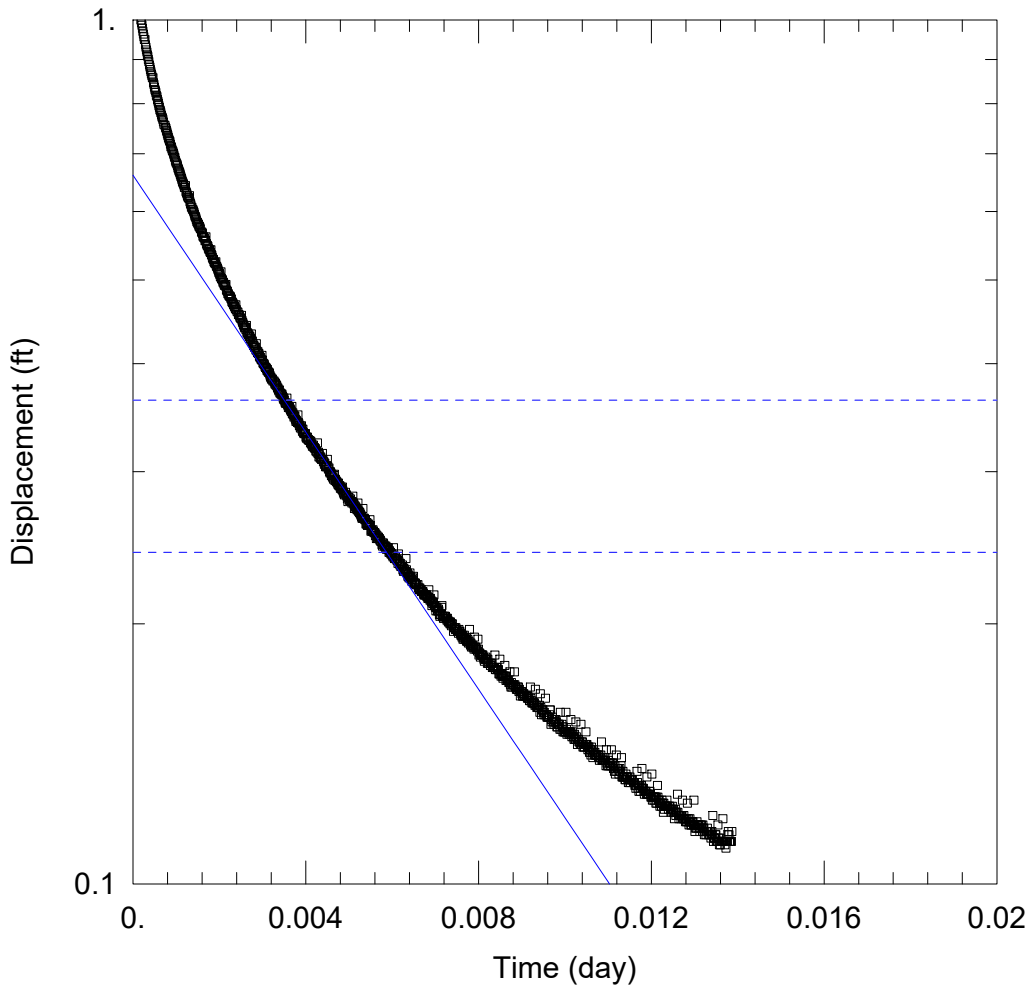
Saturated Thickness: 12.21 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-26)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 12.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.21 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1795 ft/day
y0 = 0.6582 ft



SLUG TEST FOR TMW-26 (FALLING HEAD 2)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-26_Falling2.aqt
Date: 08/30/18 Time: 09:52:29

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-26

AQUIFER DATA

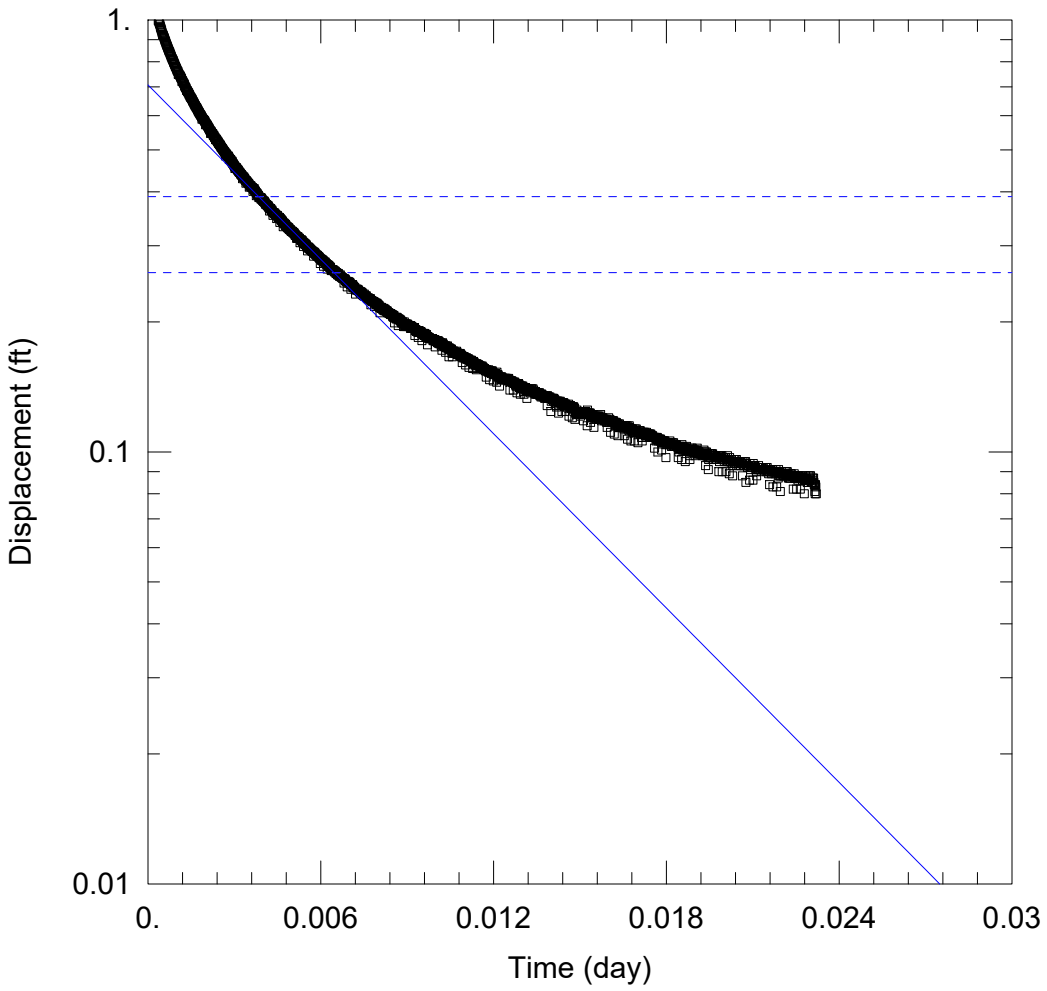
Saturated Thickness: 12.21 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-26)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 12.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.21 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1573 ft/day
y0 = 0.661 ft



SLUG TEST FOR TMW-26 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-26_Rising.aqt
Date: 08/30/18 Time: 10:42:42

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-26

AQUIFER DATA

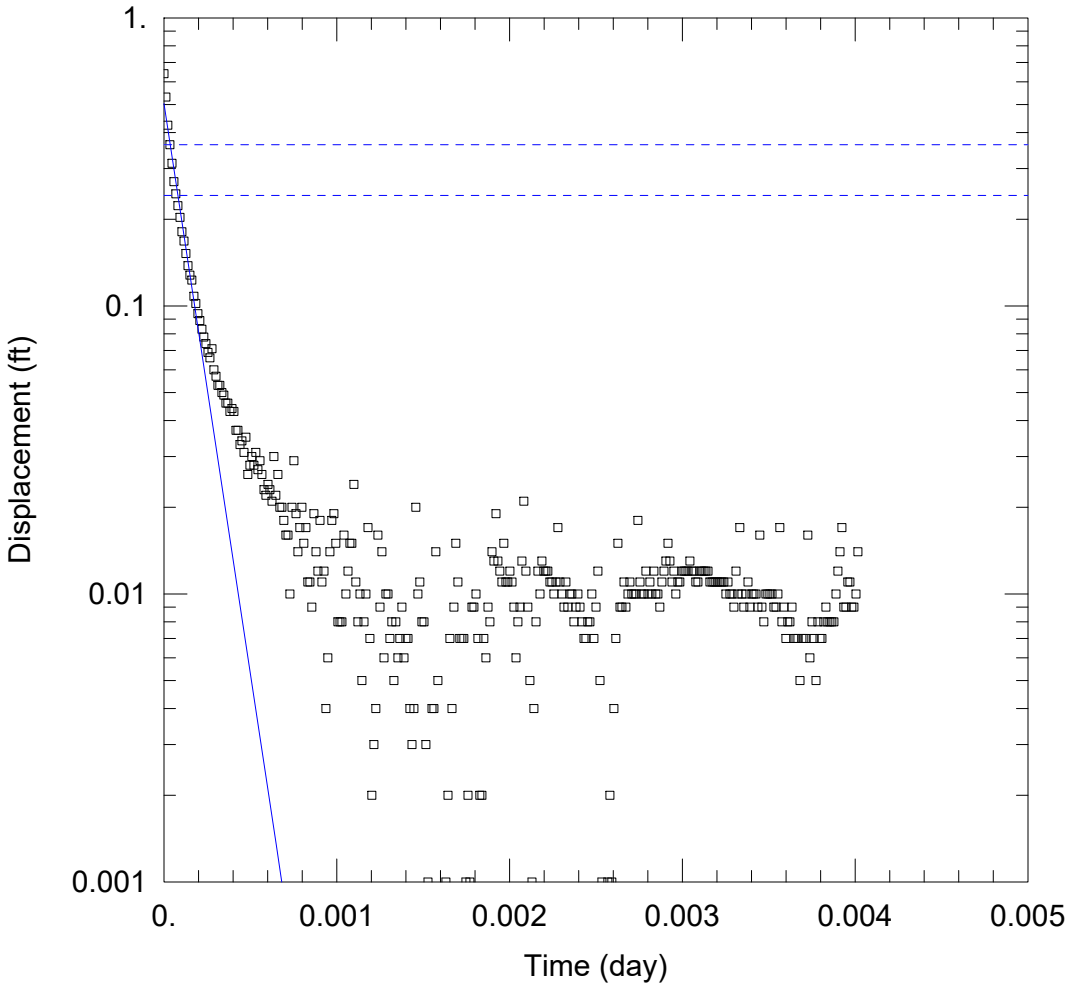
Saturated Thickness: 12.21 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-26)

Initial Displacement: 1.3 ft
Total Well Penetration Depth: 12.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.21 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1423 ft/day
y0 = 0.7071 ft



SLUG TEST FOR TMW-32 (FALLING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-32_Falling.aqt
Date: 08/30/18 Time: 09:56:25

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-32

AQUIFER DATA

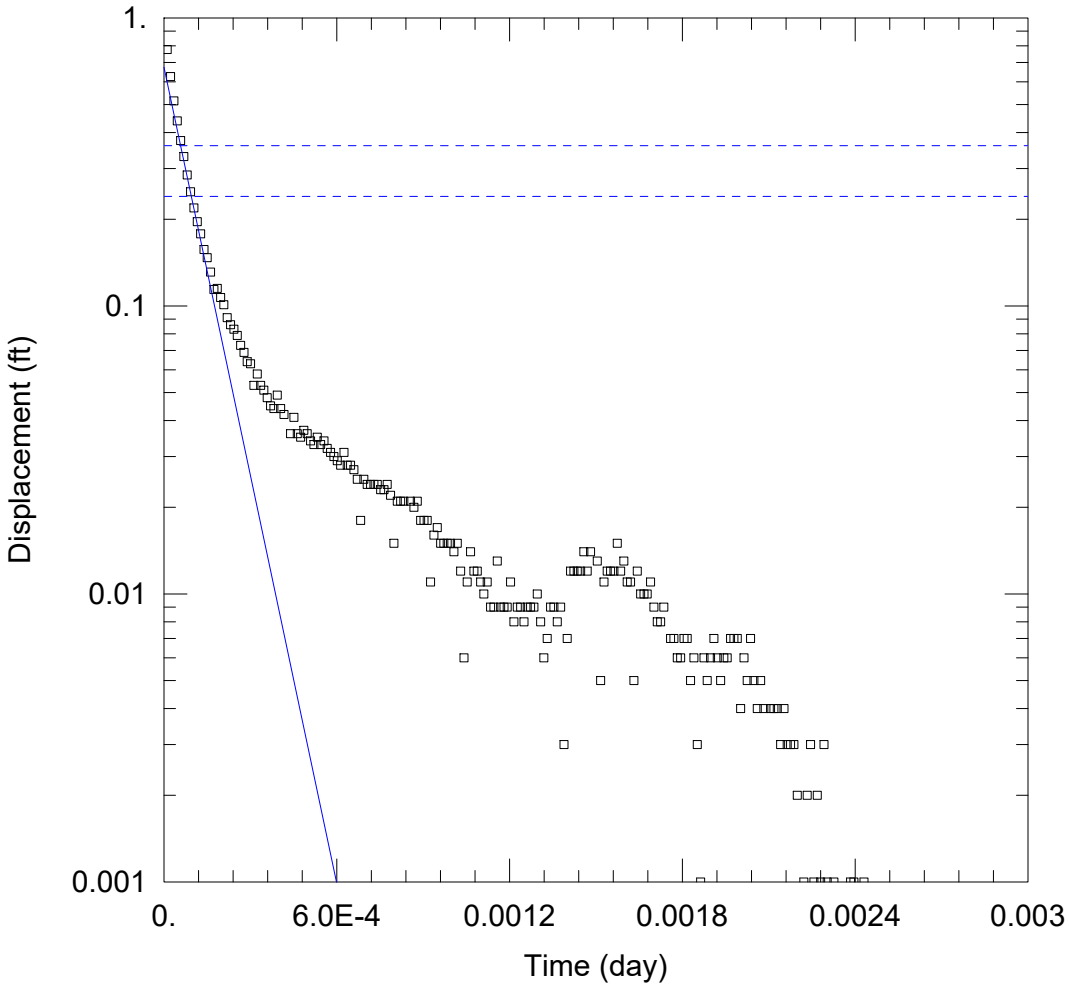
Saturated Thickness: 15.81 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TMW-32)

Initial Displacement: 1.21 ft
Total Well Penetration Depth: 15.81 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.81 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.871 ft/day
y0 = 0.5044 ft



SLUG TEST FOR TMW-32 (RISING HEAD)

Data Set: H:\Whirlpool\Slug Testing\Slug Testing - August 2018\Aqtesolv\TMW-32_Rising.aqt
Date: 08/30/18 Time: 09:57:06

PROJECT INFORMATION

Company: Ramboll
Project: 1690009230
Test Well: TMW-32

AQUIFER DATA

Saturated Thickness: 15.81 ft
Anisotropy Ratio (Kz/Kr): 1.

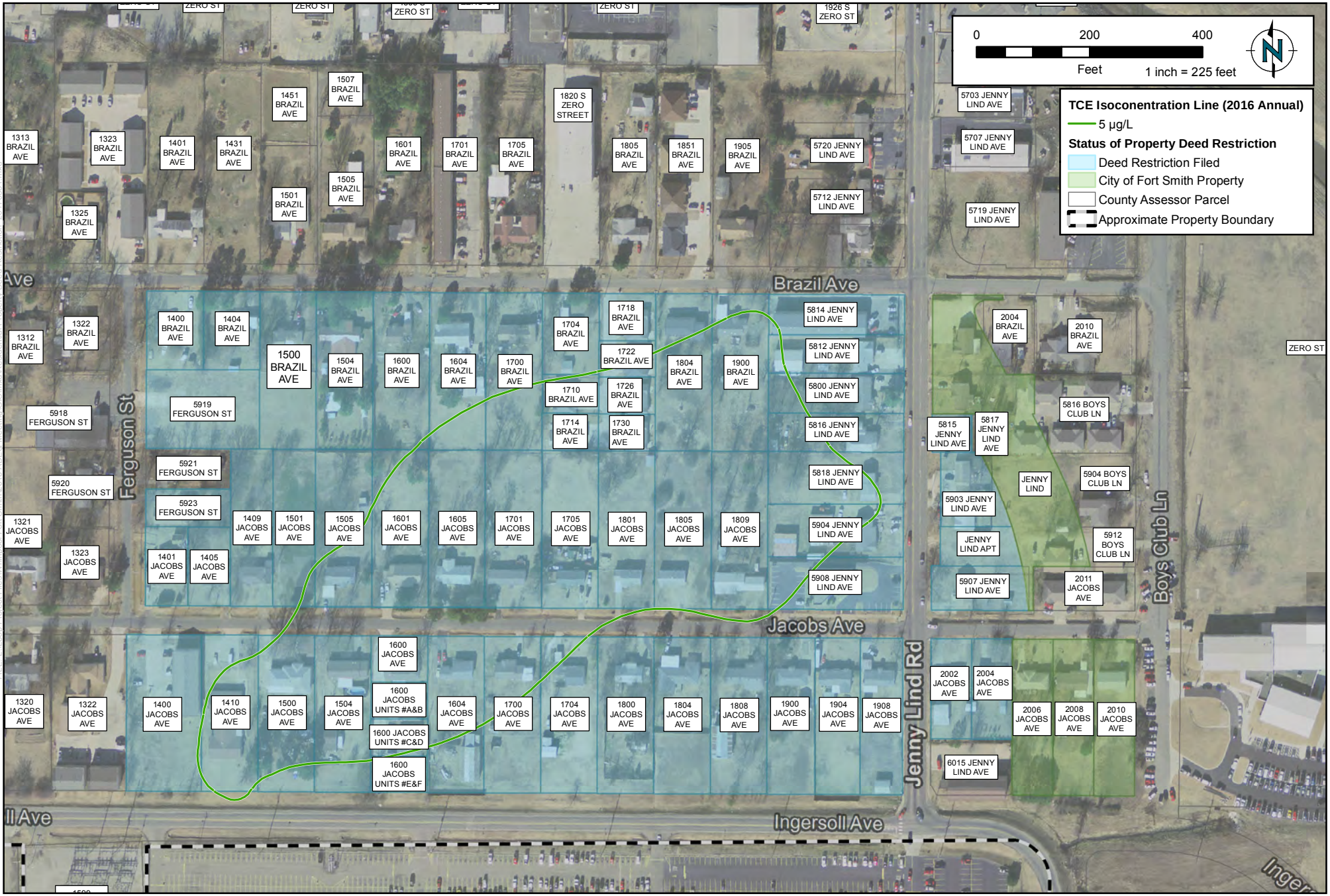
WELL DATA (TMW-32)

Initial Displacement: 1.2 ft
Total Well Penetration Depth: 15.81 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.81 ft
Screen Length: 10. ft
Well Radius: 0.344 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 10.58 ft/day
y0 = 0.6741 ft

Attachment I
Settled Properties



FILE: L:\Loop Project Files\Whirlpool Fort Smith\2016 ADEQ Meeting\GIS\mxd\Residential Property Deed Restriction_20170331.mxd

RAMBOLL ENVIRON

DRAFTED BY: FK | DATE: 03/31/2017

STATUS OF RESIDENTIAL PROPERTY DEED RESTRICTION

Whirlpool Facility - Fort Smith, Arkansas

Figure 5-1

PROJECT: