

August 11, 2014

Mr. Mostafa Mehran Arkansas Department of Environmental Quality 5301 Northshore Drive North Little Rock, AR 72118

Re: Response to August 6, 2014 ADEQ Correspondence
Approval of the Northeast Corner Investigation Work Plan
Whirlpool Corporation
Fort Smith, Arkansas
EPA No. ARD042755389
AFIN No. 66-00048
CAO LIS 13-202

Dear Mr. Mehran:

ENVIRON International Corporation (ENVIRON), on behalf of Whirlpool Corporation, is submitting this response to the Arkansas Department of Environmental Quality's (ADEQ) contingent approval of the Northeast Corner Investigation Work Plan for the Whirlpool facility in Ft. Smith, Arkansas. ENVIRON's response follows for each of ADEQ's comments in the subject correspondence.

ADEQ Comment:

Investigation Work Plan, Second Paragraph: The report states that surface of shale bedrock is expected to be encountered between approximately twenty-four (24) feet and thirty (30) feet below ground surface (bgs). Previous membrane interface probe (MIP) profiles in the northeast corner of the building indicated shale bedrock would be lower than thirty (30) feet bgs. Of the MIP profiles along the eastern portion of the building, only two (M-112 and M-114) appeared to encounter bedrock between thirty (30) and thirty-five (35) feet bgs. Information from the five (5) newly installed monitoring wells at the northeast portion of the site may have confirmed bedrock at a higher elevation east of the current MIP profiles, but ADEQ has not received any information on the geology penetrated or construction (including total depths) of these wells. Soil borings must extend down to bedrock even if total depth is greater than thirty (30) feet. Please provide the needed data.

ENVIRON Response:

The Northeast Corner Investigation Work Plan indicates probes will be advanced to probe refusal or bedrock, whichever occurs first. The Northeast Corner Report presenting the findings from the installation of the five new onsite monitoring wells will be submitted to ADEQ on August 15, 2014 (these findings are summarized in the subject Work Plan). The boring logs and well construction diagrams for the new groundwater monitoring wells at the northeast corner are attached.

ADEQ Comment:

ADEQ would request at least one (1) additional MIP profile and soil boring location to be placed on the City of Fort Smith property located northeast of the intersection of Ingersoll Avenue and Jenny Lind Road.

ENVIRON Response:

We have gained access to the City of Ft. Smith properties referenced in ADEQ's comment and we will perform at least one probe positioned on the subject City of Ft. Smith property (the first probe was performed on the subject City of Ft. Smith center property immediately north of Jenny Lind Road on August 8, 2014).

ADEQ Comment:

The four existing MIP profiles at the northeast corner of the building (M-108, M-110, M-250, and M-251) display minor but consistent (decreasing toward the east) chlorinated ethene reading in the shallow surface soil/perched groundwater. ADEQ requests that any soil samples within the depth of surface to ten (10) feet bgs with elevated PID indications of Volatile Organic Carbons (VOCs) be collected for laboratory analysis.

ENVIRON Response:

The Membrane Interface Probe (MIP) probe screening tool provides a semi-quantitative, continuous vertical profile to screen for the presence of VOCs. The subject Work Plan summarizes actual laboratory results for soil samples collected from the soil borings for the new monitoring wells at the northeast corner which indicates that <u>no</u> TCE impact was identified in any of the soil samples collected from the onsite borings for these new exterior monitoring wells.

Soil samples will be collected from the offsite probe locations from the surface to depths of 10 feet bgs to confirm that no TCE impact in soil exists at offsite locations.

ADEQ Comment:

A minimum of three surface water and three sediment samples should also be collected from Mill Creek, located east of the Boys and Girls Club.

ENVIRON Response:

With the help of ADEQ, Whirlpool and ENVIRON have been following an Adaptive Remedy Approach for this site. Based upon MIP screening data from the interior of the former manufacturing building on the Whirlpool property, we were able to identify the potential for TCE impact in the groundwater at the northeast corner of the property. In response to this finding, Whirlpool and ENVIRON submitted a work plan on June 20, 2014, that included installation of five new exterior groundwater monitoring to assess soil and groundwater conditions at the northeast corner of the Whirlpool property. As summarized in the subject Work Plan, no TCE was discovered in the soil samples collected while installing the new monitoring wells. TCE was detected in groundwater in samples taken from three of the five



new wells, and the concentration of TCE in groundwater at the northeast corner decreased significantly near the Whirlpool property boundaries.

In response to the groundwater results from three of the five new groundwater wells at the northeast corner, Whirlpool and ENVIRON submitted the Northeast Corner Supplemental Work Plan to perform offsite investigation, which is the subject of this correspondence. This investigation includes collection of soil and groundwater samples at offsite locations to characterize the extent of groundwater impact and confirm that no offsite TCE impact in soil exists.

We propose to continue to follow this sequential investigative approach in accordance with the adaptive remedy and keep ADEQ apprised of all data collected from these sequential investigations regarding potential TCE impacts from the Whirlpool property.

We respectfully disagree with the request to "step out" and collect surface and sediment samples from three locations in Mill Creek. Mill Creek is an urban drainage way, which collects surface water from industrial, commercial and residential properties covering a water shed of approximately 3,400 acres (approximately 5 square miles) up-gradient from the Boys and Girls Club property [based upon review of the Cedar Creek-Poteau River watershed (National Hydrologic Dataset 111101050904 Hydrologic Unit Code covering 29,200 acres)].

We propose to continue our current sequential investigative approach and assess TCE impact confirmed to be associated with the site. This continued approach currently includes:

- Screening and investigation of soil and groundwater beyond the northeast corner of the Whirlpool property as described in the subject Work Plan (this screening and investigation work commenced on August 6, 2014);
- Screening and investigation of soil and groundwater near property boundary locations as summarized in the Property Boundary Supplemental Work Plan submitted to ADEQ on August 8, 2014 (this screening and investigation work commenced on August 4, 2014); and
- Screening and investigation of the two permitted outfalls from the former Whirlpool
 property to assess surface water and sediment at these two outfalls.

Outfall 001 discharged from the Whirlpool property at the northeast corner of the site to the ditch along the south side of the Boys and Girls Club property. This ditch ultimately discharges to Mill Creek approximately 1,200 feet east of the northeast corner of Jenny Lind Road and Ingersoll Avenue. Outfall 002 discharged from the Whirlpool property at the west central portion of the Whirlpool property where the rail lines exit the site near the intersection of Pierce Drive and Goodwin Street. If potential TCE impact is identified in sediment or surface water at these outfalls, then additional investigation will be proposed to characterize potential TCE impacts that may exist beyond the outfalls associated with the Whirlpool property, including investigation of Mill Creek, as appropriate.



Our reluctance to immediately initiate sampling of sediment and surface water in Mill Creek is based upon the magnitude of other sources for contamination to be present in Mill Creek, and little or no basis to distinguish this contamination, if present, from the Whirlpool property. Our proposed approach of screening and investigating potential migration pathways and transport mechanisms is preferred to avoid inherent complications of assessing laboratory results as a result of collection of sediment and surface water samples from the Mill Creek urban drainage way.

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As always, we appreciate ADEQ's feedback regarding our ongoing monitoring and validation activities, which is a critical element of the Adaptive Remedy Process. If you have any questions or comments please contact me at your earliest convenience.

Sincerely,

ENVIRON International Corporation

Michael F. Ellis, PE

Principal

LIST OF APPENDICES

Appendix A: Northeast Corner Boring Logs and Well Construction Diagrams



APPENDIX A: Northeast Corner Boring Logs and Well Construction Diagrams



					1/ /1	D	181	Site ID: MW-87	Date(s): 6	/24/20)14					
				⊏I`	1/1	KC	NΝ	Location: Fort Smith, Ark	ansas							
			7500 Colle	ge Blvd	, Overland	Park, Ka	ansas 66210	Logged By: N. Zurweller	Checked B	y: I	K. Stonestree					
Contra	actor:		Walker	Hill E	nvironm	ental		Purpose: Monitoring Well								
Drilling	g Met	hod:	Sonic					GS Elevation: 471.02 amsl	TOC Eleva	tion: 4	470.78 amsl					
Sampl	ling N	1etho	d: Contin u	ous S	Sampler			North: 368835.33	East: 592	268.87	7					
Well C					0.55	F. 47		Borehole Dia.: 6 inches	Total Depth	n: 2	7.0 feet					
			ch 40 PVC			Γ to 17		Project Number: 3433233A								
Screer			ch. 40 0.1			-T to 27		Project Name: Whirlpool Co	rporation							
Annula	ar Fili	В	ement Gro entonite and	out	11.	T to 11. 5 FT to 5 FT to	14.5 FT	Remarks:								
Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code		Material Description		Water Level	Well Constructio					
470	_			1.0		МН	Asphalt Clavey Silt_dark gravi	sh brown, little root hairs, stiff, slightly	cohesive							
	_	3.8		1.0			slightly plastic, moist	on brown, muc root rialis, sun, signity t	onesive,							
	-	0.0		2.7												
465	5		MW-87(4.5)	2.1							HH					
	_			0.6		01	Oilt. Olay, atraga have									
	_	5	,	0.0		CL	subrounded gravel up	n, with light gray mottling, some black to 1/4", stiff, plastic, slightly moist	nodules, little							
	-	3		0.8												
	10-			0.0												
460	-			3.6	3.6	3.6	3.6	3.6	3.6			Silty Clay as above lit	ttle black nodules, very stiff		Ī	
	-	5										Silly Clay as above, ill	tile black flodules, very still			
	-			7.0												
	15-		MW-87(15)					n, little light gray mottling, with fine sar								
455	-			4.1				3 • • • • • • • • • • • • • • • • • • •								
	_	5		-												
	-			6.3												
	20-	2					011. 5		48.6							
450	-	2		3.5		GC	medium sand, slightly	strong brown, subrounded gravel up to stiff, very cohesive, slightly plastic, mo								
	-		-				moist, increasing silty	uay wiiii uepiii								
	-			1.8		CL	Silty Clay, strong brow	vn, little dark gray, hard, plastic, slightly	moist							
	25- -	25- -	5					Shale, very dark gray,	hard, laminated, dry, crumbles with ha	nd pressure	1					
445				-		0.6										
	-										1000					
	_															
											er Page 1 of 1					

					11 /11	D 🗸	.	Site ID: MW	/-88	Date(s): 6	/23/20)14
				FI	1 VI	KC	NΝ	Location:	Fort Smith, Arka	ansas		
			7500 Colle	ge Blvd,	, Overland	Park, Ka	ansas 66210	Logged By:	N. Zurweller	Checked B	y: I	K. Stonestreet
Contra	actor:		Walker	-Hill E	nvironm	ental		Purpose: Mo	onitoring Well			
Drillin	g Met	hod:	Sonic					GS Elevation	: 469.12 amsl	TOC Eleva	tion: 4	468.89 amsl
Samp	ling M	letho	d: Contin	uous S	Sampler			North: 3690	43.00	East: 592	151.24	4
Well (Borehole Dia	.: 6 inches	Total Depth	n: 2 8	8.0 feet
		ng: S	ch 40 PV(2	0 FT	to 18		Project Numb	per: 3433233A			
Scree			ch. 40 0.1		18 F	T to 28	3 FT	Project Name	e: Whirlpool Co	poration		
Annul	ar Fill	В	ement Groent entonite and	out	13 F	T to 13 T to 16 T to 28	6 FT	Remarks:				
Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code		Material Des	scription		Water Level	Well Construction Flush Mount
		3.5	, ,	14.2		CL	Asphalt Silty Clay, strong brown fine sand, little subrour slightly plastic, moist	n, some light gray nded gravel up to	mottling, some red n 1/4", little black nodul	nottling, some es, stiff,		
465	5- -			13.7			Silty Clay as above, pla	astic			-	
460	- -	5		20.6			Silty Clay, strong brown nodules, little subround to slightly plastic, slight	ded gravel up to 1/	wn, little clayey silt, so /4", little fine sand, ve	ome black ry stiff, plastic	<u> </u>	
	10— - -	5	MW-88(12)	35.7			Silty Clay as above, ve	ry stiff			-	
455	15-			18.8			Sandy Clay, strong bro to medium sand, cohes Sandy Clay as above, I	sive, moist		to 1/2", fine	-	
	-			22.4								
450	- -	4		39.4		GC	Silty Clay and Gravel, subangular gravel up to		fine sand, subrounde	ed to		
	20	4		15.1		МН	Clayey Silt, dark brown	ı, some strong bro	own, laminated, hard,	dry		
445	-			12.5			Shale, with clayey silt,	dark grayish brow	n, laminated, hard, di	ТУ		
445	25- -	4		6.2			Shale, dark grayish bro	own and very dark	gray, laminated, hard	d, dry		
	_			3.2								
440	_											
									¥	Static groun	d wate	er Page 1 of 1

od: So ethod: Co uction: g: Sch 40 Sch. 40	PVC 0.10 PVC t Grout	Sampler 0 F 15 F 0 F	ental	FT 5 FT 3 FT 5 FT 6 FT	Logged By: N. Zurweller Purpose: Monitoring Well GS Elevation: 467.08 amsl North: 369059.25 Borehole Dia.: 6 inches Project Number: 3433233A Project Name: Whirlpool Cor Remarks: Material Description	East: 592 3	ition: 4	K. Stonestree 466.91 amsl 1 5.0 feet Well Constructio Flush Mour		
od: So ethod: Co uction: g: Sch 40 Sch. 4l Cemer Benton Sand Alexand Alexand Alexand 3.5	PVC 0 0.10 PVC at Grout ite 21.2 37.8	0 F 0 F 0 F 10 F 10 I	T to 15 T to 29 T to 10 FT to 15 FT to 29 OU SO SO SO SO SO SO SO SO SO	5 FT FT 3 FT 5 FT Asphalt	GS Elevation: 467.08 amsl North: 369059.25 Borehole Dia.: 6 inches Project Number: 3433233A Project Name: Whirlpool Cor Remarks: Material Description	East: 592 3	356.9°	5.0 feet Well Constructio		
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3.5	21.2	Graphic Log	nscs				Water Level	Constructio		
	37.8		МН		ish brown, with root hairs, plastic, moist					
4.6										
4.6	42.2			Clayey Silt as above,	slightly plastic, very moist, wood debris a	at 4.0-4.3' bgs				
4.6	42.2			Clayey Silt as above,	little subrounded gravel up to 1/4", soft					
	49.2		CL	gravel up to 1/4", little	wn, some gray and red mottling, little sub e black nodules, very stiff, plastic, moist, gular gravel last at 9.8-10.0' bgs	rounded some	T			
_	36.3			Silty Clay strong brown some light gray mottling, some fine sand, year		and. verv				
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MW-89				Sandy Clay, strong br medium sand, slightly	rown, little light bluish gray mottling, with y stiff, cohesive, slightly moist to moist	silt, fine to				
	48.2			medium sand, stiff, di	ry					
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actor:		Walker-	-Hill E	nvironm	ental		Purpose: Monitoring Well			
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ar Fill:	В	entonite	out	10 F	T to 13	3 FT	Remarks:			
Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code		Material Description		Water Level	Well Constructi Flush Mou
				*****		Asphalt				HIF
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-	5		22.1							
10-	5		28.6			Sandy Clay, strong bro	own, some light gray mottling, with silt, s	ome		
_		MW-90(14.5)	38.3							
15 <u> </u>			21.3					o to 1/2",		
_	5.5		21.8							
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25			14.3			Shale, very dark gray,	hard, laminated, dry, crumbles with han	d pressure		
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				۲ľ	1 /1	KC	NΙΝ	Location: Fort Smith, Arka	ansas										
			7500 Colle	ge Blvd	, Overland	Park, Ka	ansas 66210	Logged By: N. Zurweller	Checked By	/: K	K. Stonestre								
Contr	actor:		Walker-	-Hill E	nvironm	ental		Purpose: Monitoring Well											
Drillin	g Metl	hod:	Sonic					GS Elevation: 469.15 amsl	TOC Elevat	ion: 4	68.90 amsl								
Samp	ling M	letho	d: Contin u	uous S	Sampler			North: 368830.37	East: 5923	70.83	}								
Well (Constr	uctio	<u>n:</u>					Borehole Dia.: 6 inches	Total Depth	: 25	5.0 feet								
Blank	Casir	ng: So	ch 40 PVC		0 FT	to 15	FT	Project Number: 3433233A											
Scree	n:	S	ch. 40 0.1	0 PVC	15 F	T to 25	5 FT	Project Name: Whirlpool Cor	poration										
Annul	ar Fill:	В	ement Gro entonite and	out	10 F	T to 10 T to 13 T to 25	3 FT	Remarks:											
Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	Graphic Log	USCS Code		Material Description		Water Level	Well Constructio								
							Fill, clayey sand and g	ravel, very dark brown, moist											
-		5		4		МН	Clayey Silt, dark browr	n, slightly plastic, very moist											
165	-			4.5		CL	Silty Clay, strong brow	n, little light gray and red mottling, stiff,	plastic, moist										
160	5— - - -	5		5.1											Silty Clay, strong brow subangular gravel up t	n, with light gray mottling, little subround o 1/2", very stiff, plastic, slightly moist	ded to	•	
	10— - -	•	MW-91(12.5)	5.8		GC	Clayey Sand and Grav sand, very cohesive, s	rel, subrounded to subangular gravel up ticky, wet, note: lost first 2' out of sampl	to 1/2", fine e bag	+									
1 55	- - 15	3	_	5.9		CL		n, with light gray mottling, little subround o 1/2", very stiff, plastic, slightly moist	ded to										
	- - -	4.5																n, some light bluish gray mottling, with s p to 1/2", with fine to medium sand, ver o moist	
450	20-			6		GC CL	sand, very cohesive, s	el, subrounded to subangular gravel up ticky, wet, note: lost first 2' out of sampl	e bag										
	-	4.5		11.4		МН	to subangular gravel u \plastic, slightly moist to \text{Clayey Silt, strong brown.}	n, some light bluish gray mottling, with s p to 1/2", with fine to medium sand, ver o moist wn, some dark grayish brown, hard, slig	y stiff, slightly										
145	25-			3.5			\dry Shale, very dark gray,	hard, laminated, dry											
140	- - -																		