September 19, 2014

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

Re: Response to ADEQ Correspondence Dated August 8, 2014
Property Boundary Supplemental 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 your August 18, 2014, letter providing comments on the Property Boundary Supplemental Work Plan (dated August 8, 2014). These comments regard the request by Arkansas Department of Environmental Quality (ADEQ) to perform interior shallow soil investigation at each of the locations of previous membrane interface probes (MIPs) identified as M-86, M-87 and M-100. The correspondence regarding the performance of the investigation at the three MIP locations includes:

- ADEQ's July 8, 2014 comment letter on the *Area 1 Soil Investigation Work Plan*; and
- ADEQ's August 18, 2014 comments on the *Property Boundary Supplemental Work Plan* (subject of this response letter).

MIP locations M-86, M-87 and M-100 were performed in September and October 2013. ADEQ's comments issued on July 8, 2014 requested additional investigation of shallow soil at MIP locations M-86, M-87 and M-100 due to the screening results suggesting the presence of chlorinated ethenes at shallow depths (1 to 5 feet below surface). Our August 8, 2014 letter, proposed three shallow soil probes to be completed to 15 feet below surface at M-86, M-87 and M-100 to investigate potential shallow soil impacts identified based upon the MIP screening results in response to ADEQ's July 8, 2014 request.

ADEQ's supplemental comments submitted on August 18, 2014 regarding the proposed investigation at the three MIP locations are provided below with our respective response. The three shallow soil probes proposed in our August 8, 2014 letter were completed on August 19, 2014 and the laboratory results for soil samples collected from these borings are presented in correspondence.

ADEQ Comment:

Supplemental Investigation Work plan (paragraphs five and six): *Please provide rationale for terminating the membrane interface probe (MIP) profiles at the depth of fifteen (15) feet. If*

high membrane electron capture device (ECD) readings are observed from the surface to a depth of approximately fifteen (15) feet below ground surface (perched water interval), it would be necessary to examine the entire soil interval to determine the distribution of the observed chlorinated ethenes.

ENVIRON Response:

MIPs M-86, M-87 and M-100 were completed to depths of 28, 32 and 30 feet below surface, respectively (see Appendix A for the respective MIP logs); therefore, we are uncertain of the request for providing a rationale for terminating the MIPs at 15 feet.

The rationale for termination of the requested interior, shallow soil probes at a depth of 15 feet is based upon ADEQ's request to investigate shallow soil from depths of 1 to 5 feet and the existing MIP screening results from September and October 2013 for M-86, M-87 and M-100 which indicated that the maximum ECD responses were encountered at depths shallower than 15 feet. The maximum ECD responses are summarized below (MIP logs are provided as Appendix A);

- **M-86:** Maximum ECD response of 1 X 10^7 µV at 3 feet below the floor surface and ECD responses of 0.2 X 10^7 µV or less were recorded at depths from 5 feet to the total depth of 28 feet;
- **M-87:** Maximum ECD response of 1.2 X 10^7 µV at 2 to 5 feet and 13 to 14 feet below the floor surface and ECD responses of 0.6 X 10^7 µV or less are noted at depths from 15 feet to the total depth of 32 feet; and
- **M-100:** Maximum ECD response of 1.2 X 10^7 µV at 3 feet below the floor surface and ECD response of 0.1 X 10^7 µV or less are noted at depths from 13 feet to the total depth 30 feet.

The results of laboratory analysis for trichloroethylene (TCE) concentrations in soil samples collected from the subject soil probes performed at MW-86, M-87 and M-100 are summarized in the table below and on Table 1 (Table 1 includes all VOC results) (laboratory reports are provided as Appendix C). The results indicate that only trichloroethylene (TCE) and TCE breakdown constituents were detected in soil samples and TCE concentrations in deeper soil samples are below the TCE remedial action level (RAL) of 0.129 mg/kg.

Boring	Depth (feet below the floor surface)	ECD Response (µV) During MIP Investigation in September and October 2013	TCE Concentration (mg/kg) in Soil Samples from Soil Probes Performed in August 2014
DP-54 / M-86	3	0.9×10^7	0.050
	13	0.2×10^7	0.031
DP-55 / M-87	4	1.2×10^7	0.600
	8	0.9×10^7	0.978
	13	1.2×10^7	0.388
	27	0.6×10^7	0.006
	31	0.4×10^7	0.028
DP-56 / M-100	3	1.2×10^7	ND (< 0.005)
	11	0.4×10^7	0.005

ADEQ Comment:

<u>Supplemental Investigation Work plan (paragraphs five and six)</u>: *Although the lithologic logs from MIP locations M-87, M-86 have not been made available to ADEQ, the ECD profiles from the aforementioned MIP locations displayed relatively low ECD values that indicate the permeability of soil over the entire logged intervals is very high. If perched water is observed in the vicinity of MIP locations M-87 and M-86, at least one direct push borehole should be extend down to bedrock and used as a temporary monitoring well. In addition, a deep well should be installed adjacent to the shallow temporary monitoring well. This would allow a comparison of head measurements in order to determine the magnitude and direction of vertical hydraulic gradients.*

ENVIRON Response:

Lithologic logs were not available for M-86, M-87 and M-100 since soil probes were not performed for these MIP locations in September and October 2013. Soil probes were completed on August 19, 2014 and the logs for these probes are provided as Appendix A. These logs provide the lithology as requested.

The ECD probe and photoionization detector (PID) and flame ionization detector (FID) only screen the organic content of vapors captured while performing the MIP boring. The ECD, PID and FID do not provide screening data regarding soil conductivity or permeability. The electrical conductivity (EC) probe provides screening level information regarding soil conductivity, but this screening data is not sufficient to characterize a perched water

condition. The logs for soil probes performed at the MIP locations do not identify a perched groundwater condition at these locations (see Appendix B for soil probe logs).

As requested in the comment above, and as discussed with ADEQ's onsite representative, Mr. David Gillespie, on August 19, 2014, DP-55 (near M-87) was advanced until probe refusal (approximately 34 feet below ground surface) to collect soil samples corresponding to elevated MIP responses at approximately 27 feet below ground surface. Appendices A and B include the MIP logs and soil probe logs, respectively. Analytical results are presented in Table 1.

No perched water was observed during advancement and logging of DP-54 (M-86), DP-55 (M-87) and DP-56 (M-88).

Appendix D provides a narrative discussing MIP investigations performed at the site.

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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

Table 1:	Summary of Soil Sample Analytical Results
Appendix A:	MIP Logs – M-86, M-87 and M-100
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Appendix D:	Membrane Interface Probe (MIP) Investigation Narrative – Whirlpool Ft. Smith, Arkansas

TABLES

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS - DP-54 TO DP-56
Whirlpool Corporation; Fort Smith, AR

Location	Remedial Action Levels per ADEQ RADD Issued 2014	DP-54	DP-54	DP-55	DP-55	DP-55	DP-55	DP-55	DP-56	DP-56
ENVIRON Sample ID		DP-54-SL (3.0 FT) 20140819	DP-54-SL (13.0 FT) 20140819	DP-55-SL (4.0 FT) 20140819	DP-55-SL (8.0 FT) 20140819	DP-55-SL (13.0 FT) 20140819	DP-55-SL (27.0 FT) 20140819	DP-55-SL (31.0 FT) 20140819	DP-56-SL (3.0 FT) 20140819	DP-56-SL (11.0 FT) 20140819
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Collection Depth (ft bgs)		3.0	13.0	4.0	8.0	13.0	27.0	31.0	3.0	11.0
Sample Date		8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014
Volatile Organic Compounds										
Acetone	NE	U (0.0188)	U (0.0182)	U (0.0188)	U (0.0196)	U (0.0187)	U (0.0170)	U (0.0199)	U (0.0199)	U (0.0182)
Benzene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Bromodichloromethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Bromoform	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Bromomethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
2-Butanone	NE	U (0.0094)	U (0.0091)	U (0.0094)	U (0.0098)	U (0.0094)	U (0.0085)	U (0.0100)	U (0.0091)	U (0.0091)
Carbon Disulfide	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Carbon Tetrachloride	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Chlorobenzene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Chloroethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Chloroform	NE	U (0.0047)	U (0.0045)	0.0045 J	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Chloromethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	0.0052	0.0024 J	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Dibromochloromethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,1-Dichloroethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,2-Dichloroethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,1-Dichloroethene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
cis-1,2-Dichloroethene	NE	U (0.0047)	U (0.0045)	0.0082	0.0078	0.0034 J	U (0.0043)	U (0.0050)	U (0.0045)	0.0040 J
trans-1,2-Dichloroethene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,2-Dichloropropane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,3-Dichloropropene (total)	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
cis-1,3-Dichloropropene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
trans-1,3-Dichloropropene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Ethyl Benzene	NE	U (0.0094)	U (0.0091)	U (0.0094)	U (0.0098)	U (0.0094)	U (0.0085)	U (0.0100)	U (0.0091)	U (0.0091)
2-Hexanone	NE	U (0.0188)	U (0.0182)	U (0.0188)	U (0.0196)	U (0.0187)	U (0.0170)	U (0.0199)	U (0.0199)	U (0.0182)
4-Methyl-2-pentanone	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Methylene Chloride	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Styrene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,1,2,2-Tetrachloroethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Tetrachloroethene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Toluene	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,1,1-Trichloroethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
1,1,2-Trichloroethane	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Trichloroethene	0.129	0.0501	0.0313	0.6	0.973	0.388	0.0063	0.0277	U (0.0045)	0.0049
Vinyl Chloride	NE	U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)
Xylenes (total)		U (0.0047)	U (0.0045)	U (0.0047)	U (0.0049)	U (0.0047)	U (0.0043)	U (0.0050)	U (0.0045)	U (0.0046)

Notes:

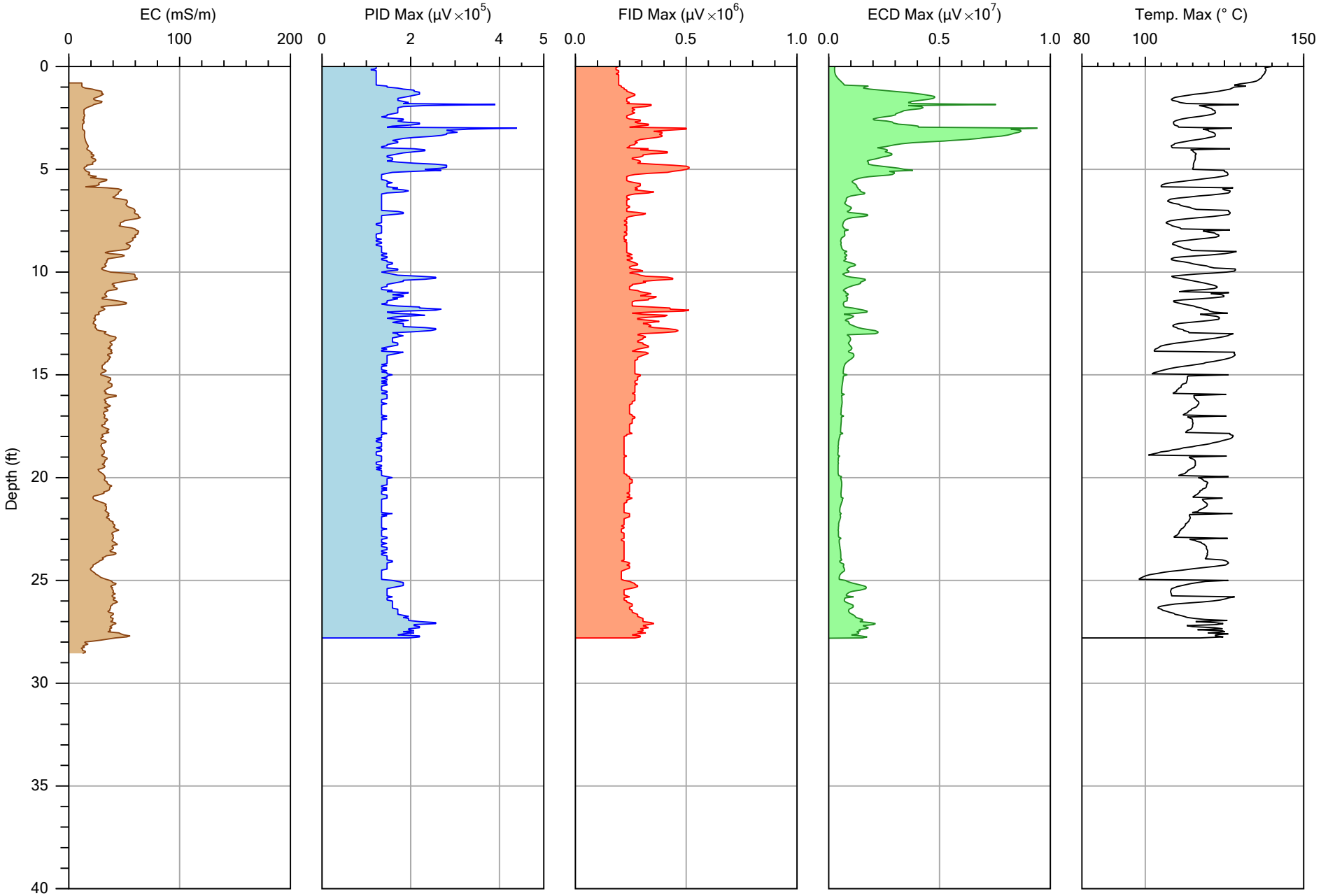
1 All concentrations are presented in mg/kg.

2 Results that exceed the ALs for Fort Smith ADEQ RADD issued Dec 2013 are double underlined.

Abbreviations:

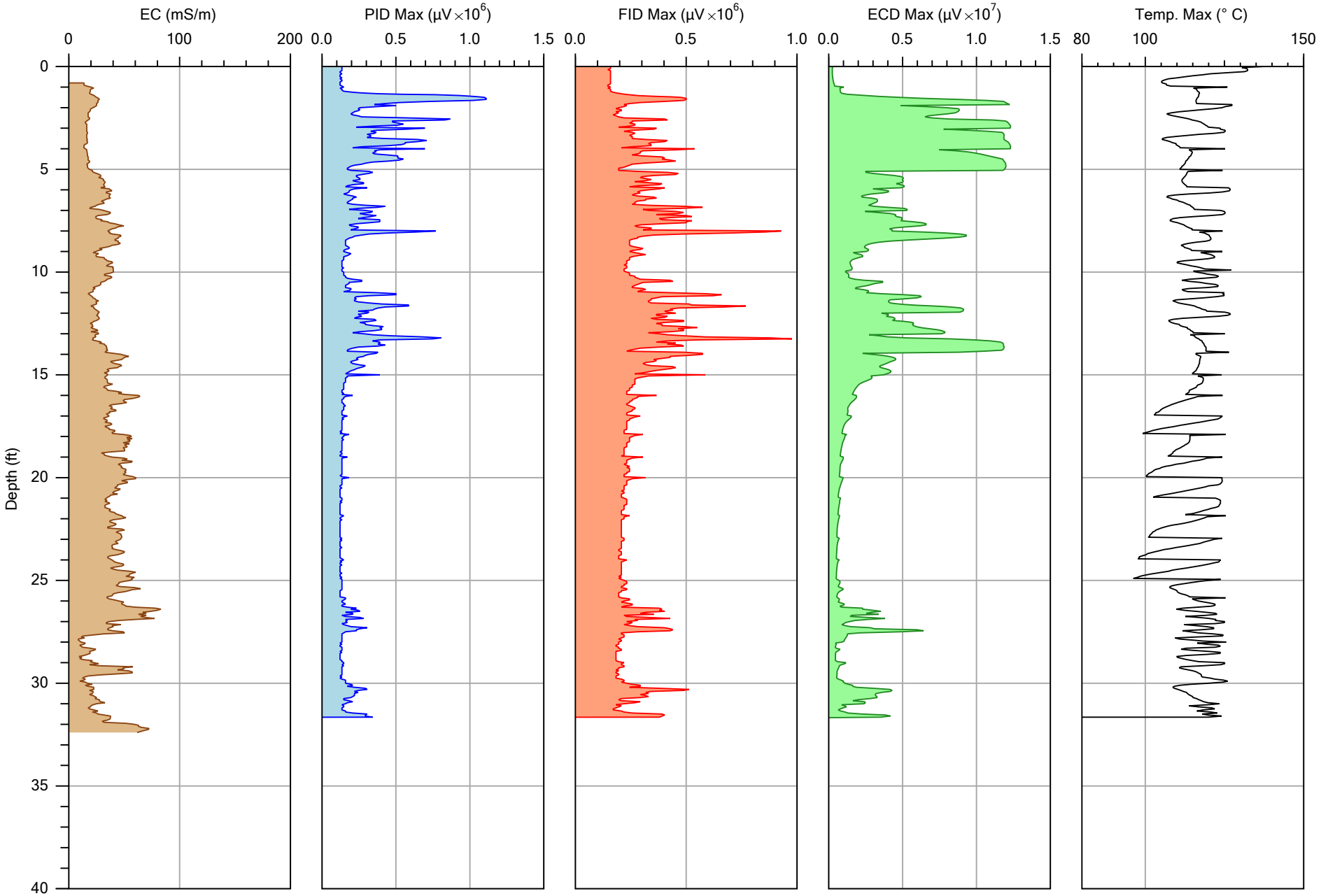
U -- Not Detected
J -- Estimated Concentration
ADEQ -- Arkansas Department of Environmental Quality
mg/kg = miligram per kilogram

APPENDIX A:
MIP Logs –
M-86, M-87 and M-100



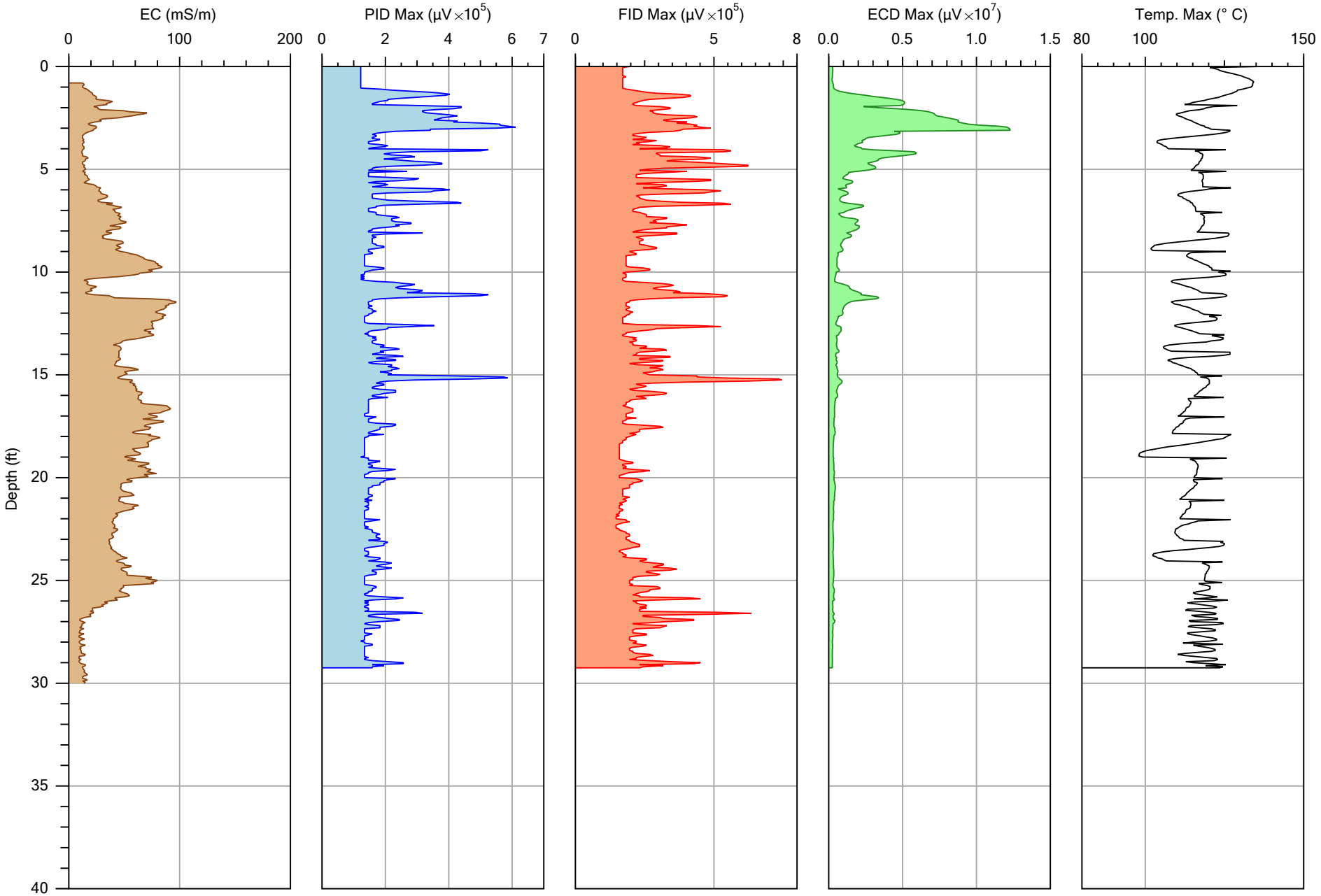
COLUMBIA TECHNOLOGIES

Company: COLUMBIA Technologies	Operator: DJM	File: M86.DAT
		Date: 10/1/2013
Project ID: Fort Smith	Client: ENVIRON	Location:



COLUMBIA TECHNOLOGIES

Company: COLUMBIA Technologies	Operator: DJM	File: M87.DAT
		Date: 9/24/2013
Project ID: Fort Smith	Client: ENVIRON	Location:



COLUMBIA TECHNOLOGIES

Company: COLUMBUS Technologies	Operator: DJM	File: M100.DAT
		Date: 9/26/2013
Project ID: Fort Smith	Client: ENVIRON	Location:

APPENDIX B:
DP-54, DP-55 and DP-56

ENVIRON

7500 College Blvd, Overland Park, Kansas 66210

Site ID: DP-54	Date(s): **8/19/2014**
Location: **Fort Smith, Arkansas**	
Logged By: **N. Zurweller**	
Consulting Firm: **ENVIRON**	Checked By: **K. Stonestreet**
Contractor: **McCray Drilling**	Purpose: **Soil Boring**
Drilling Method: **Direct Push**	Datum: **NAVD88** Elevation: **478.00 amsl**
Sampling Method: **Continuous Sampler**	North: **368459.61** East: **591300.28**
Remarks: **DRAFT**	Borehole Dia.: **2.25 inches** Total Depth: **16.0 feet**
	Project Number: **3434446A**
	Project Name: **Whirlpool Corporation**

Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	USCS Code	Material Description
		2		2.6		Concrete
						SANDY FILL, DARK BROWN, MEDIUM GRAIN, WET
475		2	DP-54(3)	4.6	MH	CLAYEY SILT, BROWN, SOME REDDISH BROWN, LITTLE GRAVEL, SUBROUNDED, UP TO 1/4", LITTLE BLACK NODULES, SLIGHTLY PLASTIC, SLIGHTLY STIFF, SLIGHTLY MOIST
	5	2		2.4	CL	SILTY CLAY, BROWN, LITTLE LIGHT GRAY MOTTLING, TRACE GRAVEL, SUBROUNDED, UP TO 1/4", TRACE BLACK NODULES, PLASTIC, STIFF, SLIGHTLY MOIST
		2		1.6		SILTY CLAY AS ABOVE, WITH GRAY MOTTLING, VERY STIFF
470		2		0.5		SILTY CLAY AS ABOVE, SOME GRAVEL, SUBROUNDED, UP TO 1/4"
	10	2		1.5		
		2	DP-54(13)	0.6		SILTY CLAY, BROWN, SOME GRAVEL, SUBROUNDED, UP TO 1/4", SOME BLACK NODULES, CRUMBLY, SLIGHTLY PLASTIC, SLIGHTLY STIFF, SLIGHTLY MOIST
465						SILTY CLAY, BROWN, LITTLE LIGHT GRAY MOTTLING, SOME BLACK NODULES, PLASTIC, STIFF, SLIGHTLY MOIST
	15	2		0		SILTY CLAY AS ABOVE, WITH LIGHT GRAY MOTTLING
460						
	20					
455						
	25					
450						

ENVIRON

7500 College Blvd, Overland Park, Kansas 66210

Site ID: DP-55	Date(s): **8/19/2014**
Location: **Fort Smith, Arkansas**	
Logged By: **N. Zurweller**	
Consulting Firm: **ENVIRON**	Checked By: **K. Stonestreet**
Contractor: **McCray Drilling**	Purpose: **Soil Boring**
Drilling Method: **Direct Push**	Datum: **NAVD88** Elevation: **478.00 amsl**
Sampling Method: **Continuous Sampler**	North: **368453.11** East: **591400.30**
Remarks: **DRAFT**	Borehole Dia.: **2.25 inches** Total Depth: **34.0 feet**
	Project Number: **3434446A**
	Project Name: **Whirlpool Corporation**

Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	USCS Code	Material Description
		2		23.6		CONCRETE
						SANDY FILL, DARK BROWN, MEDIUM GRAIN, SLIGHTLY COHESIVE, WET
475		2	DP-55(4)	21.2	MH	CLAYEY SILT, BROWN, SOME REDDISH BROWN MOTTLING, SOME BLACK NODULES, LITTLE GRAVEL, SUBROUNDED, UP TO 1/4", SLIGHTLY PLASTIC, SLIGHTLY STIFF, SLIGHTLY MOIST
	5	2		54.3	CL	SILTY CLAY, BROWN, LITTLE GRAY MOTTLING, LITTLE BLACK NODULES, TRACE GRAVEL, SUBROUNDED, UP TO 1/4", PLASTIC, STIFF, SLIGHTLY MOIST
		2	DP-55(8)	46.4		SILTY CLAY AS ABOVE, VERY STIFF
470		2		48.2		SILTY AS ABOVE, SOME GRAY MOTTLING, INCREASING SILT WITH DEPTH
	10	2		20.7		SILTY CLAY, BROWN, SOME GRAVEL AND SAND, SUBROUNDED, UP TO 1/4", FINE TO MEDIUM GRAIN, SOME BLACK NODULES, SLIGHTLY PLASTIC, COHESIVE, SLIGHTLY STIFF, SLIGHTLY MOIST
465		2	DP-55(13)	25.2		
						SILTY CLAY, BROWN, SOME LIGHT GRAY MOTTLING, TRACE SAND, FINE GRAIN, TRACE BLACK NODULES, PLASTIC, SLIGHTLY STIFF, MOIST
	15	2		45.3		SILTY CLAY AS ABOVE, LITTLE BLACK NODULES
		2		10		
460		2		4.6		SILTY CLAY, BROWN, SOME LIGHT GRAY MOTTLING, TRACE SAND, FINE GRAIN, LITTLE BLACK NODULES, VERY PLASTIC, SLIGHTLY STIFF, MOIST TO VERY MOIST
	20	2		0.1		
455		2		0		
	25	2		0		SILTY CLAY AS ABOVE, WITH SAND, FINE TO MEDIUM
		2	DP-55(27)	0	GC	SAND AND GRAVEL, BROWN, WITH SILTY CLAY, SUBROUNDED GRAVEL, UP TO 1/2", MEDIUM TO COARSE GRAIN, STICKY, COHESIVE, VERY MOIST
450		2		0		SAND AND GRAVEL AS ABOVE, SUBROUNDED GRAVEL, UP TO 3/4", MOIST

ENVIRON

7500 College Blvd, Overland Park, Kansas 66210

Site ID: DP-55
Project Name: **Whirlpool Corporation**
Project Number: **3434446A**

Elevation (ft)	Water Level	Depth (ft)	Sample Interval	Sample No.		PID (ppm)	Graphic Log	USCS Code	Material Description
			2	DP-55(31)	0				SAND AND GRAVEL AS ABOVE, SUBROUNDED GRAVEL, UP TO 3/4", MOIST *(continued)*
			2		0			CL	SILTY CLAY, BROWN, CRUMBLY, SLIGHTLY LAMINATED, HARD, DRY
445									SHALE, VERY DARK GRAY, CRUMBLY, LAMINATED, VERY STIFF, DRY
		35							
440									
		40							
435									
		45							
430									
		50							
425									
		55							
420									
		60							
415									
		65							
410									

Report: SOIL_LOG_REV_1_MKE2; File: WHIRLPOOL_LOGS.GPJ; 09/10/14

ENVIRON

7500 College Blvd, Overland Park, Kansas 66210

Site ID: DP-56	Date(s): **8/19/2014**
Location: **Fort Smith, Arkansas**	
Logged By: **N. Zurweller**	
Consulting Firm: **ENVIRON**	Checked By: **K. Stonestreet**
Contractor: **McCray Drilling**	Purpose: **Soil Boring**
Drilling Method: **Direct Push**	Datum: **NAVD88** Elevation: **478.00 amsl**
Sampling Method: **Continuous Sampler**	North: **368233.88** East: **591686.35**
Remarks: **DRAFT**	Borehole Dia.: **2.25 inches** Total Depth: **16.0 feet**
	Project Number: **3434446A**
	Project Name: **Whirlpool Corporation**

Elevation (ft)	Depth (ft)	Recovery (feet)	Sample No.	PID (ppm)	USCS Code	Material Description
		2		0.2		CONCRETE
						SANDY FILL, VERY DARK GRAY AND LIGHT BROWN, MEDIUM GRAIN, LOOSE, MOIST
475		2	DP-56(3)	0	CL	SILTY CLAY, BROWN, SOME LIGHT GRAY MOTTLING, SOME CLAYEY SILT, SOME BLACK NODULES, TRACE GRAVEL, SUBROUNDED, UP TO 1/4", SLIGHTLY PLASTIC, SLIGHTLY STIFF, SLIGHTLY MOIST
	5	2		0		SILTY CLAY, BROWN, SOME LIGHT GRAY MOTTLING, SOME GRAYISH BROWN MOTTLING, SOME BLACK NODULES, TRACE GRAVEL, SUBROUNDED UP TO 1/4", PLASTIC, STIFF, SLIGHTLY MOIST
		2		0		SILTY CLAY, BROWN, SOME LIGHT GRAY MOTTLING, SOME BLACK NODULES, SOME GRAVEL, SUBROUNDED UP TO 1/4", PLASTIC, VERY STIFF, SLIGHTLY MOIST
470		2		0		
	10	2	DP-56(11)	0		SILTY CLAY, BROWN, SOME GRAVEL, SUBROUNDED UP TO 1/4", LITTLE SAND, FINE TO MEDIUM GRAIN, SLIGHTLY PLASTIC, SLIGHTLY COHESIVE, SLIGHTLY STIFF, SLIGHTLY MOIST
						SILTY CLAY, BROWN, SOME GRAY MOTTLING, SOME BLACK NODULES, PLASTIC, VERY STIFF, SLIGHTLY MOIST
465		2		0		SILTY CLAY, BROWN, TRACE SAND, FINE GRAIN, SOME GRAY MOTTLING, SOME BLACK NODULES, PLASTIC, SLIGHTLY STIFF TO STIFF, MOIST
	15	2		0		
460						
	20					
455						
	25					
450						

APPENDIX C:
Laboratory Analytical Report

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 21, 2014

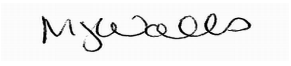
Wendy Stonestreet
Environ International Corporation
7500 College Blvd Ste 925
Overland Park, KS 66210

RE: Project: FOR SMITH AR
Pace Project No.: 60176121

Dear Wendy Stonestreet:
Enclosed are the analytical results for sample(s) received by the laboratory on August 20, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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,



Mary Jane Walls
maryjane.walls@pacelabs.com
PM Lab Management

Enclosures

cc: EDD, Environ_AR
Tamara Gleason, ENVIRON International Corporation

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: FOR SMITH AR
Pace Project No.: 60176121

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: FOR SMITH AR
Pace Project No.: 60176121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60176121001	**DP-54-SL (3.0 FT) - 20140819**	Solid	08/19/14 08:15	08/20/14 08:30
60176121002	**DP-54-SL (13.0 FT) - 20140819**	Solid	08/19/14 11:00	08/20/14 08:30
60176121003	**DP-55-SL (4.0 FT) - 20140819**	Solid	08/19/14 08:45	08/20/14 08:30
60176121004	**DP-55-SL (8.0 FT) - 20140819**	Solid	08/19/14 09:00	08/20/14 08:30
60176121005	**DP-55-SL (13.0 FT) - 20140819**	Solid	08/19/14 09:15	08/20/14 08:30
60176121006	**DP-55-SL (27.0 FT) - 20140819**	Solid	08/19/14 09:45	08/20/14 08:30
60176121007	**DP-55-SL (31.0 FT) - 20140819**	Solid	08/19/14 10:00	08/20/14 08:30
60176121008	**DP-56-SL (3.0 FT) - 20140819**	Solid	08/19/14 11:35	08/20/14 08:30
60176121009	**DP-56-SL (11.0 FT) - 20140819**	Solid	08/19/14 11:50	08/20/14 08:30
60176121010	**TB21-20140819**	Solid	08/19/14 11:50	08/20/14 08:30

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: FOR SMITH AR
Pace Project No.: 60176121

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60176121001	**DP-54-SL (3.0 FT) - 20140819**	EPA 8260	JKL	37
		ASTM D2974	DWC	1
60176121002	**DP-54-SL (13.0 FT) - 20140819**	EPA 8260	JKL	37
		ASTM D2974	DWC	1
60176121003	**DP-55-SL (4.0 FT) - 20140819**	EPA 8260	JKL, TJT	37
		ASTM D2974	DWC	1
60176121004	**DP-55-SL (8.0 FT) - 20140819**	EPA 8260	JKL, TJT	37
		ASTM D2974	DWC	1
60176121005	**DP-55-SL (13.0 FT) - 20140819**	EPA 8260	JKL, TJT	37
		ASTM D2974	DWC	1
60176121006	**DP-55-SL (27.0 FT) - 20140819**	EPA 8260	JKL, TJT	37
		ASTM D2974	DWC	1
60176121007	**DP-55-SL (31.0 FT) - 20140819**	EPA 8260	JKL	37
		ASTM D2974	DWC	1
60176121008	**DP-56-SL (3.0 FT) - 20140819**	EPA 8260	JKL	37
		ASTM D2974	DWC	1
60176121009	**DP-56-SL (11.0 FT) - 20140819**	EPA 8260	JKL	37
		ASTM D2974	DWC	1
60176121010	**TB21-20140819**	EPA 8260	JKL	37

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

PROJECT NARRATIVE

Project: FOR SMITH AR
Pace Project No.: 60176121

Method: **EPA 8260**
Description: 8260 MSV 5035A VOA
Client: Environ_AR
Date: August 21, 2014

General Information:
10 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

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.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/63774

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSV/63806

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.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-54-SL (3.0 FT) - 20140819 **Lab ID: 60176121001** Collected: 08/19/14 08:15 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	18.8	9.4	1		08/20/14 18:42	67-64-1	
Benzene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	71-43-2	
Bromodichloromethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-27-4	
Bromoform	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-25-2	
Bromomethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.4	4.7	1		08/20/14 18:42	78-93-3	
Carbon disulfide	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	108-90-7	
Chloroethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-00-3	
Chloroform	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	67-66-3	
Chloromethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	74-87-3	
Dibromochloromethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	10061-02-6	
Ethylbenzene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	100-41-4	
2-Hexanone	ND	ug/kg	18.8	9.4	1		08/20/14 18:42	591-78-6	
Methylene chloride	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.4	4.7	1		08/20/14 18:42	108-10-1	
Styrene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	127-18-4	
Toluene	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	79-00-5	
Trichloroethene	**50.1**	ug/kg	4.7	2.4	1		08/20/14 18:42	79-01-6	
Vinyl chloride	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	75-01-4	
Xylene (Total)	ND	ug/kg	4.7	2.4	1		08/20/14 18:42	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	80-120		1		08/20/14 18:42	2037-26-5	
4-Bromofluorobenzene (S)	103	%	76-123		1		08/20/14 18:42	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	75-129		1		08/20/14 18:42	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**14.4**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-54-SL (13.0 FT) - 20140819 **Lab ID: 60176121002** Collected: 08/19/14 11:00 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	18.2	9.1	1		08/20/14 18:57	67-64-1	
Benzene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	71-43-2	
Bromodichloromethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-27-4	
Bromoform	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-25-2	
Bromomethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.1	4.5	1		08/20/14 18:57	78-93-3	
Carbon disulfide	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	56-23-5	
Chlorobenzene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	108-90-7	
Chloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-00-3	
Chloroform	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	67-66-3	
Chloromethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	74-87-3	
Dibromochloromethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	10061-02-6	
Ethylbenzene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	100-41-4	
2-Hexanone	ND	ug/kg	18.2	9.1	1		08/20/14 18:57	591-78-6	
Methylene chloride	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.1	4.5	1		08/20/14 18:57	108-10-1	
Styrene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	79-34-5	
Tetrachloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	127-18-4	
Toluene	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	79-00-5	
Trichloroethene	**31.3**	ug/kg	4.5	2.3	1		08/20/14 18:57	79-01-6	
Vinyl chloride	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	75-01-4	
Xylene (Total)	ND	ug/kg	4.5	2.3	1		08/20/14 18:57	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	80-120		1		08/20/14 18:57	2037-26-5	
4-Bromofluorobenzene (S)	102	%	76-123		1		08/20/14 18:57	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	75-129		1		08/20/14 18:57	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**11.9**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-55-SL (4.0 FT) - 20140819 **Lab ID: 60176121003** Collected: 08/19/14 08:45 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	18.8	9.4	1		08/20/14 19:13	67-64-1	
Benzene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	71-43-2	
Bromodichloromethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-27-4	
Bromoform	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-25-2	
Bromomethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.4	4.7	1		08/20/14 19:13	78-93-3	
Carbon disulfide	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	108-90-7	
Chloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-00-3	
Chloroform	**4.5J**	ug/kg	4.7	2.3	1		08/20/14 19:13	67-66-3	
Chloromethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	74-87-3	
Dibromochloromethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-35-4	
cis-1,2-Dichloroethene	**8.2**	ug/kg	4.7	2.3	1		08/20/14 19:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	10061-02-6	
Ethylbenzene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	100-41-4	
2-Hexanone	ND	ug/kg	18.8	9.4	1		08/20/14 19:13	591-78-6	
Methylene chloride	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.4	4.7	1		08/20/14 19:13	108-10-1	
Styrene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	127-18-4	
Toluene	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	79-00-5	
Trichloroethene	**600**	ug/kg	291	146	50		08/21/14 12:34	79-01-6	
Vinyl chloride	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	75-01-4	
Xylene (Total)	ND	ug/kg	4.7	2.3	1		08/20/14 19:13	1330-20-7	
Surrogates									
Toluene-d8 (S)	102	%	80-120		1		08/20/14 19:13	2037-26-5	
4-Bromofluorobenzene (S)	102	%	76-123		1		08/20/14 19:13	460-00-4	
1,2-Dichloroethane-d4 (S)	117	%	75-129		1		08/20/14 19:13	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**14.2**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-55-SL (8.0 FT) - 20140819 **Lab ID: 60176121004** Collected: 08/19/14 09:00 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	19.6	9.8	1		08/20/14 19:28	67-64-1	
Benzene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	71-43-2	
Bromodichloromethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-27-4	
Bromoform	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-25-2	
Bromomethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.8	4.9	1		08/20/14 19:28	78-93-3	
Carbon disulfide	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	56-23-5	
Chlorobenzene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	108-90-7	
Chloroethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-00-3	
Chloroform	**5.2**	ug/kg	4.9	2.5	1		08/20/14 19:28	67-66-3	
Chloromethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	74-87-3	
Dibromochloromethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-35-4	
cis-1,2-Dichloroethene	**7.8**	ug/kg	4.9	2.5	1		08/20/14 19:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	10061-02-6	
Ethylbenzene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	100-41-4	
2-Hexanone	ND	ug/kg	19.6	9.8	1		08/20/14 19:28	591-78-6	
Methylene chloride	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.8	4.9	1		08/20/14 19:28	108-10-1	
Styrene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	79-34-5	
Tetrachloroethene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	127-18-4	
Toluene	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	79-00-5	
Trichloroethene	**973**	ug/kg	301	150	50		08/21/14 12:50	79-01-6	
Vinyl chloride	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	75-01-4	
Xylene (Total)	ND	ug/kg	4.9	2.5	1		08/20/14 19:28	1330-20-7	
Surrogates									
Toluene-d8 (S)	102	%	80-120		1		08/20/14 19:28	2037-26-5	
4-Bromofluorobenzene (S)	103	%	76-123		1		08/20/14 19:28	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	75-129		1		08/20/14 19:28	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**16.8**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-55-SL (13.0 FT) - 20140819 **Lab ID: 60176121005** Collected: 08/19/14 09:15 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	18.7	9.4	1		08/20/14 19:43	67-64-1	
Benzene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	71-43-2	
Bromodichloromethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-27-4	
Bromoform	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-25-2	
Bromomethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.4	4.7	1		08/20/14 19:43	78-93-3	
Carbon disulfide	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	108-90-7	
Chloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-00-3	
Chloroform	**2.4J**	ug/kg	4.7	2.3	1		08/20/14 19:43	67-66-3	
Chloromethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	74-87-3	
Dibromochloromethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-35-4	
cis-1,2-Dichloroethene	**3.4J**	ug/kg	4.7	2.3	1		08/20/14 19:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	10061-02-6	
Ethylbenzene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	100-41-4	
2-Hexanone	ND	ug/kg	18.7	9.4	1		08/20/14 19:43	591-78-6	
Methylene chloride	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.4	4.7	1		08/20/14 19:43	108-10-1	
Styrene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	127-18-4	
Toluene	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	79-00-5	
Trichloroethene	**388**	ug/kg	292	146	50		08/21/14 13:06	79-01-6	
Vinyl chloride	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	75-01-4	
Xylene (Total)	ND	ug/kg	4.7	2.3	1		08/20/14 19:43	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	80-120		1		08/20/14 19:43	2037-26-5	
4-Bromofluorobenzene (S)	103	%	76-123		1		08/20/14 19:43	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	75-129		1		08/20/14 19:43	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**14.4**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-55-SL (27.0 FT) - 20140819 **Lab ID: 60176121006** Collected: 08/19/14 09:45 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	17.0	8.5	1		08/20/14 19:59	67-64-1	
Benzene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	71-43-2	
Bromodichloromethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-27-4	
Bromoform	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-25-2	
Bromomethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	74-83-9	
2-Butanone (MEK)	ND	ug/kg	8.5	4.3	1		08/20/14 19:59	78-93-3	
Carbon disulfide	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	56-23-5	
Chlorobenzene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	108-90-7	
Chloroethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-00-3	
Chloroform	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	67-66-3	
Chloromethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	74-87-3	
Dibromochloromethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	10061-02-6	
Ethylbenzene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	100-41-4	
2-Hexanone	ND	ug/kg	17.0	8.5	1		08/20/14 19:59	591-78-6	
Methylene chloride	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	8.5	4.3	1		08/20/14 19:59	108-10-1	
Styrene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	79-34-5	
Tetrachloroethene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	127-18-4	
Toluene	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	79-00-5	
Trichloroethene	**6.3**	ug/kg	5.5	2.8	1		08/21/14 12:19	79-01-6	
Vinyl chloride	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	75-01-4	
Xylene (Total)	ND	ug/kg	4.3	2.1	1		08/20/14 19:59	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	80-120		1		08/20/14 19:59	2037-26-5	
4-Bromofluorobenzene (S)	104	%	76-123		1		08/20/14 19:59	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	75-129		1		08/20/14 19:59	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**9.3**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-55-SL (31.0 FT) - 20140819 **Lab ID: 60176121007** Collected: 08/19/14 10:00 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	19.9	10	1		08/20/14 20:14	67-64-1	
Benzene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	71-43-2	
Bromodichloromethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-27-4	
Bromoform	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-25-2	
Bromomethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	74-83-9	
2-Butanone (MEK)	ND	ug/kg	10	5.0	1		08/20/14 20:14	78-93-3	
Carbon disulfide	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	108-90-7	
Chloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-00-3	
Chloroform	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	67-66-3	
Chloromethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	74-87-3	
Dibromochloromethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	124-48-1	
1,1-Dichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	10061-02-6	
Ethylbenzene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	100-41-4	
2-Hexanone	ND	ug/kg	19.9	10	1		08/20/14 20:14	591-78-6	
Methylene chloride	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	10	5.0	1		08/20/14 20:14	108-10-1	
Styrene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	127-18-4	
Toluene	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	79-00-5	
Trichloroethene	**27.7**	ug/kg	5.0	2.5	1		08/20/14 20:14	79-01-6	
Vinyl chloride	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	75-01-4	
Xylene (Total)	ND	ug/kg	5.0	2.5	1		08/20/14 20:14	1330-20-7	
Surrogates									
Toluene-d8 (S)	102	%	80-120		1		08/20/14 20:14	2037-26-5	
4-Bromofluorobenzene (S)	102	%	76-123		1		08/20/14 20:14	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	75-129		1		08/20/14 20:14	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**13.3**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-56-SL (3.0 FT) - 20140819 **Lab ID: 60176121008** Collected: 08/19/14 11:35 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	18.1	9.1	1		08/20/14 20:29	67-64-1	
Benzene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	71-43-2	
Bromodichloromethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-27-4	
Bromoform	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-25-2	
Bromomethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.1	4.5	1		08/20/14 20:29	78-93-3	
Carbon disulfide	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	56-23-5	
Chlorobenzene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	108-90-7	
Chloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-00-3	
Chloroform	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	67-66-3	
Chloromethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	74-87-3	
Dibromochloromethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	10061-02-6	
Ethylbenzene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	100-41-4	
2-Hexanone	ND	ug/kg	18.1	9.1	1		08/20/14 20:29	591-78-6	
Methylene chloride	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.1	4.5	1		08/20/14 20:29	108-10-1	
Styrene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	79-34-5	
Tetrachloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	127-18-4	
Toluene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	79-00-5	
Trichloroethene	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	79-01-6	
Vinyl chloride	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	75-01-4	
Xylene (Total)	ND	ug/kg	4.5	2.3	1		08/20/14 20:29	1330-20-7	
Surrogates									
Toluene-d8 (S)	103	%	80-120		1		08/20/14 20:29	2037-26-5	
4-Bromofluorobenzene (S)	103	%	76-123		1		08/20/14 20:29	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	75-129		1		08/20/14 20:29	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**14.9**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: DP-56-SL (11.0 FT) - 20140819 **Lab ID: 60176121009** Collected: 08/19/14 11:50 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	18.2	9.1	1		08/20/14 20:45	67-64-1	
Benzene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	71-43-2	
Bromodichloromethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-27-4	
Bromoform	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-25-2	
Bromomethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	74-83-9	
2-Butanone (MEK)	ND	ug/kg	9.1	4.6	1		08/20/14 20:45	78-93-3	
Carbon disulfide	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	108-90-7	
Chloroethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-00-3	
Chloroform	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	67-66-3	
Chloromethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	74-87-3	
Dibromochloromethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	124-48-1	
1,1-Dichloroethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-35-4	
cis-1,2-Dichloroethene	**4.0J**	ug/kg	4.6	2.3	1		08/20/14 20:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	10061-02-6	
Ethylbenzene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	100-41-4	
2-Hexanone	ND	ug/kg	18.2	9.1	1		08/20/14 20:45	591-78-6	
Methylene chloride	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	9.1	4.6	1		08/20/14 20:45	108-10-1	
Styrene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	127-18-4	
Toluene	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	79-00-5	
Trichloroethene	**4.9**	ug/kg	4.6	2.3	1		08/20/14 20:45	79-01-6	
Vinyl chloride	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	75-01-4	
Xylene (Total)	ND	ug/kg	4.6	2.3	1		08/20/14 20:45	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	80-120		1		08/20/14 20:45	2037-26-5	
4-Bromofluorobenzene (S)	100	%	76-123		1		08/20/14 20:45	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	75-129		1		08/20/14 20:45	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974								
Percent Moisture	**16.3**	%	0.50	0.50	1		08/20/14 00:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: FOR SMITH AR
Pace Project No.: 60176121

Sample: TB21-20140819 **Lab ID: 60176121010** Collected: 08/19/14 11:50 Received: 08/20/14 08:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260								
Acetone	ND	ug/kg	20.0	10.0	1		08/20/14 21:00	67-64-1	
Benzene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	71-43-2	
Bromodichloromethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-27-4	
Bromoform	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-25-2	
Bromomethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	74-83-9	
2-Butanone (MEK)	ND	ug/kg	10.0	5.0	1		08/20/14 21:00	78-93-3	
Carbon disulfide	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	108-90-7	
Chloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-00-3	
Chloroform	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	67-66-3	
Chloromethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	74-87-3	
Dibromochloromethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	124-48-1	
1,1-Dichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	10061-02-6	
Ethylbenzene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	100-41-4	
2-Hexanone	ND	ug/kg	20.0	10.0	1		08/20/14 21:00	591-78-6	
Methylene chloride	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	10.0	5.0	1		08/20/14 21:00	108-10-1	
Styrene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	127-18-4	
Toluene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	79-00-5	
Trichloroethene	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	79-01-6	
Vinyl chloride	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	75-01-4	
Xylene (Total)	ND	ug/kg	5.0	2.5	1		08/20/14 21:00	1330-20-7	
Surrogates									
Toluene-d8 (S)	102	%	80-120		1		08/20/14 21:00	2037-26-5	
4-Bromofluorobenzene (S)	99	%	76-123		1		08/20/14 21:00	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	75-129		1		08/20/14 21:00	17060-07-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: FOR SMITH AR
Pace Project No.: 60176121

QC Batch: MSV/63774 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 60176121001, 60176121002, 60176121003, 60176121004, 60176121005, 60176121006, 60176121007, 60176121008, 60176121009, 60176121010

METHOD BLANK: 1428896 Matrix: Solid
Associated Lab Samples: 60176121001, 60176121002, 60176121003, 60176121004, 60176121005, 60176121006, 60176121007, 60176121008, 60176121009, 60176121010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/kg	ND	5.0	08/20/14 18:27	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	08/20/14 18:27	
1,1,2-Trichloroethane	ug/kg	ND	5.0	08/20/14 18:27	
1,1-Dichloroethane	ug/kg	ND	5.0	08/20/14 18:27	
1,1-Dichloroethene	ug/kg	ND	5.0	08/20/14 18:27	
1,2-Dichloroethane	ug/kg	ND	5.0	08/20/14 18:27	
1,2-Dichloropropane	ug/kg	ND	5.0	08/20/14 18:27	
2-Butanone (MEK)	ug/kg	ND	10.0	08/20/14 18:27	
2-Hexanone	ug/kg	ND	20.0	08/20/14 18:27	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	10.0	08/20/14 18:27	
Acetone	ug/kg	ND	20.0	08/20/14 18:27	
Benzene	ug/kg	ND	5.0	08/20/14 18:27	
Bromodichloromethane	ug/kg	ND	5.0	08/20/14 18:27	
Bromoform	ug/kg	ND	5.0	08/20/14 18:27	
Bromomethane	ug/kg	ND	5.0	08/20/14 18:27	
Carbon disulfide	ug/kg	ND	5.0	08/20/14 18:27	
Carbon tetrachloride	ug/kg	ND	5.0	08/20/14 18:27	
Chlorobenzene	ug/kg	ND	5.0	08/20/14 18:27	
Chloroethane	ug/kg	ND	5.0	08/20/14 18:27	
Chloroform	ug/kg	ND	5.0	08/20/14 18:27	
Chloromethane	ug/kg	ND	5.0	08/20/14 18:27	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	08/20/14 18:27	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	08/20/14 18:27	
Dibromochloromethane	ug/kg	ND	5.0	08/20/14 18:27	
Ethylbenzene	ug/kg	ND	5.0	08/20/14 18:27	
Methylene chloride	ug/kg	ND	5.0	08/20/14 18:27	
Styrene	ug/kg	ND	5.0	08/20/14 18:27	
Tetrachloroethene	ug/kg	ND	5.0	08/20/14 18:27	
Toluene	ug/kg	ND	5.0	08/20/14 18:27	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	08/20/14 18:27	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	08/20/14 18:27	
Trichloroethene	ug/kg	ND	5.0	08/20/14 18:27	
Vinyl chloride	ug/kg	ND	5.0	08/20/14 18:27	
Xylene (Total)	ug/kg	ND	5.0	08/20/14 18:27	
1,2-Dichloroethane-d4 (S)	%	100	75-129	08/20/14 18:27	
4-Bromofluorobenzene (S)	%	101	76-123	08/20/14 18:27	
Toluene-d8 (S)	%	101	80-120	08/20/14 18:27	

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

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: FOR SMITH AR
Pace Project No.: 60176121

LABORATORY CONTROL SAMPLE: 1428897

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	100	92.4	92	77-126	
1,1,2,2-Tetrachloroethane	ug/kg	100	91.2	91	73-120	
1,1,2-Trichloroethane	ug/kg	100	91.7	92	76-120	
1,1-Dichloroethane	ug/kg	100	93.6	94	71-120	
1,1-Dichloroethene	ug/kg	100	89.3	89	76-130	
1,2-Dichloroethane	ug/kg	100	96.6	97	78-120	
1,2-Dichloropropane	ug/kg	100	93.2	93	80-120	
2-Butanone (MEK)	ug/kg	500	449	90	55-135	
2-Hexanone	ug/kg	500	463	93	57-136	
4-Methyl-2-pentanone (MIBK)	ug/kg	500	480	96	71-128	
Acetone	ug/kg	500	486	97	43-144	
Benzene	ug/kg	100	91.9	92	80-120	
Bromodichloromethane	ug/kg	100	97.6	98	80-120	
Bromoform	ug/kg	100	99.0	99	75-124	
Bromomethane	ug/kg	100	70.9	71	38-150	
Carbon disulfide	ug/kg	100	100	100	58-137	
Carbon tetrachloride	ug/kg	100	95.3	95	75-140	
Chlorobenzene	ug/kg	100	88.8	89	80-120	
Chloroethane	ug/kg	100	104	104	65-127	
Chloroform	ug/kg	100	94.0	94	74-120	
Chloromethane	ug/kg	100	78.9	79	39-138	
cis-1,2-Dichloroethene	ug/kg	100	92.9	93	76-124	
cis-1,3-Dichloropropene	ug/kg	100	94.1	94	82-120	
Dibromochloromethane	ug/kg	100	96.5	96	80-124	
Ethylbenzene	ug/kg	100	89.7	90	80-120	
Methylene chloride	ug/kg	100	95.4	95	70-123	
Styrene	ug/kg	100	89.9	90	79-120	
Tetrachloroethene	ug/kg	100	86.3	86	78-128	
Toluene	ug/kg	100	90.3	90	79-120	
trans-1,2-Dichloroethene	ug/kg	100	89.5	90	76-124	
trans-1,3-Dichloropropene	ug/kg	100	94.6	95	80-124	
Trichloroethene	ug/kg	100	90.6	91	80-120	
Vinyl chloride	ug/kg	100	81.2	81	57-132	
Xylene (Total)	ug/kg	300	263	88	79-120	
1,2-Dichloroethane-d4 (S)	%			106	75-129	
4-Bromofluorobenzene (S)	%			101	76-123	
Toluene-d8 (S)	%			102	80-120	

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

Pace Analytical Services, Inc.
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(913)599-5665

QUALITY CONTROL DATA

Project: FOR SMITH AR
Pace Project No.: 60176121

QC Batch: MSV/63806 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 60176121003, 60176121004, 60176121005, 60176121006

METHOD BLANK: 1429718 Matrix: Solid
Associated Lab Samples: 60176121003, 60176121004, 60176121005, 60176121006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/kg	ND	5.0	08/21/14 11:53	
1,2-Dichloroethane-d4 (S)	%	104	75-129	08/21/14 11:53	
4-Bromofluorobenzene (S)	%	98	76-123	08/21/14 11:53	
Toluene-d8 (S)	%	100	80-120	08/21/14 11:53	

LABORATORY CONTROL SAMPLE: 1429719

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/kg	100	113	113	80-120	
1,2-Dichloroethane-d4 (S)	%			125	75-129	
4-Bromofluorobenzene (S)	%			104	76-123	
Toluene-d8 (S)	%			106	80-120	

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

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: FOR SMITH AR
Pace Project No.: 60176121

QC Batch: PMST/9926 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 60176121001, 60176121002, 60176121003, 60176121004, 60176121005, 60176121006, 60176121007, 60176121008, 60176121009

METHOD BLANK: 1428900 Matrix: Solid
Associated Lab Samples: 60176121001, 60176121002, 60176121003, 60176121004, 60176121005, 60176121006, 60176121007, 60176121008, 60176121009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Percent Moisture	%	ND	0.50	08/20/14 00:00	

SAMPLE DUPLICATE: 1428901

Parameter	Units	60176121001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.4	14.1	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

QUALIFIERS

Project: FOR SMITH AR
Pace Project No.: 60176121

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

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.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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.

BATCH QUALIFIERS

Batch: MSV/63774

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/63806

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FOR SMITH AR
Pace Project No.: 60176121

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60176121001	**DP-54-SL (3.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121002	**DP-54-SL (13.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121003	**DP-55-SL (4.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121003	**DP-55-SL (4.0 FT) - 20140819**	EPA 8260	MSV/63806		
60176121004	**DP-55-SL (8.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121004	**DP-55-SL (8.0 FT) - 20140819**	EPA 8260	MSV/63806		
60176121005	**DP-55-SL (13.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121005	**DP-55-SL (13.0 FT) - 20140819**	EPA 8260	MSV/63806		
60176121006	**DP-55-SL (27.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121006	**DP-55-SL (27.0 FT) - 20140819**	EPA 8260	MSV/63806		
60176121007	**DP-55-SL (31.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121008	**DP-56-SL (3.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121009	**DP-56-SL (11.0 FT) - 20140819**	EPA 8260	MSV/63774		
60176121010	**TB21-20140819**	EPA 8260	MSV/63774		
60176121001	**DP-54-SL (3.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121002	**DP-54-SL (13.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121003	**DP-55-SL (4.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121004	**DP-55-SL (8.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121005	**DP-55-SL (13.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121006	**DP-55-SL (27.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121007	**DP-55-SL (31.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121008	**DP-56-SL (3.0 FT) - 20140819**	ASTM D2974	PMST/9926		
60176121009	**DP-56-SL (11.0 FT) - 20140819**	ASTM D2974	PMST/9926		

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Sample Condition Upon Receipt

WO#: 60176121

60176121

Client Name: Environ

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 6113 8277 3519 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-239) / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 4.0

Date and initials of person examining contents: _____

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. Kits
Rush Turn Around Time requested:	☒Yes ☐No ☐N/A	7. 24 hr
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☒Yes ☐No ☐N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: SL	☒Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☐Yes ☐No ☒N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☒N/A	14.
Exceptions: (VOA), coliform, TOC, O&G, WI-DRO (water), Phenolics	☒Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased): 100713-3	☒Yes ☐No ☐N/A	15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☒No ☐N/A	17. List State: AR

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: MEW Date: 8/20/14

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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
Address:	7500 College Blvd., Ste. 925
	Overland Park, KS 66210
Email To:	wstonestreet@environcorp.com
Phone: 913-553-5926	Fax:
Requested Due Date/TAT:	24 Hr TAT

Section B Required Project Information:

Report To:	Wendy Stonestreet
Copy To:	Tamara Gleason
	tgleason@environcorp.com
Purchase Order No.:	
Project Name:	Fort Smith, AR
Project Number:	

Section C Invoice Information:

Attention:	Tamara Gleason
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	MJ Walls
Pace Profile #:	7444 water, 7709 soil

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: AR

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

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

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	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260 client specific list	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	DP-54-SL(3.0FT)-20140819	SL	G			8/19/14	0815		5	X						X	X	X	X		60176121
2	DP-54-SL(13.0FT)-20140819	"	"				1100		"	"											
3	DP-55-SL(4.0FT)-20140819						0845														
4	DP-55-SL(8.0FT)-20140819						0900														
5	DP-55-SL(13.0FT)-20140819						0915														
6	DP-55-SL(27.0FT)-20140819						0945														
7	DP-55-SL(31.0FT)-20140819						1000														
8	DP-56-SL(3.0FT)-20140819						1135														
9	DP-56-SL(11.0FT)-20140819	↓	↓			↓	1150		↓	↓						↓	↓	↓	↓		
10	TripBlank 13-082014	WT							2	↓								(2)VG4U			
11	Temp Blank	WT							1												
12																					

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)
24 Hr TAT !	Nick Zurweller/ENVIRON	8/19/14	1800	Pace	8/20	0930	4.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nick Zurweller

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/19/14

*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.

APPENDIX D: Procedure and Technical Description for a Subsurface MIP/DP Investigation

Membrane Interface Probe Investigation Narrative
Whirlpool Site – Fort Smith, Arkansas

Membrane Interface Probe (MIP) screening subsurface investigations were performed at the Whirlpool site in Ft. Smith, Arkansas to refine the existing Conceptual Site Model (CSM) to further delineate soil and groundwater impacts.

This MIP investigation narrative provides background information about the MIP investigations performed at the Whirlpool site, including a general discussion of the various types of probes or detectors utilized during the investigation. This narrative also provides a comparison of the data gathered during respective MIP investigations with soil and groundwater data generated by off-site analytical laboratories (analysis performed using EPA Method 8260). The last part of this narrative describes the general assessment process performed by field personnel regarding decisions to collect soil and groundwater samples to interpret the MIP results. Appendices A through D contain specific vendor and manufacturer standard operational procedures for various MIP screening techniques. Appendices E and F contain specific calibration generated by the vendors during the MIP investigations.

BACKGROUND

MIP investigation techniques were utilized to assess soil and groundwater conditions at the Whirlpool facility between September 2013 and January 2014. A low-level MIP investigation was used to help delineate the extent of impacts in soil and groundwater northeast of the Whirlpool facility and potential impacts along the former Whirlpool manufacturing building property boundaries in August 2014.

MIP screening level investigation techniques were utilized due to the areal size and volume of subsurface soils and groundwater for investigation. The MIP technology allows for rapid screening-level characterization of volatile organic compound (VOC) impacts in subsurface soils and groundwater. Results are provided real-time, allowing for an adaptive and efficient screening characterization of large subsurface volumes. Although semi-quantitative, continuous vertical MIP profiles reduce uncertainty in site characterization by identifying targeted areas to focus analytical-based soil and groundwater data collection.

The MIP is a direct push tool with the primary capability of screening the relative concentration of VOCs with depth in soil and groundwater. Supplemental screening capabilities include assessment of soil conductivity and permeability; however, the instrumentation to perform the primary and supplemental screening capabilities varies and instrumentation available varied among vendors during the respective investigations. The MIP does not accommodate collection of soil samples to assess lithology or for collection of discrete soil or groundwater samples. A separate soil probe or boring is necessary for interpretation of MIP results including lithology and collection of soil and groundwater samples.

The MIP provides a continuous, semi-quantitative VOC screening of soils through a semi-permeable membrane mounted within a heated block on the lead soil probe rod. As the soil probe is advanced, soils are heated to approximately 120°C on contact with the heated block resulting in VOCs diffusing by the induced concentration gradient across the membrane and

transferred via nitrogen carrier gas to the detectors at the ground surface. The various detectors used during the MIP investigations include the following:

- Photoionization Detector (PID);
- Flame Ionization Detector (FID);
- Electron Capture Device (ECD);
- Halogen Specific Device (XSD);
- Electrical Conductivity Detector (EC); and
- Hydraulic Profiling Tool (HPT).

Brief descriptions of the respective probes are provided below.

The PID and FID utilize ultraviolet light and a flame, respectively, to ionize VOCs resulting in an electric current producing a response on the respective instruments. Handheld PIDs have been used for field screening soil samples for previous conventional soil and groundwater investigations at the Whirlpool site.

The ECD detector is most sensitive to chlorinated VOCs and has been used during the MIP investigations at the Whirlpool site as the primary indicator of trichloroethylene (TCE) impacts in soil or groundwater. The ECD uses a radioactive beta particle (electron) emitter in conjunction with nitrogen makeup gas transporting vapors from the heated MIP to the ECD instrumentation at the surface. The ECD measures the differences in electric current between the collector anode and a cathode caused by electron absorbing analyte molecules.

The XSD detector is only responsive to halogenated molecules in the nitrogen carrier gas; and therefore, make this detector very beneficial in contaminated plumes containing mixtures of waste (impacts at the Whirlpool site are all most exclusively associated with TCE and breakdown constituents).

The EC detector provides an indication of soil particle size based on the electrical conductivity of the soils as the probe is advanced. In general, finer-grained clay and silt soils have much higher conductivities compared to sands and gravels, allowing for screening assessment of differentiation between the formations.

The HPT is a tool that measures the pressure required to inject water into the soil as the probe is advanced into the subsurface. This injection pressure log is an indicator of formation permeability. In addition to measurement of injection pressure, the HPT can also be used to measure hydrostatic pressure under a zero-flow condition and provide an estimate of hydraulic permeability of the soils.

The low-level MIP utilizes the same ECD detector but is more sensitive to lower concentrations. The low-level MIP is advanced at a rate of approximately one foot per minute, and temporarily halted at one foot intervals for approximately 45 to 60 seconds. Low-level MIP is made possible by using an inline nitrogen gas flow controller allowing the nitrogen gas flow to be reduced as the probe's advancement is temporarily halted. While the probe is stopped, heated vapors accumulate behind the probe membrane and when the nitrogen gas flow is increased, these accumulated vapors are transported to the ECD at the surface for analysis. This accumulation

of vapors typically results in lower detection levels. A low-level MIP graph displays characteristic data spikes at one foot intervals as a result of the accumulated vapor mass reaching the ECD.

Four investigations using MIP probes have been performed at the Whirlpool site. The respective MIP investigation timeframes, MIP vendor and instrumentation utilized for each investigation is summarized below:

- The September and October 2013 event was performed by Columbia Technologies and utilized four detectors: PID, FID and ECD;
- The December 2013 and January 2014 events were performed by Vironex and utilized PID, FID, ECD and XSD probes;
- The January 2014 event was performed by Vironex and utilized PID, FID, ECD and XSD; and a dedicated probe to perform HPT testing; and
- The August 2014 event was performed by Columbia and utilized the low level MIP with PID, FID, ECD and HPT probes [an onsite field gas chromatogram (GC) was used to assess select groundwater samples; however, all field GC data was confirmed with samples submitted to an offsite laboratory for analysis].

Comparison of MIP Data with Existing Soil and Groundwater Data

Soil probes or borings for collection of discrete soil and groundwater samples have generally been utilized to collect data generated at select locations where TCE impact has been identified based upon MIP locations exhibiting relatively high ECD screening responses. The MIP ECD responses range between $1 * 10^5$ µV up to a saturation level approaching $1 * 10^8$ µV. The ECD responses and laboratory results for soil and groundwater data from the four investigations has been plotted on logarithmic scales with a linear trend line added to each graph on Figures 2 and 3, respectively. The graph for soil data (Figure 2) suggests relatively even distribution along the linear trend line; however, a lack of comparability for the data exists for ECD responses greater than $1 * 10^7$ µV and soil TCE concentrations greater than approximately 10 mg/kg. The linear trend line suggests that the remedial action level (RAL) for TCE in soil of 0.129 mg/kg is equivalent to an ECD screening response greater than $2 * 10^6$ µV.

The comparison of groundwater ECD responses and groundwater data (Figure 3) also presents a linear trend, but the data exists in three groups; however, these groups are more a function of location on the site than an overall comparison of the data set. For example, the high ECD responses and respective higher groundwater concentrations on the right side of the graph depict data collected in the vicinity of Area 1.

Non-detect values for soil and groundwater samples have not been plotted on Figures 2 and 3, but "J" flagged values are plotted.

Guidance for Performance of Discrete Soil or Groundwater Sampling Based Upon MIP Results

In general, an ECD response of $1 * 10^6$ µV, which is a relatively conservative value as described above, resulted in further assessment including:

- Review of data from nearby MIP locations;
- Review of existing soil and groundwater data from nearby soil probes, borings or monitoring wells; or
- Performance of a subsequent investigation including collection of soil and/or groundwater samples for laboratory analysis.

Due to the screening nature of MIP data, availability of existing soil and groundwater data throughout the Whirlpool site prior to commencing the MIP investigations and the objectives of the specific investigations (i.e. delineation of extent of impact or general characterization of existing impact), no specific guideline existed during the respective MIP investigations requiring the performance of a soil probe or boring to collect discrete soil and/or groundwater samples to interpret specific MIP screening results.

Discrete soil probes with analysis of soil and groundwater samples was performed for every off-site MIP performed for the investigation northeast of the Whirlpool site in August 2014. However, discrete soil and/or groundwater sampling has not been performed as a result of an isolated ECD response in Vadose Zone soil throughout other portions of the site during earlier MIP investigations. In addition, discrete groundwater sampling was not performed at single MIP locations exhibiting isolated ECD responses at the total depth of the probe unless the MIP was located at a property boundary location without existing, nearby monitoring wells.

All MIPs were properly abandoned and plugged with hydrated bentonite chips in accordance with ADEQ interim document 96-4 and/or approved variances during the respective investigations.

Standard Operating Procedures for the MIP tools from the vendors are provided as Appendices A through D and calibration data for Vironex and Columbia are provided as Appendices E and F, respectively.

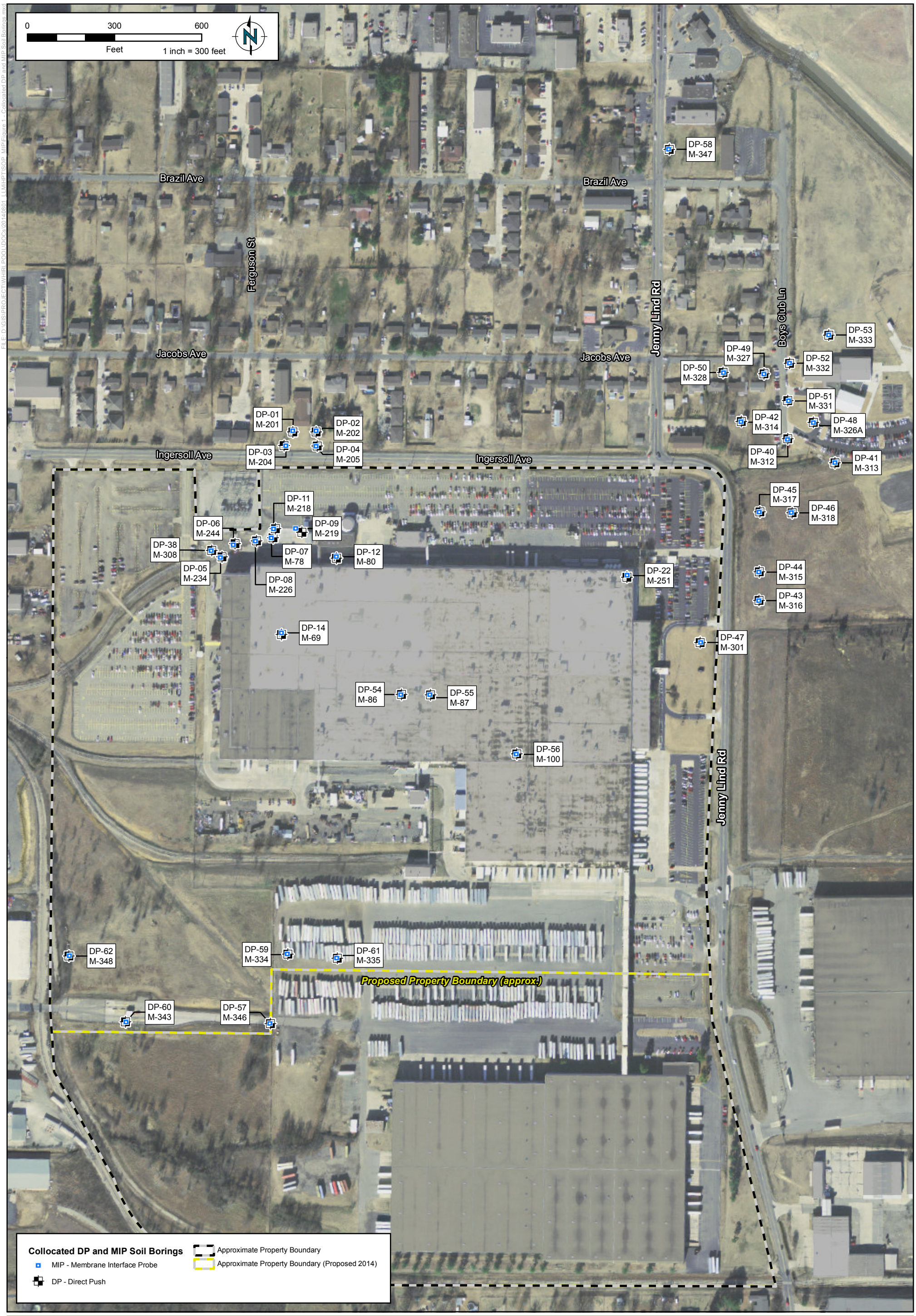
-oo0oo-

LIST OF APPENDICES

Figure 2: MIP ECD Responses vs. Soil Analytical Results for TCE
Figure 3: MIP ECD Responses vs. Groundwater Analytical Results for TCE
Table 2: Soil Sample Results Compared with Corresponding MIP ECD Response
Table 3: Groundwater Sample Results Compared with Corresponding MIP ECD Response
Appendix A: Standard Operating Procedure (SOP) for Membrane Interface Probe
Appendix B: Standard Operating Procedure (SOP) for Hydraulic Profiling Tool System
Appendix C: Standard Operating Procedure (SOP) for Electrical Conductivity Logging
Appendix D: Standard Operating Procedure (SOP) for Low Level Membrane Interface Probe
Appendix E: Calibration Data for Vironex
Appendix F: Calibration Data for Columbia

FIGURES

FILE: D:\GIS\PROJECT\WHIRLPOOL\DOCs\20140801_LLM\HPT\SOP_MIP\Figure 1 - Collocated DP and MIP Soil Borings.mxd



ENVIRON

DRAFTED BY: KTS | DATE: 09/11/2014

COLLOCATED DIRECT PUSH AND MEMBRANE INTERFACE PROBE SOIL BORINGS

Whirlpool Facility - Fort Smith, Arkansas

Figure 1

PROJECT: 3434446A

MIP ECD Response vs. Analytical Results (TCE µg/kg)
Soil

Note:
- Non-detect values not plotted
- Excludes saturated ECD response (> 10,000,000 uV)
- Data points labeled by analytical result (µg/kg)

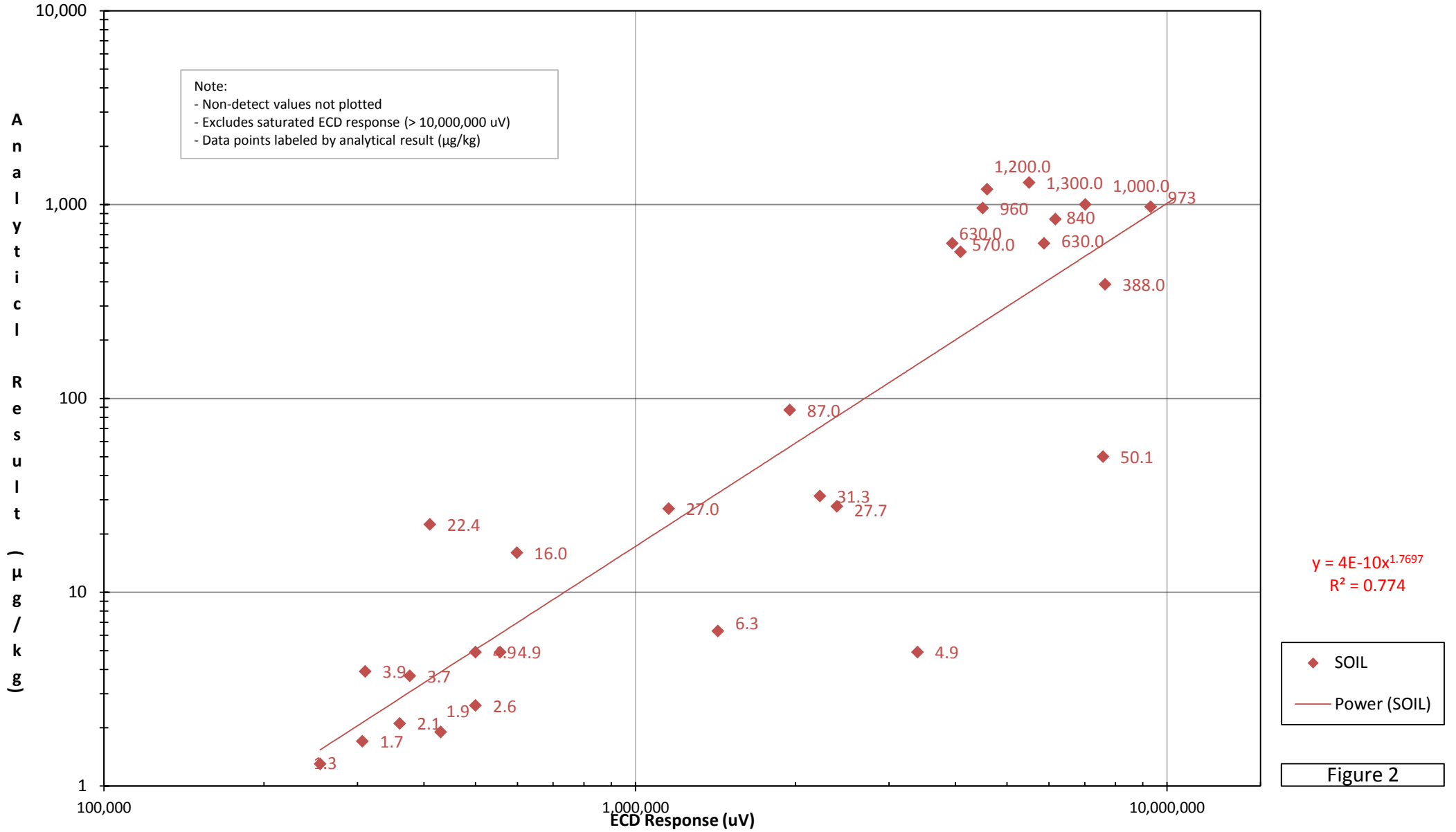


Figure 2

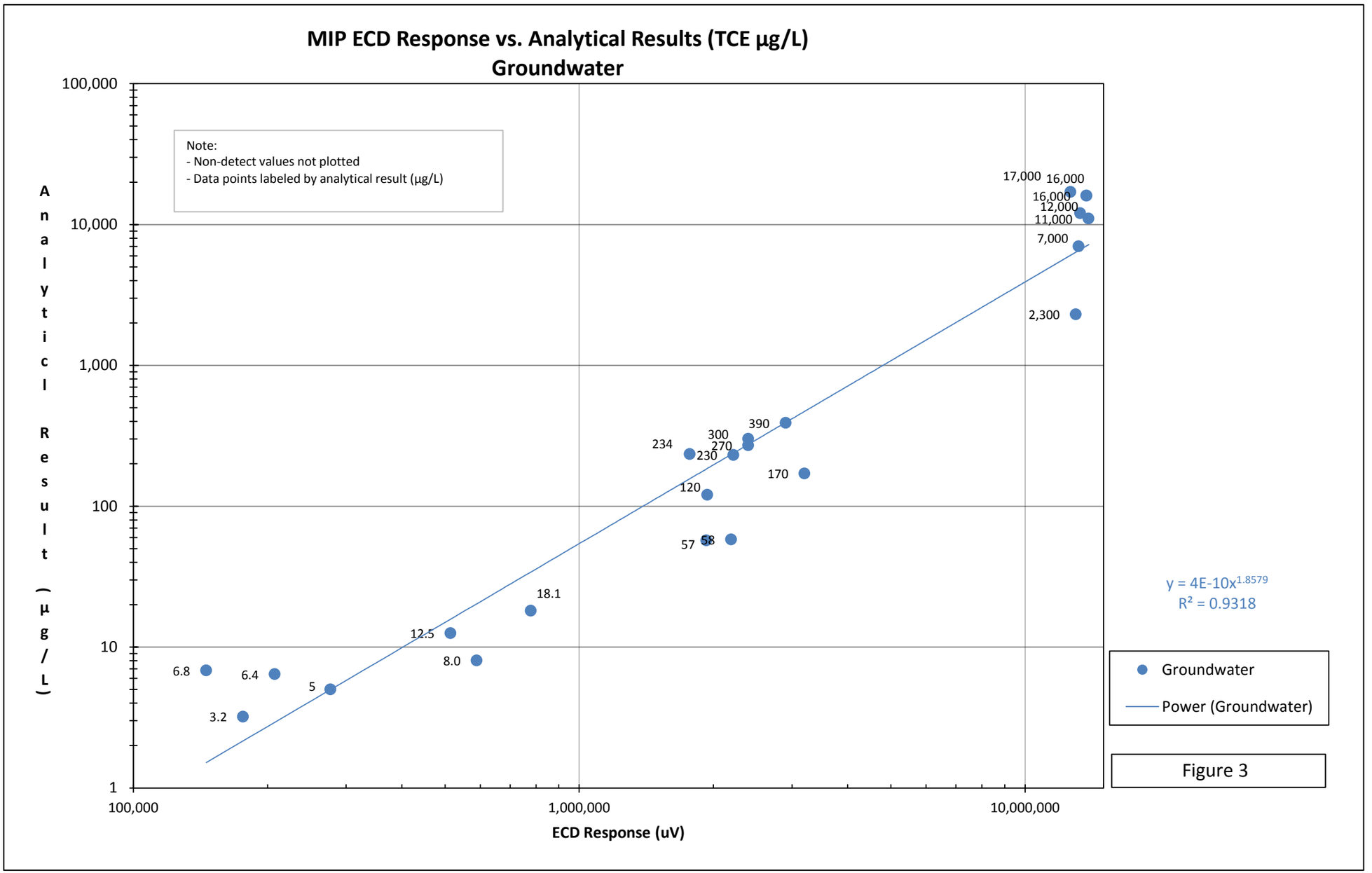

MIP ECD Response vs. Analytical Results (TCE µg/L)
Groundwater
Note:
- Non-detect values not plotted
- Data points labeled by analytical result (µg/L)
Analytical Result (µg/L)
ECD Response (uV)
100,000
10,000
1,000
100
10
1
100,000
1,000,000
10,000,000
17,000
16,000
16,000
12,000
11,000
7,000
2,300
390
300
270
234
230
170
120
57
58
18.1
12.5
8.0
6.8
6.4
5
3.2
y = 4E-10x1.8579
R² = 0.9318
Groundwater
Power (Groundwater)

Figure 3

TABLES

Table 2
Analytical Soil Sample Results And Collocated MIP-ECD Response
Whirlpool Facility
Fort Smith, Arkansas

Name	Depth to Top of Sample (ft)	Depth to Bottom of Sample (ft)	Result	Unit	MIP	Distance from Soil Boring (ft)	ECD Response (uV)	MIP Type
DP-01	15.5	16	1.7 J	ug/kg	**M-201**	< 5	3.06E+05	MIP
DP-01	19	19.5	16	ug/kg	**M-201**	< 5	5.98E+05	MIP
DP-02	2.5	3	1.3 J	ug/kg	**M-202**	< 5	2.55E+05	MIP
DP-02	6	6.5	< 1.1 U	ug/kg	**M-202**	< 5	2.00E+05	MIP
DP-02	15	15.5	87	ug/kg	**M-202**	< 5	1.95E+06	MIP
DP-03	4	4.5	2.6 J	ug/kg	**M-204**	< 5	5.00E+05	MIP
DP-03	12	12.5	1.9 J	ug/kg	**M-204**	< 5	4.30E+05	MIP
DP-04	18	18.5	4.9	ug/kg	**M-205**	< 5	5.00E+05	MIP
DP-04	25	25.5	27	ug/kg	**M-205**	< 5	1.15E+06	MIP
DP-05	21.5	22	3.9 J	ug/kg	**M-234**	< 5	3.10E+05	MIP
DP-05	24.5	25	2.1 J	ug/kg	**M-234**	< 5	3.60E+05	MIP
DP-06	5.5	6	13,000	ug/kg	**M-244**	< 5	1.37E+07	MIP
DP-06	8.5	9	2,100	ug/kg	**M-244**	< 5	1.37E+07	MIP
DP-06	25.5	26	3,200	ug/kg	**M-244**	< 5	1.29E+07	MIP
DP-07	5.5	6	270,000	ug/kg	**M-78**	< 5	1.30E+07	MIP
DP-07	12.5	13	200,000	ug/kg	**M-78**	< 5	1.30E+07	MIP
DP-07	23.5	24	1,000	ug/kg	**M-78**	< 5	1.30E+07	MIP
DP-08	5	5.5	66,000	ug/kg	**M-226**	< 5	1.38E+07	MIP
DP-08	11	11.5	110,000	ug/kg	**M-226**	< 5	1.38E+07	MIP
DP-08	18.5	19	3,300,000	ug/kg	**M-226**	< 5	1.38E+07	MIP
DP-09	3	3.5	960	ug/kg	**M-219**	< 5	4.50E+06	MIP
DP-09	5	5.5	1,300	ug/kg	**M-219**	< 5	5.50E+06	MIP
DP-11	19.5	20	1,200	ug/kg	**M-218**	< 5	4.59E+06	MIP
DP-12	4.5	5	630	ug/kg	**M-80**	< 5	5.87E+06	MIP
DP-12	11.5	12	840	ug/kg	**M-80**	< 5	6.17E+06	MIP
DP-14	11.5	12	570	ug/kg	**M-69**	< 5	4.09E+06	MIP
DP-14	15.5	16	630	ug/kg	**M-69**	< 5	3.94E+06	MIP
DP-14	28.5	29	1,000	ug/kg	**M-69**	< 5	7.02E+06	MIP
DP-22	8.5	9	< 4.4 U	ug/kg	**M-251**	< 5	3.71E+05	MIP
DP-22	27.5	28	4.9 J	ug/kg	**M-251**	< 5	5.57E+05	MIP
DP-38	5	5	< 5.4 U	ug/kg	**M-308**	< 5	2.69E+05	MIP
DP-38	14.5	14.5	22.4	ug/kg	**M-308**	< 5	4.10E+05	MIP
DP-38	18	18	3.7	ug/kg	**M-308**	< 5	3.76E+05	MIP
DP-38	22	22	< 4.5 U	ug/kg	**M-308**	< 5	4.35E+05	MIP
DP-38	25	25	< 4.3 U	ug/kg	**M-308**	< 5	5.07E+05	MIP
DP-40	4	4.5	< 4.9 U	ug/kg	**M-312**	< 5	2.42E+05	LL MIP
DP-40	11	11.5	< 4.4 U	ug/kg	**M-312**	< 5	7.00E+05	LL MIP
DP-40	14.5	15	< 4.8 U	ug/kg	**M-312**	< 5	1.04E+06	LL MIP
DP-41	4	4	< 6.0 U	ug/kg	**M-313**	< 5	2.14E+05	LL MIP
DP-41	10	10	< 4.6 U	ug/kg	**M-313**	< 5	2.20E+05	LL MIP
DP-41	14	14	< 4.5 U	ug/kg	**M-313**	< 5	1.95E+05	LL MIP
DP-42	4	4	< 4.9 U	ug/kg	**M-314**	< 5	8.29E+05	LL MIP
DP-42	8	8	< 4.6 U	ug/kg	**M-314**	< 5	3.01E+06	LL MIP
DP-42	12	12	< 4.3 U	ug/kg	**M-314**	< 5	1.43E+06	LL MIP
DP-43	4	4	< 6.1 U	ug/kg	**M-316**	< 5	2.42E+05	LL MIP
DP-43	10	10	< 4.4 U	ug/kg	**M-316**	< 5	1.91E+05	LL MIP
DP-43	19	19	< 4.2 U	ug/kg	**M-316**	< 5	1.88E+05	LL MIP
DP-44	4	4	< 5.8 U	ug/kg	**M-315**	< 5	2.82E+05	LL MIP
DP-44	11	11	< 4.6 U	ug/kg	**M-315**	< 5	2.85E+05	LL MIP
DP-44	18	18	< 4.9 U	ug/kg	**M-315**	< 5	2.89E+05	LL MIP
DP-44	21.5	21.5	< 5.1 U	ug/kg	**M-315**	< 5	2.69E+05	LL MIP

Table 2
Analytical Soil Sample Results And Collocated MIP-ECD Response
Whirlpool Facility
Fort Smith, Arkansas

Name	Depth to Top of Sample (ft)	Depth to Bottom of Sample (ft)	Result	Unit	MIP	Distance from Soil Boring (ft)	ECD Response (uV)	MIP Type
DP-45	4	4	< 4.4 U	ug/kg	**M-317**	< 5	2.15E+05	LL MIP
DP-45	12	12	< 4.9 U	ug/kg	**M-317**	< 5	1.95E+05	LL MIP
DP-45	18	18	< 4.5 U	ug/kg	**M-317**	< 5	8.70E+05	LL MIP
DP-46	4.5	4.5	< 5.2 U	ug/kg	**M-318**	< 5	1.70E+05	LL MIP
DP-46	13.5	13.5	< 4.2 U	ug/kg	**M-318**	< 5	2.27E+05	LL MIP
DP-46	18	18	< 4.2 U	ug/kg	**M-318**	< 5	2.03E+05	LL MIP
DP-47	5	5	< 5.0 U	ug/kg	**M-301**	< 5	2.43E+05	LL MIP
DP-47	22	22	< 4.3 U	ug/kg	**M-301**	< 5	3.39E+05	LL MIP
DP-48	4	4	< 4.6 U	ug/kg	**M-326A**	< 5	6.60E+05	LL MIP
DP-48	11.5	11.5	< 4.3 U	ug/kg	**M-326A**	< 5	5.55E+05	LL MIP
DP-49	4	4	< 4.8 U	ug/kg	**M-327**	< 5	5.11E+05	LL MIP
DP-49	10	10	< 4.3 U	ug/kg	**M-327**	< 5	4.69E+05	LL MIP
DP-49	13	13	< 5.6 U	ug/kg	**M-327**	< 5	4.52E+05	LL MIP
DP-50	4	4	4.6 U	ug/kg	**M-328**	< 5	5.42E+05	LL MIP
DP-50	10	10	< 4.0 U	ug/kg	**M-328**	< 5	5.42E+05	LL MIP
DP-51	1	1	< 4.9 U	ug/kg	**M-331**	< 5	1.71E+06	LL MIP
DP-51	14	14	< 4.0 U	ug/kg	**M-331**	< 5	1.78E+06	LL MIP
DP-52	4	4	< 4.6 U	ug/kg	**M-332**	< 5	3.99E+05	LL MIP
DP-52	11	11	< 4.1 U	ug/kg	**M-332**	< 5	3.09E+05	LL MIP
DP-53	1	1	< 4.5 U	ug/kg	**M-333**	< 5	4.97E+05	LL MIP
DP-53	8.5	8.5	< 4.4 U	ug/kg	**M-333**	< 5	4.86E+05	LL MIP
DP-54	3	3	50.1	ug/kg	**M-86**	< 5	7.58E+06	MIP
DP-54	13	13	31	ug/kg	**M-86**	< 5	2.22E+06	MIP
DP-55	4	4	600	ug/kg	**M-87**	< 5	7.46E+06	MIP
DP-55	8	8	973	ug/kg	**M-87**	< 5	7.84E+06	MIP
DP-55	13	13	388	ug/kg	**M-87**	< 5	2.39E+06	MIP
DP-55	27	27	6.3	ug/kg	**M-87**	< 5	6.42E+06	MIP
DP-55	31	31	27.7	ug/kg	**M-87**	< 5	6.42E+06	MIP
DP-56	3	3	< 4.5 U	ug/kg	**M-100**	< 5	4.82E+06	MIP
DP-56	11	11	4.9	ug/kg	**M-100**	< 5	3.39E+06	MIP
DP-57	1	1	< 4.3 U	ug/kg	**M-346**	< 5	1.16E+06	LL MIP
DP-57	20.5	20.5	< 4.2 U	ug/kg	**M-346**	< 5	2.02E+05	LL MIP
DP-57	28	28	< 3.8 U	ug/kg	**M-346**	< 5	2.29E+05	LL MIP
DP-58	1	1	< 4.2 U	ug/kg	**M-347**	< 5	3.07E+05	LL MIP
DP-58	8	8	< 4.2 U	ug/kg	**M-347**	< 5	1.82E+05	LL MIP
DP-59	1	1	< 4.7 U	ug/kg	**M-334**	< 5	8.06E+05	LL MIP
DP-59	37	37	< 4.4 U	ug/kg	**M-334**	< 5	2.57E+06	LL MIP
DP-60	1	1	< 4.5 U	ug/kg	**M-343**	< 5	1.48E+06	LL MIP
DP-60	11	11	< 4.4 U	ug/kg	**M-343**	< 5	2.02E+05	LL MIP
DP-60	26	26	< 4.3 U	ug/kg	**M-343**	< 5	1.87E+05	LL MIP
DP-61	1	1	< 4.3 U	ug/kg	**M-335**	< 5	3.99E+05	LL MIP
DP-61	4	4	< 4.6 U	ug/kg	**M-335**	< 5	5.39E+05	LL MIP
DP-61	23	23	< 4.1 U	ug/kg	**M-335**	< 5	3.09E+05	LL MIP
DP-62	1	1	< 4.8 U	ug/kg	**M-348**	< 5	4.44E+05	LL MIP
MW-91	12.5	12.5	< 4.7 U	ug/kg	**M-304**	< 5	1.77E+06	MIP

Notes:

Laboratory result concentrations are presented in ug/kg (micrograms/kilogram).

Abbreviations:

MIP = Membrane Interface Probe
ECD = Electron Capture Device
ft = Feet
J = Concentration is an estimated value
U = Non-detect at the reporting limit
< = Reporting limit

Table 3
Analytical Groundwater Sample Results And Collocated MIP-ECD Response
Whirlpool Facility
Fort Smith, Arkansas

Name	Result	Unit	MIP	Distance from Soil Boring (ft)	ECD Response (uV)	MIP Type
DP-01	8.0	ug/L	**M-201**	< 5	5.89E+05	MIP
DP-02	270	ug/L	**M-202**	< 5	2.40E+06	MIP
DP-03	120	ug/L	**M-204**	< 5	1.94E+06	MIP
DP-04	57	ug/L	**M-205**	< 5	1.93E+06	MIP
DP-05	2.2 J	ug/L	**M-234**	< 5	3.60E+05	MIP
DP-07	12,000	ug/L	**M-78**	< 5	1.33E+07	MIP
DP-12	390	ug/L	**M-80**	< 5	2.91E+06	MIP
DP-14	17,000	ug/L	**M-69**	< 5	1.27E+07	MIP
DP-22	170	ug/L	**M-251**	< 5	3.20E+06	MIP
DP-38	1.5 J	ug/L	**M-308**	< 5	5.07E+05	MIP
DP-40	18.1	ug/L	**M-312**	< 5	7.80E+05	LL MIP
DP-41	3.2 J	ug/L	**M-313**	< 5	1.76E+05	LL MIP
DP-42	< 5.0 U	ug/L	**M-314**	< 5	1.15E+06	LL MIP
DP-43	6.4	ug/L	**M-316**	< 5	2.08E+05	LL MIP
DP-44	< 5.0	ug/L	**M-315**	< 5	2.69E+05	LL MIP
DP-45	< 25.0	ug/L	**M-317**	< 5	5.15E+05	LL MIP
DP-46	6.8	ug/L	**M-318**	< 5	1.46E+05	LL MIP
DP-47	< 5.0 U	ug/L	**M-301**	< 5	2.72E+05	MIP
DP-48	< 5.0 U	ug/L	**M-326A**	< 5	3.26E+05	LL MIP
DP-49	< 5.0 U	ug/L	**M-327**	< 5	3.00E+05	LL MIP
DP-50	< 5.0 U	ug/L	**M-328**	< 5	2.99E+05	LL MIP
DP-51	< 5.0 U	ug/L	**M-331**	< 5	1.78E+06	LL MIP
DP-53	< 5.0 U	ug/L	**M-332**	< 5	4.52E+05	LL MIP
DP-57	< 5.0 U	ug/L	**M-333**	< 5	4.49E+05	LL MIP
DP-58	< 5.0 U	ug/L	**M-346**	< 5	1.89E+05	LL MIP
DP-59	< 5.0 U	ug/L	**M-334**	< 5	2.57E+06	LL MIP
DP-60	< 5.0 U	ug/L	**M-343**	< 5	1.64E+05	LL MIP
DP-61	< 5.0 U	ug/L	**M-335**	< 5	2.12E+05	LL MIP
ITMW-01	< 5.0 U	ug/L	**M-104**	< 5	4.64E+05	MIP
ITMW-18	7,000	ug/L	**M-240**	< 5	1.32E+07	MIP
ITMW-19	16,000	ug/L	**M-233**	< 5	1.37E+07	MIP
ITMW-19	16,000	ug/L	**M-238**	< 5	1.37E+07	MIP
IW-80	58	ug/L	**M-205**	< 5	2.19E+06	MIP
MW-31	5	ug/L	**M-207**	< 5	2.77E+05	MIP
MW-38	2,300	ug/L	**M-219**	< 5	1.30E+07	MIP
MW-91	234	ug/L	**M-304**	< 5	1.77E+06	MIP
SLUG-01	230	ug/L	**M-201**	< 5	2.22E+06	MIP
SLUG-02	300	ug/L	**M-202**	< 5	2.40E+06	MIP
SLUG-06	11,000	ug/L	**M-227**	< 5	1.39E+07	MIP

Table 3
Analytical Groundwater Sample Results And Collocated MIP-ECD Response
Whirlpool Facility
Fort Smith, Arkansas

Notes:

Laboratory result concentrations are presented in ug/L (micrograms/liter)

Abbreviations:

MIP = Membrane Interface Probe

ECD = Electron Capture Device

ft = Feet

J = Concentration is an estimated value

APPENDIX A:
Standard Operating Procedure (SOP) for Membrane Interface Probe

STANDARD OPERATING PROCEDURES (SOP)
for
MEMBRANE INTERFACE PROBE SYSTEM

Prepared by:

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STANDARD OPERATING PROCEDURES (SOP)
for
MEMBRANE INTERFACE PROBE SYSTEM

Reviewed By:	Title	Signature	Date
John H. Sohl, III	CEO		06/01/2011

1.0 BACKGROUND

The Membrane Interface Probe (MIP) system is a multipurpose tool for mapping soil and groundwater contamination, specifically volatile organic compounds (VOCs) such as halogenated solvents and petroleum compounds. MIP used for the detection and measurement of VOCs vertically through the subsurface. As a continuous VOC sampling system which heats the soil, water, and vapor matrix is driven into the subsurface, the MIP maps contaminants within the groundwater and the surrounding soil. The VOC mass which is extracted across a semi-permeable membrane is carried to the surface by an inert purge gas via small diameter inert tubing. Once the compounds reach the surface they are analyzed by a suite of laboratory grade detectors. The sensor detection system includes:

- Photo Ionization Detector (PID),
- Flame Ionization Detector (FID) , and a
- Halogentated Compound Detector (either an ECD [Electron Capture Detector], XSD™ [Halogen Specific Detector], or a DELCD [Dry Electrolytic Conductivity Detector])

Together, these three detectors offer a range of sensitivities and a means of discriminating different classes of compounds – from chlorinated solvents to gasoline hydrocarbons to methane soil gas. The use of multiple detectors is important for separating different types of contamination such as petroleum (retail gasoline station) from chlorinated solvents (dry cleaners). The complementary range of performance of the different detectors enables the system to function from low contaminant levels to near NAPL levels.

1.1 APPLICATIONS IN A RANGE OF IN-SITU CONTAMINANT CONCENTRATIONS

The standard flow rate for the nitrogen within the transfer line is 40 mL/min. This can vary depending on the ambient air temperatures and the approximate concentrations

of the contamination. If the ambient air is 40 degrees or lower, the flow should be increased to 50 mL/min. If the site investigation is focused on locating lower concentrations such as defining the outer edge of a plume, or the contaminant of concern is a known "low responder", the flows can be adjusted to be within 20-30 mL/min as deemed appropriate by the operator. When looking for high levels of contamination in source areas or NAPLs, the flow may be increased to be within 50-60 mL/min.

2.0 SETUP

When looking at the back of the controller box, on the right hand side, there is a port labeled Nitrogen Source. This is where the nitrogen supply enters the system. To the left of the nitrogen source is the input for detector 1 and detector 2. The green connector, which is the detector electrometers, is inserted here.

A trunk line connects the MIP probe to a controller box and the GC; the following assumes that a trunk line is already connected to the probe. The trunk line consists of 5 wires, 1/16" down line Teflon tubing, and 1/16" return PEEK tubing. The brown wire is the thermocouple wire and is made up of 2 individual wires, red and yellow. These two wires are connected to the male thermocouple connector (yellow). The red wire goes to the negative pole, and yellow to the positive: the +/- is clearly marked on the connector itself. The male thermocouple connector then gets inserted into the female connector labeled *Thermocouple* at the back of the controller box. The remaining 4 wires are associated with the *Heater and Conductivity* connector. The probe heater wires (both yellow) are connected to the top 2 lugs of this connector. The Dipole soil conductivity wires (red/white) are connected to the bottom 2 lugs of the connector. The 2 lengths of tubing should always be joined by a female-to-female adaptor when not attached to the controller box and GC. This is to prevent any particulate matter from getting inside the tubing and potentially causing a clog. The first length of tubing is always connected to the port labeled *Regulated Out* at the back of the controller box first. This is so that any particulate matter that may have entered into the tubing is expelled, be sure that nitrogen is flowing through the controller box. The second length of tubing is then connected to the inlet of the dryer tube. When attaching gas lines they are to be hand tight and then a ¼ turn with a wrench.

3.0 START UP

- Check to ensure that nitrogen has greater than 400 psi, replace tank if lower
- Turn on nitrogen source, and check that regulator reads 60 psi out
- Confirm ~20psi on Prime Regulator gauge and record in log
- Power on GC, confirm proper detector temperatures
- Power on MIP controller box

- Power on PID lamp and PID heater
- Power on air compressor and turn on hydrogen (60 psi)
- Light FID
- Check flows and membrane…section 5.1
- Turn controller box probe heater switch to on
- Power on laptop or field computer
- Open MIP software.
- Response check…section 5.2

3.0 LOGGING PROCEDURES

- Use a rotary drill steel, or pre-probe punch to create a pilot hole if going through asphalt or concrete.
- Place the rod wiper under the foot of the probe, and line it up with the pilot hole.
- Put the slotted drive cap on the probe drive head, and insert the probe into the hole in the rod wiper, so that the tip of the probe is even with the ground.
- Connect the umbilical and string-pot…section 5.4
- Check the pressure readings, temperature and detector baselines.
- Press the trigger to on position and commence probing.
- Advance the probe 1-foot at a hammer rate determined by **COLUMBIA**'s analyst, wait 30 seconds, repeat to refusal.
- If necessary change the attenuation of the GC and the MIP if the response begins to approach the end of the current range. (see section 5.2)
- If the contaminant is known to exist at or below a certain depth, it is acceptable to push straight to that depth without stopping. The log will still provide accurate depth and conductivity data.
- When looking for NAPL, it may be useful to push through different intervals rather than "stop and hold" as deemed necessary.
- Once the target depth or equipment refusal has been reached, wait 15 seconds longer than the determined trip time and turn the trigger "off".
- Release the string-pot string from the counter weight, and disconnect the umbilical, insert cotter pin in counter weight whenever rig is in motion.
- Using DI Viewer, recall the appropriate file, adjust the scaling to the predetermined uniform scale, check for anomalies and edit appropriately
- Print out MIP log if client requests.
- Upload the MIP log data files and performance test files per SmartData Solutions® SOP

4.0 RETRIEVAL AND INSPECTION

- Start pulling rods out of the ground, and replace on rod rack.
- Rod wiper will normally suffice for decon unless otherwise specified by client.
- If high levels were encountered, it may be useful to clean the membrane with methanol.
- Prior to the next location, visually inspect the probe and tighten if necessary, check for changes in back flow pressures and temperatures.
- If moving system to perform another log, prepare equipment for travel and repeat the above procedures. If there are no more logs to perform shutdown the system…section 5.5

5.1 FLOW TESTS

There are several critical flows that need to be monitored, and possibly adjusted to maximize the efficiency of the MIP system. These include the pressure from the supply tank to the prime regulator, the flow rate throughout the transfer line, the mass flow, and the flow rate inside the dryer tube. This is done at the beginning of everyday, and again if deemed necessary by **COLUMBIA**'s analyst due to changing field conditions.

- The prime regulator on the front of the MIP controller box should be set to ~20 psi using a small flathead screwdriver.
- Disconnect the nitrogen line at the trunkline exit and attach a 1/16" female-to-female adaptor.
- Insert adaptor into the flow meter line.
- Adjust the mass flow dial with small adjustments until the meter reads ~40 mL/min or alternate predetermined rate.
- Reconnect and check flow coming out of the controller box. The difference should be less than 5mL/min.
- Lock the mass flow dial in place, and record both mass flow and dial setting.
- Disconnect the nitrogen line, and attach the meter to the outlet of the dryer tube.
- The measured flow out of the Dryer tube should be ~80 mL/min.
- Adjust the flow accordingly using the control valve on the opposite end of the dryer tube.
- Disconnect the meter and reconnect gas lines.
- Check membrane for excessive leaks with Snoop or similar leak detector.
- If bubbles appear around the perimeter of the membrane, use membrane wrench to tighten, and check again.
- If excessive leak at center of membrane, replace membrane…(refer to section 5.4)

5.2 QUALITY ASSURANCE RESPONSE CHECK and TRIP TIME

Although the MIP system cannot be calibrated, the system can be monitored for reproducibility and proper performance. Using detector specific compounds, a response check is performed before every MIP log. This procedure can performed using solvent vapors (a "Response Test"), or using aqueous solutions of known compounds (a "Performance Test").

5.2.1 RESPONSE TEST

This is done by introducing the headspace of a neat organic compound to the membrane, and then measuring the response against pre-set acceptable limits. The "trip time", or the time it takes for a mass to move across the membrane and cause a detector response, needs to be measured at the time of a response check.

- Scroll the MIP software up to view the response vs. time screen
- To determine the trip time, introduce Butane from a lighter into the membrane for 5 seconds while simultaneously starting a stopwatch.
- Record the time it takes for butane to get from the membrane to when you first see a response on the screen.
- This value is entered into the MIP software on the main screen when starting a new log, and recorded in the field log.
- Continue with the response checks by choosing the appropriate compound. For the PID use neat benzene, the ECD use neat trichloroethylene and for the FID use the butane from a lighter.
- Introduce the vapor for 5 seconds.
- Record the response that appears on the screen.
- The response should be greater than 1E+6 mV.

5.2.2 PERFORMANCE TEST

A performance test is used to evaluate detector response from target compounds in aqueous solution. Standard compounds such as Benzene and TCE are also commonly used for performance tests, but specific target compounds for a site may be used as well. The "trip time", or the time it takes for a mass to move across the membrane and cause a detector response, needs to be measured at the time of a performance check.

- Scroll the MIP software up to view the response vs. time screen
- To determine the trip time, introduce Butane from a lighter into the membrane for 5 seconds while simultaneously starting a stopwatch.
- Record the time it takes for butane to get from the membrane to when you first see a response on the screen.
- This value is entered into the MIP software on the main screen when starting a new log, and recorded in the field log.

- Continue with the performance checks by choosing the appropriate compound. For the PID use a benzene solution (or other site-specific target compound), the halogen detector use a trichloroethylene solution (or other site-specific compounds). The FID response is still evaluated using butane from a lighter unless some site-specific compound is chosen for testing.
- Prepare Stock Standard of compound(s) of interest (see MIPS Performance Test Solution Prep spreadsheet)
- Immerse the probe in a container of clean water (commonly a 2" PVC tube) to stabilize the baseline.
- Check the stability of the detector vs time data on the MIP software
- Prepare 500 ml Testing standard from Stock Standards, place in 2" PVC Tube.
- Insert the probe into the test solution of known concentration for 45 seconds
- Return the probe to the tube containing clean water if using.
- Record trip time and response for each detector in field notes
- Compare results to previous measurements
- If the result varies more than 50% for any detector, begin trouble-shooting evaluation. Note any corrective actions performed in field notes

5.3 DEPTH MEASURING STRING-POT

Attach the string-pot to the string-pot bracket, and then to the main anchoring bolt of the probe hammer. The string-pot bottom clamp must then be bolted to the foot of the hammer. Prior to operation, the cotter pin is to be removed from the foot bracket so that the counter weight is free to move, and then inserted into the eyebolt on top of the counter weight. When the string or cable connects these two devices, the cable should be parallel to the probe and perpendicular to the ground. It is essential that the string-pot cable be connected to the counter weight prior to the activation of the trigger, or the depth measurements will not be accurate. The umbilical should be attached to the string-pot before the activation of the trigger as well.

5.4 MEMBRANE REPLACEMENT

It is important to note that while completing the following procedure to use great care when screwing in the new membrane. Be sure that the threads do not become cross-threaded. This would make a complete seal impossible, which will then greatly hinder the performance of the MIP system.

- Secure the probe.
- Clean the membrane and surrounding area thoroughly.
- Clean out the 4 holes in the membrane with a dental pick or small flathead screwdriver

- Using the membrane wrench, carefully unscrew the membrane while applying equal pressure to the top of the membrane.
- Remove the membrane, and use the pick to clean up the interior threads of the probe, while blowing out the freed dirt.
- Remove the washer carefully so to not allow any dirt to fall into the chamber.
- Insert a new washer
- Thread the new membrane into position, and tighten with the membrane wrench.
- Using Snoop, check for leaks around the perimeter of the membrane.
- If bubbles appear around the edge, use the wrench to tighten more.
- Continue to tighten, until there is a complete seal.
- There should be a certain amount of gas escaping through the center of the membrane as a foam; this is acceptable.

5.5 SHUTDOWN PROCEDURES

- Turn off the power supply to the heater.
- Turn off the PID lamp and heater.
- Turn off GC.
- If using FID, close the valve to the tank of hydrogen.
- When the probe temperature has returned to ambient, turn off power to MIP controller box.
- Close the valve to the tank of nitrogen.
- Shutdown the computer.
- Shutdown the generator.

6.0 REFERENCES

- Geoprobe® Membrane Interface Probe SOP, Revision June, 2009
- ASTM D7352-07

MIP PERFORMANCE TEST SOLUTION PREP

50 MG/ML STOCK -- 100, 10, AND 1 MG/L (PPM) SOLUTIONS IN 500 ML DI

Compound Name	Density	25 ml of 50 mg/mL Stock from neat in 25 ml MEOH	10 ml of 50 mg/mL Stock from neat in 10 ml MEOH	Volume 0f 50 mg/L Stock for 100 mg/L in 500 ml DI	Volume 0f 50 mg/L Stock for 10 mg/L in 500 ml DI	Volume 0f 50 mg/L Stock for 1 mg/L in 500 ml DI
	(g/L)	(uL)	(uL)	(uL)	(uL)	(uL)
Trichloroethylene	1.4642	854	341	1000	100	10
Methylene Chloride	1.33	940	376	1000	100	10
1,2 Dichloroethylene	1.27	984	394	1000	100	10
1,1-Dichloroethylene	1.213	1031	412	1000	100	10
1,1,2,2-Tetrachloroethane	1.586	788	315	1000	100	10
Benzene	0.8765	1426	570	1000	100	10
Toluene	0.87	1437	575	1000	100	10
Tetrachloroethylene	1.6227	770	308	1000	100	10
Carbon Tetrachloride	1.594	784	314	1000	100	10
Chlorobenzene	1.106	1130	452	1000	100	10
1,1,1-Trichloroethane	1.3376	935	374	1000	100	10
1,1,2-Trichloroethane	1.442	867	347	1000	100	10
1,1-Dichloroethene	1.2129	1031	412	1000	100	10
1,4-Dichlorobenzene	1.241	1007	403	1000	100	10
MTBE	0.7404	1688	675	1000	100	10
Hexanes	0.6603	1893	757	1000	100	10
MEK (2-butanone)	0.81	1543	617	1000	100	10
Ethylbenzene	0.87	1437	575	1000	100	10
m-Xylene	0.86	1453	581	1000	100	10
o-Xylene	0.88	1420	568	1000	100	10
p-Xylene	0.86	1453	581	1000	100	10
Methylene Chloride	1.33	940	376	1000	100	10
Diesel	0.81	1543	617	1000	100	10
Naphthalene	1.15	1087	435	1000	100	10
Acetone	0.79	1582	633	1000	100	10
1,2-Dichloroethane	1.24	1008	403	1000	100	10
Trichlorfluoromethane	1.374	910	364	1000	100	10
1,1-Dichloroethane	1.18	1059	424	1000	100	10
1,2-Dibromoethane	2.1	595	238	1000	100	10
tert_Butyl Alcohol (TBA)	0.79	1582	633	1000	100	10

APPENDIX B:
Standard Operating Procedure (SOP) for Hydraulic Profiling Tool System

STANDARD OPERATING PROCEDURES (SOP)
for
HYDRAULIC PROFILING TOOL SYSTEM

Reviewed By:	Title	Signature	Date
John H. Sohl, III	CEO		06/01/2011

1.0 BACKGROUND

The Hydraulic Profiling Tool (HPT) uses direct pressure response measurements of hydraulic permeability to determine migration pathways, remediation injection regions, and placements for monitoring wells.

The pressure response of the soil to injection of water is measured to indicate the soil grain size. Real-time continuous data can be produced in both fine and coarse grained material with saturated or unsaturated conditions.

The system consists of two sensors:

- A sensitive downhole transducer to record dynamic pore pressure
- An electrical conductivity sensor providing information on lithology

While most soil profiling methods *infer* permeability from parameters like grain size or geotechnical properties, the HPT system can measure continuous data on hydraulic permeability directly by injecting water into the formation. Additionally, the Hydraulic Profiling Tool can conduct static dissipation tests at individual depths. This data is used to determine static water level (or head pressure in confined aquifers) and hydraulic conductivity.

1.1 APPLICATIONS

The Hydraulic Profiling Tool (HPT) allows the user to create fast, continuous, real-time profiles of soil hydraulic properties in both fine-and coarse-grained material. The HPT uses a sensitive, downhole transducer to measure the pressure response of the soil to injection of water. The higher the pressure response on the data logs, the lower the zone of permeability, and inversely, the lower the pressure response on the data logs, the higher the zone of permeability. For purposes of locating and defining preferential migration pathways for contaminants in the subsurface, targeting zones for injection of remediation material, and selecting screen well intervals, evaluating locations to detect slug tests, and measuring static water conditions across a site, it is preferred to conduct these in higher zones of permeability, so therefore the pressure response on the data logs

would correlate with a lower reading.

2.0 SETUP

Complete Load List and assemble parts for HPT probe assembly, refer to the Geoprobe HPT SOP for parts identification and illustrations. Place o-ring on the MIP-LB Connection Tube (Wiring Cavity). Tape loose ends on the truck end of the Trunkline for stringing and then string trunkline through the MIP-LB tube, and MIP Drive Head. Do NOT string the strain-relief fitting and parts mentioned in the full SOP, those parts will be replaced by the water seal and spacer. String the trunkline through the rods to be used, add an extra 10% past the depth stated in the SmartScreen summary. Leave 15 to 20 feet of slack at the probe end of the Trunkline. Install an HPT screen and copper seal if not already present on the probe. Place an o-ring at the bottom of the HPT probe threads if not already present and then pull the inner tubing out of the yellow tubing about 3/8 inch. Cut the yellow tubing so that it extends about 2.5 inches from the top of the HPT probe threads. Insert the pointed end of the brass barbed quick connect fitting into the yellow tubing. This will push the inner tubing back into place inside of the HPT probe. Attach the single end of the Y fitting to the blunt end of the brass barbed quick connect fitting. Insert the blunt end of the second brass barbed quick connect fitting into one of the two holes on the other end of the Y fitting. Pack dielectric grease into both ends of the chrome connectors on the trunkline, also pack the ends of the connectors on the chrome fittings on the probe and HPT sensor.

Using the wiring cavity as a guide for length, cut a section of yellow tubing (from the service kit) to connect the HPT sensor to the Y connector. Attach the yellow tubing to the pointed end of the brass barbed quick connect fitting already placed in the Y connector. Attach the HPT sensor to the other end of this tubing, being careful not to break the barb on the HPT sensor. Connect the chrome connectors (packed with dielectric grease). Trim the nylon tubing in the trunkline to fit into the last opening of the Y connector. Wrap the EC wires around the other connections to reduce its length and tape into place and then hold the connections in place using several bands of tape rather than completely taping the connections to avoid moisture buildup trapped by the tape. Coat the threads of the HPT probe with Teflon pipe dope. Thread the MIP-LB tube into place. Be sure not to twist the internal connections. Use pipe wrenches to close the joint firmly. Do NOT

follow the SOP directions for installing the strain relief fittings. Place the ORANGE water seal in place over the trunkline. Place the two half spacers into the drive head, curved sides away from the water seal. Then, coat the threads of the MIP-LB tube with Teflon pipe dope. Thread the drive head onto the MIP-LB tube, use pipe wrenches to close the joint firmly. The HPT probe is now ready to be connected to the HPT controller.

3.0 START UP

- Run HPT trunkline (after stringing through the rods to be used) to the back of the location where the HPT controller is to be installed.
- Remove electrical tape from the loose wire ends, and attach the wires to the green electrical connectors as follows:
    - Transducer wires – attached to the port closest to the serial data port (DB-9 port going to the field computer) connection. Check the orientation of the green plug in the socket before beginning, because it is upside down as compared to all other uses of this connector for doing MIP. Once you have the orientation correct the wires are attached in the following order, top to bottom of the plug – Brown, Orange, Red. The bottom connection is not used.
    - Conductivity wires – attached to the port closest to the Field Instrument Interface (round plug going to the field computer) connection. This green plug is in the standard orientation as used for MIP. The wires are attached in the following order, top to bottom of the plug – White, Black, Yellow, Blue.
    - There are several other wires (grey, violet, green) which are not used. These wires can be taped to the trunkline to keep them out of the way.
- Attach the connections to the field computer mentioned above (DB-9 and round plugs). This is the same cable used to connect the Field Computer to the MIP controller.
- If not already attached, connect the other ends of this cable to the Field Computer in the usual locations.
- If not already attached, connect the stringpot cable to the Field Computer
- If not already attached, connect the power lead to the Field Computer
- Connect the plug from the SC Probe Test Jig to the Test Input socket on the Field Computer
- Attach the nylon tubing in the trunkline to the Injection Line socket on the back of

the HPT controller. To do so, trim the end of the tubing off square, and press the tubing into the socket firmly. Do not crush the tubing in the process by pushing too hard.

- Run the Water Supply Line (black plastic tubing with Brass quick-connect fittings on both ends) to the back of the HPT controller and attach it to the Water Supply Line quick connect fitting. This line has a male fitting on the end that goes to the pump, and a female fitting on the end that goes to the HPT controller.
- Run the other end of the Water Supply Line to the HPT pump quick connect fitting.
- Attach a standard garden hose to a water supply tank from which clean water will be gravity-fed to the HPT pump. Try to avoid water sources with particles in them, such as alge or sediment.
- Attach the male end of the garden hose to the HPT pump. A cut-off valve at that connection works well to prevent air from getting back into the line when the system is disconnected between locations. If a cut-off valve is in place, open it.
- Attach a power lead to the HPT controller
- Attach a power lead to the HPT pump. Use the GFI device and extension cord for this connection.
- The HPT system is now ready to be tested prior to use.

3.0 EC SYSTEM TESTING PROCEDURES

- Turn on the Field Computer and HPT Controller. Start the HPT software on the Field Computer. Both the EC and HPT components must be tested before logging is started.
- Secure the Wenner Array Test Jig connector to the test input jack on the back of the Field Computer (if not already attached in step 7 of the HPT Controller setup.
- Clean and dry the Wenner array pins as well as several inches of the probe body above the pins.
- Strap the probe to the Wenner Array Test Jig using the Velcro straps provided in such a way that the 4 pins on the test jig touch the 4 Wenner array pins on the probe. The last pin on the Wenner Array Test Jig should be in contact with the body of the probe, on the trunkline side of the Wenner array. A good way to get the correct orientation is to be sure that the wire coming off of the Wenner Array Test Jig is going in the same direction as the trunkline on the HPT probe.
- Start the HPT software, and choose “Test Instrument”. The Field Computer will

conduct a self-test and then check the EC probe for isolation and continuity. Once the tests are complete, a list of EC options are available. Select the appropriate EC array based on the probe test results. (Normally Wenner will be chosen. If one or more contacts have failed, top, middle , or bottom dipole choices can be made to continue logging without replacing the probe.)

APPENDIX C:
Standard Operating Procedure (SOP) for Electrical Conductivity Logging

ELECTRICAL CONDUCTIVITY (EC) LOGGING

Standard Operating Procedure
Prepared: December 2008

1.0 Objective

This document is to be used as the standard operating procedure for use of the Geoprobe Systems® Electrical Conductivity Logging System for the determination of soil conductivity.

2.0 Background

2.1 Definitions

Electrical Conductivity (EC): A measure of the ability of a material to transmit or conduct electricity.

2.2 Discussion

The field computer injects a current across electrical contacts placed in the soil. The system measures electrical current and voltage and from these parameters, calculates electrical conductivity. Higher electrical conductivities typically are representative of finer grained sediments, such as silts and clays, while sands and gravels have distinctively lower conductivities. Ionic contaminants can increase the conductivity of the soil.

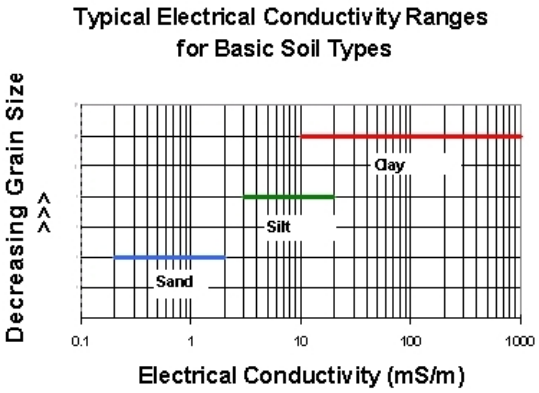


Figure 1: General Conductivity Ranges

Interpretation of EC logs comes with field experience and an initial core sample to confirm lithologic changes. As a generalization, a high conductivity reading indicates a smaller particle size and a low conductivity reading indicates a larger particle size (Figure 1).

The EC probe comes in two different configurations, Dipole Array and Wenner Array. Both configurations have the same theory of operation. A current is sent through the formation between two probe contacts. This current is measured along with the voltage that results (Figure 2). The conductivity is a ratio of current to voltage times a constant. The resulting reading is in milli-Siemens per meter (mS/m).

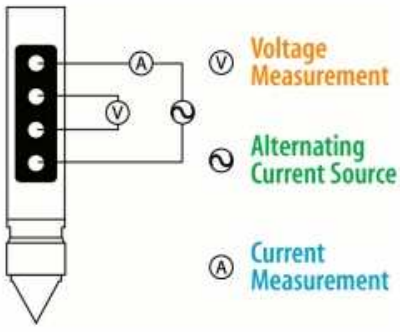


Figure 2: Wenner Array for Conductivity Measurements

3.0 Tools and Equipment

The following equipment is needed to perform, save and print electrical conductivity logs. EC system components are listed and illustrated in section 3.1.

3.1 Basic EC System Components

Description	Part Number
Field Instrument	FC5000
EC Probe (Figure 3)	SC500
Conductivity Cordset	SC164
Stringpot (linear position transducer)	SC160
Stringpot Cordset (30m)	SC161
Probe Test Jig	SC463
EC Test Load	37785
<u>Model 5400 and 54DT Series</u>	
Stringpot Mounting Bracket	SC110
Stringpot Bottom Clamp	SC111
Stringpot Piston Weight	SC112
<u>Model 54LT Series</u>	
Stringpot Mounting Bracket	11433
Stringpot Bottom Clamp	SC111
Stringpot Piston Weight	SC112
<u>Model 6600 Series</u>	
Stringpot Mounting Bracket	16791
Stringpot Piston Weight Bracket	11751
Piston Weight	SC112
Drive Cushion	23321
Slotted Drive Cap (1.5 in. rods)	15607
Power Inverter	SC652
Generator	User Preference
Computer	
SD Memory card reader	
Printer	

Figure 3: FC5000 and SC500

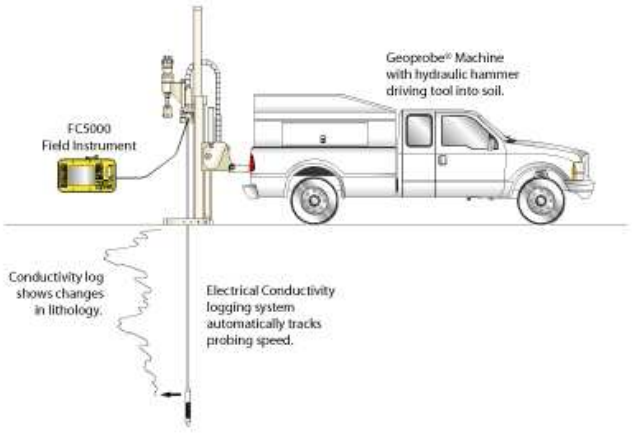


Figure 4: EC Setup and Deployment

4.0 EC Logging Field Operation

1. Power up the generator or connect the power inverter.

2. Power up the FC5000.

3. Place the SC-500 in the test jig with the test load connected for the QA test (Figure 6).

4. On the FC5000, select 1-EC for conductivity logging.

5. On the FC5000, select the proper stringpot configuration.
   1 – 100 inch
   2 – 80 inch
   (Stringpot length is located on the side of the stringpot body.)

6. On the FC5000, enter the log name (a maximum of 8-character space limit).

7. On the FC5000, select the probe type #4 – SC500

8. On the FC5000, select #1 to test the instrument or #2 to bypass the QA tests (see section 5.0).
   Results of the QA Tests are saved in the information file of the log.
   (Geoprobe requires that the QA tests are run before each log and after the last log of the day to validate data quality).

9. On the FC5000, select the rod length (i.e. #4 for 4 foot rods).

10. On the FC5000, select the dipole array 1-Wenner (optimum). The instrument will tell which array can be used based on the results of the QA test. 1-Wenner, 2- Top Dipole, 3- Middle Dipole and 4-Bottom Dipole.

11. At the direct push rig, advance a preprobe 3' into the subsurface at the location to be logged. Remove.

12. Insert the EC probe through a rod wiper and into the preprobed log location.

13. With the drive cushion on, advance the SC500 into the ground so that ground surface is level with the center of the four pole array.

14. With the direct push rig drive hammer or cushion on the rods, turn the trigger of the FC5000 system to the "on" position to begin the log.

15. Begin advancing the rod string into the ground at a medium and steady speed (i.e., 2-3 cm/sec).

16. When you reach the end of the log press the trigger button on the FC5000 again to turn the trigger off. The trigger may be turned off at any time to make adjustments w/o recording any probe movement. With the trigger turned "off", the cable may be disconnected to add rods or to add an additional cable.

17. Using a slotted pull cap or rod grip puller retract the rods and place in the rod rack.

18. Remove the memory card from the front of the FC5000 and place into a card reader connected to the computer. Transfer the 2 files (.dat and .inf files) into an appropriate project folder on the computer.

19. Using the Direct Image Viewer open up the EC log, make any adjustments for depth, EC and rate of push measurements.

20. Print log (Figure 5).

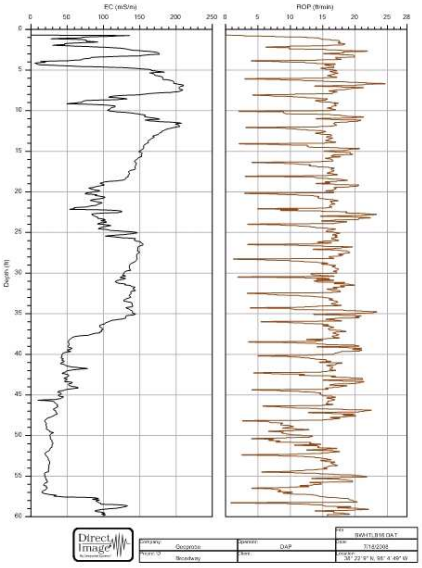


Figure 5: Example Log

5.0 Electrical Conductivity System
QA/QC

The EC system must be tested using the following QA procedures before and after each log. Adhering to these requirements ensures that the system was performing correctly and validates the data quality. Since all logs must be "bounded" by passing QA, a final log must be started after the last log of the day has been performed and the QA parameters must be completed for the assurance that the system was performing correctly at the end of the last log.

Instrument Calibration Test ± 5%

Continuity Check (this test looks at the continuity of each of the wires within the system for all 4 dipole arrays)
Probe Resistance should be <8 Ohms

Red R-R, White W-W, Green G-G, Black B-B

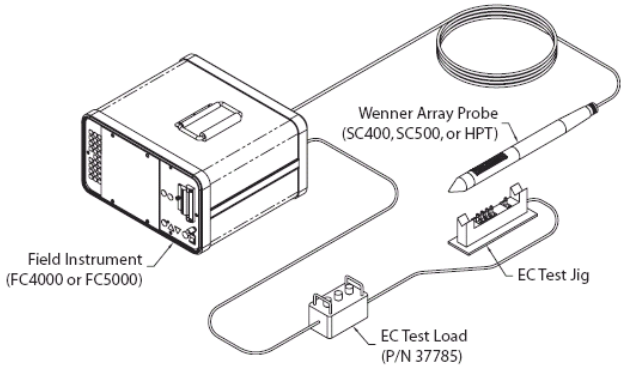


Figure 6: QA System Configuration

If all dipoles are good use the Wenner array.
If the first QA attempt fails, reposition the SC500 on the test jig and rerun the QA test. If 2 QA runs fail, use whichever dipole array the system allows or change your probe. If the system does not allow any of the four dipole arrays change conductivity probes. If the red is out, use middle or bottom dipole. If white is out use bottom dipole. If green is out use top dipole. If black is out use top or middle dipole. If red & green are out probe is no longer usable.

Probe Isolation Test (this test makes sure that each dipole is isolated from the others)
Resistance should be >15 Kilo Ohms

R-N, R-W, R-G, R-N, W-N, W-G, W-B, G-N, G-B, B-N

If the resistance falls below 15 KO on any of the isolation tests, it may signal water is getting into the probe or perhaps some corrosion is present. This will cause your soil magnitudes to be off and you will not want to use the probe or you can attempt to use a different dipole array other than Wenner to avoid using the bad dipole.

EC Test Load ± (this test applies 3 different loads to the system that correlate to low, medium and high conductivity readings that the system will see in the subsurface).
When in the logging screen, depress the test load level 1, 2, and 3 and make sure that the resulting conductivity load values are within 5% of the values listed on the side of the load device. This test provides the best information of how the system is calibrated and how it will map the encountered lithology.

System QC:

After the logs have begun to be generated, your QC will be to compare the logs to either discrete sample or continuous log soil cores, at EC locations, to verify the lithology represented by the electrical conductivity values at the site. Other QC measures include running duplicate logs to confirm repeatability and displaying multiple logs in a cross-section view to observe distinct lithology patterns and transitions.

APPENDIX D:
Standard Operating Procedure (SOP) for Low Level Membrane Interface Probe

Geoprobe Systems®
1-800-436-7762 | Fax: 785-825-6983
www.geoprobe-di.com

Low Level MIP

Standard Operating Procedure

1.0 Description

The low level (LL) MIP method works due to special management and control of the trunkline system carrier flows. In standard MIP operation, the carrier gas continually sweeps across the membrane transporting contaminates to the detectors at the surface. In the LL MIP method, the trunkline sweep flow is temporarily stopped when the MIP probe is brought to rest at a discrete depth in the soil. Stopping the sweep gas flow allows the contaminant concentration to build behind the membrane. This results in a larger and narrower contaminant response peak at the detectors for a given chemical concentration (Figure 1). A switching valve located inside the MP9000 creates separate gas flow paths for the MIP trunkline and detectors, which allows the trunkline flow to be stopped and restarted with minimal impact of detector baselines or stability. When the trunkline flow is restarted the contaminant mass (peak) is quickly swept to the surface with a trunkline flow rate of approximately 60ml/min. and is routed to the detectors via a sample valve located in the MP9000. Figure 1 shows the difference of standard and LL MIP response levels.

In the LL MIP mode the trunkline carrier gas is vented out most of the time with clean carrier gas being sent to the detectors, only at the end of the TL transport mode (Figure 10) is the trunkline carrier gas redirected to the detectors by the sample valve. The time when the redirection of the trunkline carrier gas occurs is determined by the MIP operator.

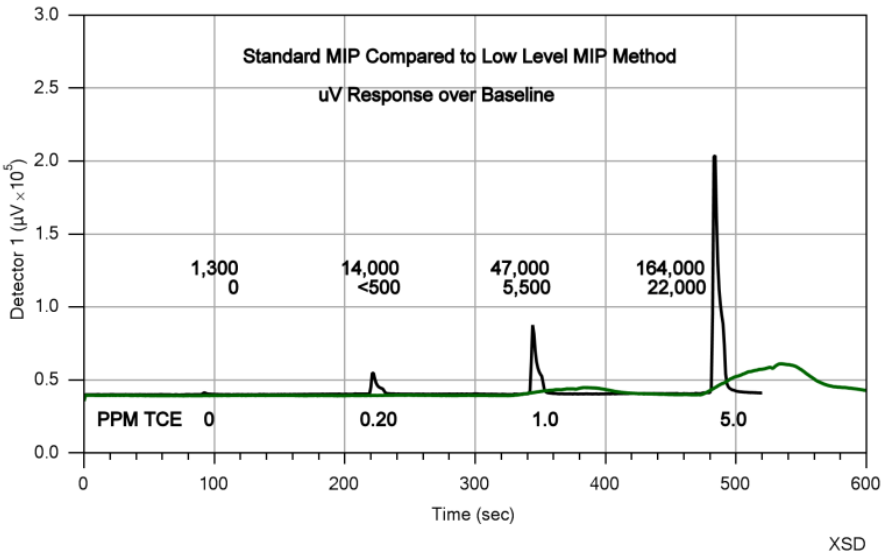


Figure 1: Standard vs. Low level MIP Response

2.0 Setup

Setup of the low level system is all done with management of the gas line connections which are located on the back of the instrument (Figure 2). There is a section for trunkline gas connections and a section specific for detector connections. Also the rear of the instrument has connections for power and USB communication to the operator's laptop.

2.1 Trunkline Connections:

- MIP Supply Gas In: A 1/8" Swagelok bulkhead connected to the MIP controller regulated output.
- Trunkline Out: A 1/16" Swagelok bulkhead that connects to the supply gas line of the trunkline which is typically Teflon or the uncovered SS line in the heated trunkline.
- Trunkline In: A 1/16" Swagelok bulkhead that connects to the trunkline return gas line which is either Peek tubing or stainless steel.

Figure 2: MP9000 Controller – Back of instrument

2.2 Detector Connections:

- Detector In: A 1/8" Swagelok bulkhead that is connected to a regulated Nitrogen source. This gas source is typically from a pressure controller in the gas chromatograph. The flow rate should be set to 40ml/min. This provides a constant gas flow to the detectors resulting in stable baseline on the detectors during all modes except when the trunkline gas is directed to the detectors.
- Detector Out: A 1/16" Swagelok bulkhead that connects the LL MIP controller to the gas chromatographs inlet to the detectors, typically leading into the Nafion Dryer.

2.3 Front panel switches and buttons:

- Auto/Manual Switch: This switch is located on the line between auto and manual blocks on the front of the MP9000 controller (Figure 3). To operate LL MIP in automated mode this switch must be to the left with the auto light lit. When the controller is powered up and this is in auto mode, the operator can start the LL Mode by opening the DI Acquisition software and before starting a log, open the sensors tab on the top of the page and click "Low level mode."
- Sample Valve Switch will manually change the 4 port valve between its 2 positions. In Vent mode the trunkline carrier gas is being vented and the detector gas is sweeping back to the detectors. In Detector mode the trunkline gas is sent directly to the detectors. This switch is only active during manual operation.
- Trunkline Flow Switch manually turns the trunkline carrier gas flow off and on. This switch is only active during manual operation.

  Both the sample valve switch and the trunkline flow switch only operate in manual mode. No connection is made with these switches during automated operation.

Figure 3: MP9000 Controller – Front of instrument

3.0 Software Timing

These times all refer to the trunkline carrier gas and the position of the contaminant peak as well as the times when the valve inside the LLMIP controller is switched.

No Flow Time: The no-flow time (or collection mode in Fig. 6) is the amount of time you choose to wait at each sampling interval with the trunkline flow blocked off collecting the sample. During this time, the trunkline flow is blocked as contaminants diffuse through the membrane and build into a large contaminant mass behind the membrane. During this time the detectors see clean carrier gas from the GC (Fig. 12) which provides stability to the detector baselines. The no flow time is typically set between 30-45 seconds. When the rig operator reaches the interval to sample and the ROP goes to zero for a set amount of time (Fig. 4) the software will automatically start the LL cycle sequence. If the desired sampling interval is missed either by stopping short or too long for the automatic cycling to begin, the operator can manually start the cycle by either pressing the start button on the front of the MP9000 or the start button in the software on the status menu. This can also be accomplished in manual mode by turning the TL flow switch off and back on after the desired no flow time has expired.

Vent Time: This is the amount of time immediately after restarting of the trunkline flow that the trunkline exhaust remains vented and not sent to the detectors. The vent time is also referred to as the trunkline transport mode in the status screen of Figure 6 and a drawing of this is seen in Figure 13. We want to maintain some time here while the trunkline flow is recovering and transporting the sample to the surface. When you are first starting and trying to determine when the response peak will occur it makes sense to have a low vent time perhaps 10seconds and allow the trunkline return to freely flow to the detectors. Once the peak response time is determined it is recommended to increase the vent time to within 15 seconds of the expected response. This will allow the operator to see the benefits of having a longer vent time which include being able to accurately monitor the recovery of the carrier gas return flow rate which is measured in the vent pathway as well as the MIP pressure. When the trunkline return is switched to being injected to the detectors the return flow rate will be reading the detector gas flow.

Inject to Detector Time: This is the amount of time that the trunkline flow is transported directly to the detectors. This is referred to as both TL Transport and Inject to Det. in the LL status mode of Fig 6 with a drawing of this seen in Figure 14. It is recommended to have approximately a 20second Inject to detector time. If the switch is made back to vent (the cycle goes to standby) prior to the arrival of the contaminant response then no peak will be seen. This can be adjusted by increasing the vent time which will be discussed further in section 9.0. When first determining your LL timing it is wise to have an extra long Inject time such as 90 seconds as shown in Table 1. This will ensure that the contaminant peak will make it to the detector with plenty of time of time to spare. Then the extra time can be removed from the overall timing (Vent + Inject) which is shown in Tables 1 & 2 and Figures 7 & 8.

Manual Operation:

To manually operate the LL MIP method the MIP operator will be at the control panel of the MP9000 with a stopwatch in hand. The MP9000 will be set to manual mode with the trunkline flow on and the sample valve in the vent position. When the rig operator reaches the target sample depth the trunkline flow switch will be switched to the “off” position. Using the times listed in Figure 4, the trunkline flow switch is turned “on” after 45 seconds and the stopwatch started. The sample valve switch is changed to the “detector” position after 40 seconds and back to vent after another 20 seconds have passed since the restarting of the trunkline flow. This process will be repeated at each sampling interval for the depth of the log.

4.0 LL MIP DI Acquisition Software

4.1 LL MIP Display Setup Screen

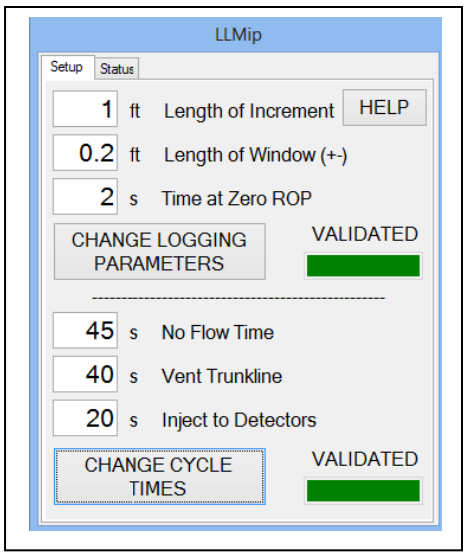


Figure 4: LL MIP Setup Screen

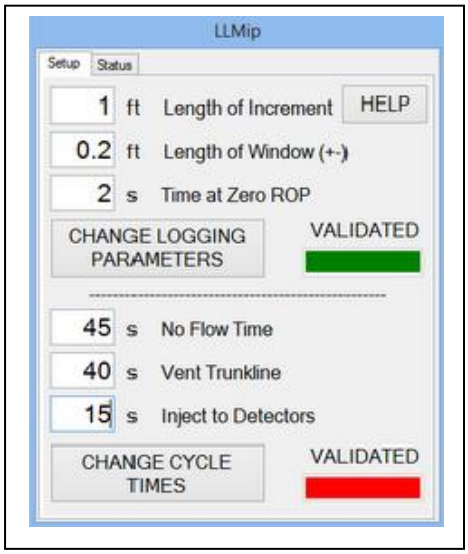


Figure 5: LL MIP Setup Screen

The top parameters of the LL MIP setup screen are for the frequency of the sampling event. In this case (Figure 4) the system is running the LL cycle every 1'. When the probe is advanced to 1' ± 0.2' and the probe advancement stops for 2 seconds in that depth window the LL cycle will automatically run.

The lower section of the setup screen displays the LL MIP timing events as described before. The "no flow time" is the sample collection at the probe membrane with the trunkline carrier flow turned off (45sec). The "Vent Trunkline" time is the amount of time after the restarting of the trunkline flow that the trunkline return line is vented away and not sent to the detectors (40 seconds). At the end of the "Vent Trunkline" time, the valve switches and redirects the trunkline return gas to the detectors. The "Inject to Detectors" time is the amount of time that the trunkline flow will be directed to the detectors (20 seconds).

Any of these values can be changed so long as the software is not in the middle of a cycle. To change the values, simply type over the entered values, this will create a red code on the validation (Figure 5), when the changes are complete click on the "change cycle times" button and the validated sign will turn from red to green.

4.2 LL MIP Display Status Screen

The status screen (Figure 6) is where you can see where you are in the LL cycle. These status descriptions all refer to the position of the contaminant slug.

- Standby - ready to start next cycle
- Collection - TL flow off – collection at the membrane
- TL Transport - TL flow turned on sample moving up the trunkline.
- TL Transport/Inject to Detector – Both will light up as the valve is switched directing the contaminant slug to the detectors.

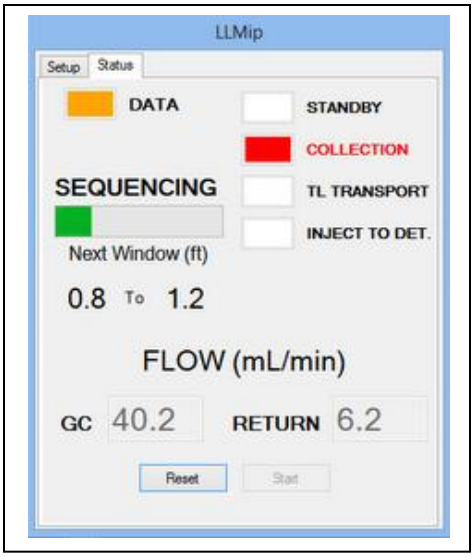


Figure 6: LLMIP status screen

When the data light blinks orange the system is in communication with the control box. The "Next Window" indicates the depth range for the next sample collection. GC detector gas flows and the trunkline return flows can be observed here.

5.0 Setting Flows

Typical flow rates for the trunkline when operating the LL MIP method would be 60ml/min when using a 150' TL. Higher TL flows rates will reduce the amount of time it takes to transport the sample to the detectors. The GC/detector gas flow should be set to 40ml/min. This is the carrier gas stream that is continually flowing across the detectors whether or not the TL gas is flowing.

The greater the difference in the flow rates used in the trunkline and GC will result in increased amounts of noise seen by the detectors as a result of differences in baseline levels. For a more stable baseline these flows should be closer together.

6.0 Setting your LL Cycle Times

No Flow Time	45 sec
Vent Trunkline	10 sec
Inject to Detectors	90 sec

Table 1: Initial LL Times

The response in Figure 7 is using the LL cycle times listed in Table 1 to ensure the peak is found. Next the operator will refine the times to isolate the peak. In this example the operator used a 90 second TL inject time which can be seen between 55-145 seconds when the valve was switching. The operator will want to increase the vent time by at least 20 seconds. The "inject to detector"time needs to be lowered by about 45 seconds as well as the 20 seconds added to the vent time. So a total of 65 seconds will be subtracted from the 90second inject time.
See adjusted times in Table 2.

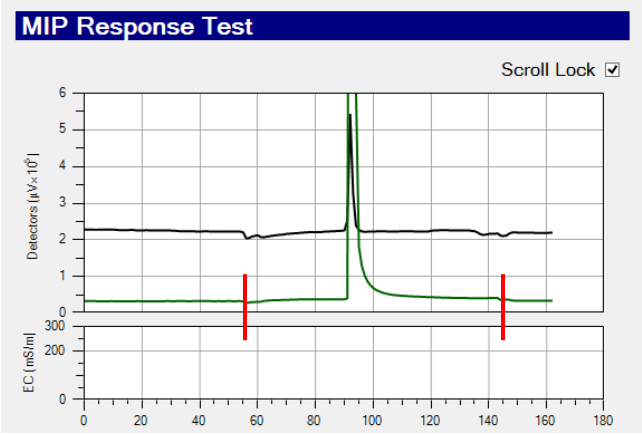


Figure 7: Initial LL-MIP Response

No Flow Time	45 sec
Vent Trunkline	30 sec
Inject to Detectors	25 sec

Table 2: Adjusted LL Times

The response in Figure 8 is using the adjusted LL cycle times listed in Table 2. This has a much more refined TL inject to detector window around when the peak actually comes through the system. If desired, the operator can refine this more. It is recommended that the operator sets the "inject to detector" time to 15-25 seconds in length which will leave plenty of room for system fluctuations. The The operator won't want to wait more than 10seconds after the peak response for the valve to switch back to standby since added time will just be time wasted waiting for the system to be ready to sample the next interval.

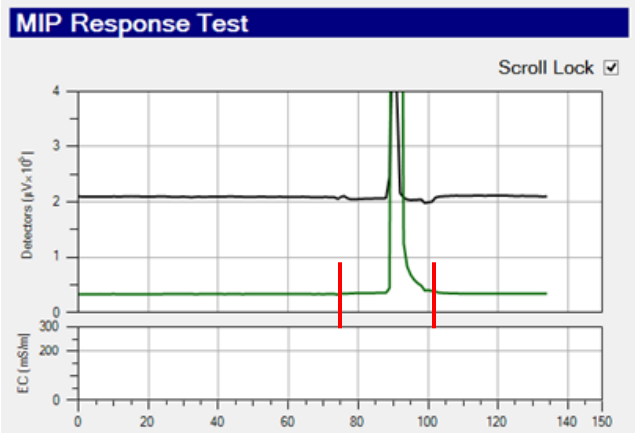


Figure 8: Response Test with revised times

7.0 Operator Hold Time

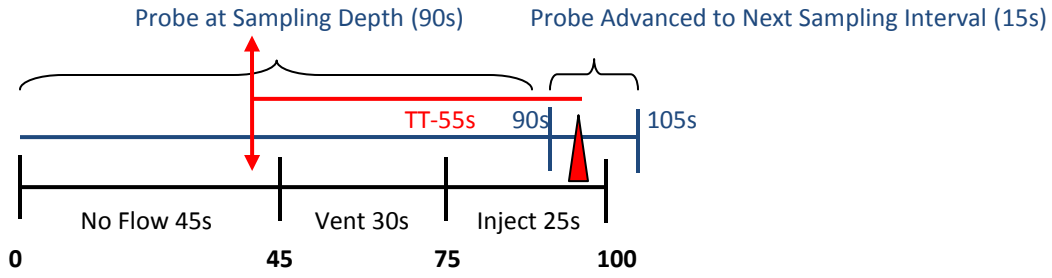
The machine operator will need to remain at a given sampling position for the sample collection time, vent and all but 10seconds of the Inject times. In the case of the times used in Table 2, the operator reaches the sample collection point and will hold for 45 seconds no flow time + 30 seconds vent trunkline + 25 seconds of the inject time for a total of 100 seconds. The operator can push the tool in this case every 90 seconds and he needs to take his time advancing to the next interval ~15 seconds per foot. This will ensure that the LL cycle will be finished from the previous sampling interval and back in standby mode when the operator reaches the next sampling interval. If the operator reaches the next sampling interval before the LL cycle is ready the MIP probe will be heating and transporting contaminants away from the probe without operating a no-flow collection state. These removed contaminants will be vented away and not seen at the detectors. This inadvertent removal of contaminants could result in a recorded clean zone where contaminant response would have been seen.

8.0 Trip Time

The trip time (TT) entered into the software will be the total of the vent and inject time which will place the detector response back at the sampled interval it came from. In this case that will be 55seconds.

LL Cycle Times

- No Flow time – 45s
- Vent time – 30s
- Inject time – 25s



9.0 Peak Response Identification and Vent Timing Modification:

Make sure that the operator entered LL times (Fig. 4) provide adequate room for fluctuation in TL flow when the valve switches off of injecting trunkline to the detectors. It is recommended that the operator use a 20-25second inject time which will allow for adequate room for system gas fluctuations. The peak shapes in Figure 9 show proper timing of the valve changing with room before and after the peak. If adjustments are needed they can be done increasing or decreasing the vent time in the LL cycle times.

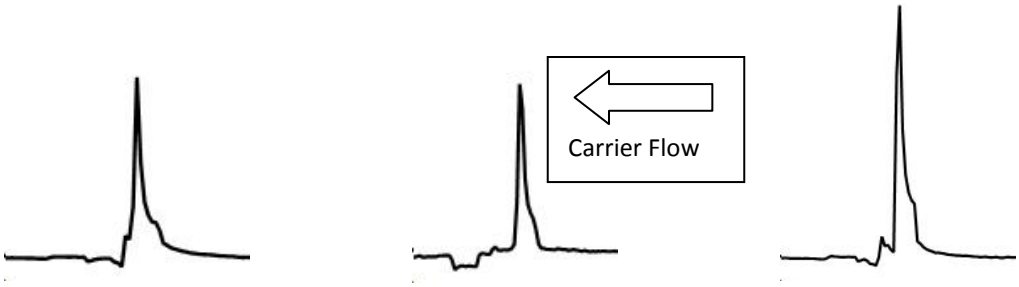


Figure 9: Example peaks with a properly set vent and Injection time

The detectors will determine if an initial dip in the detector baseline in seen before the peak occurs as seen in Figure 9 but there should be a bit of a shoulder of the peak before the response drops back to baseline.

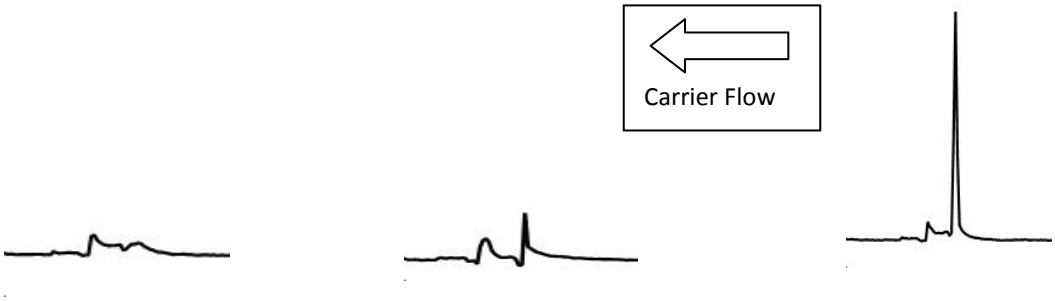


Figure 10: Example peaks where the Vent time is set too short – the peak is being cut-off by the valve switching.

In Figure 10 the peak has not yet reached the valve or has barely past when it switched cutting off the peak. This is seen by a bit of baseline dip and either no peak or a sharp peak with no evidence of a peak tail at all. Adjust this by increasing the vent time by 10-15 seconds.

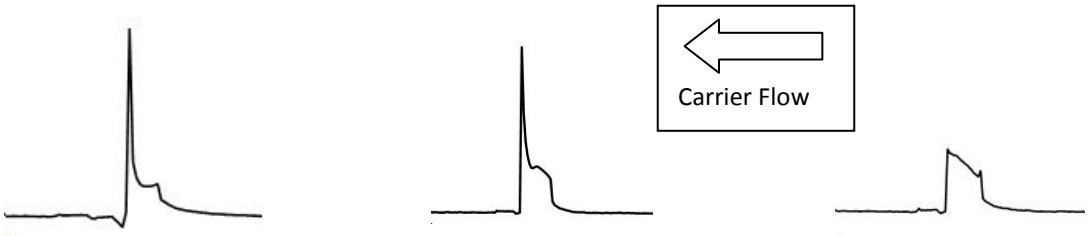
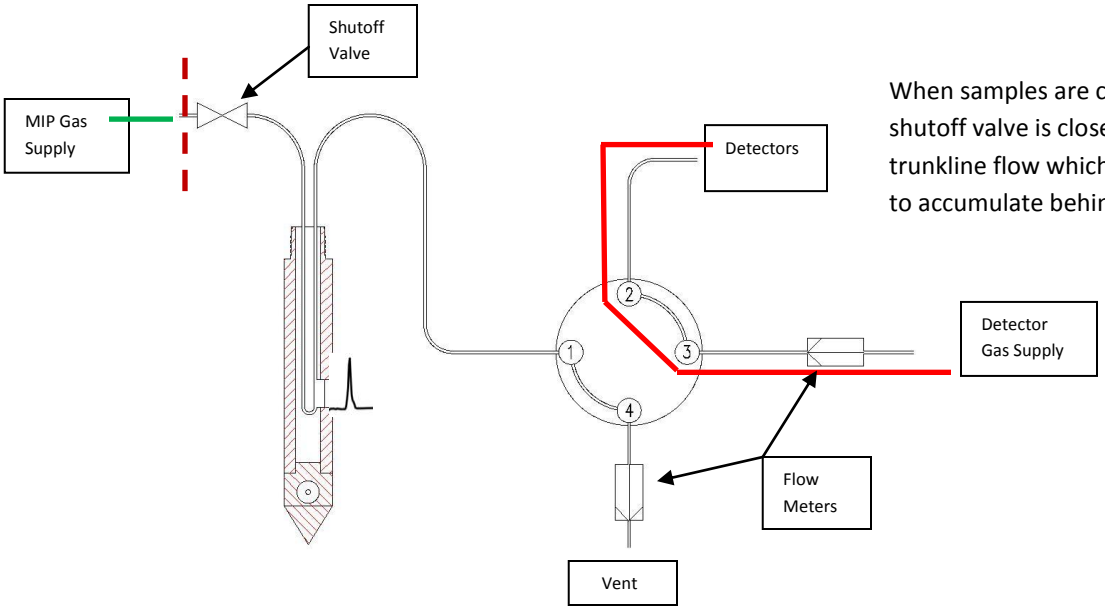


Figure 11: Example peaks where the Vent time is set too long – the front of the peak is being vented.

The peaks in Figure 11 have too long of a vent time resulting in the venting of the front of these contaminant peaks. To ensure that we see the full peak, decrease the “trunkline vent” time by 10-15 seconds and make sure that the “inject to detector” time has about 25 seconds. This will shift the trunkline carrier gas that is directed to the detectors and provide a more accurate timing of where the compounds will be in the carrier gas.

10.0 Gas Flow Paths and 4 Port Valve Configurations

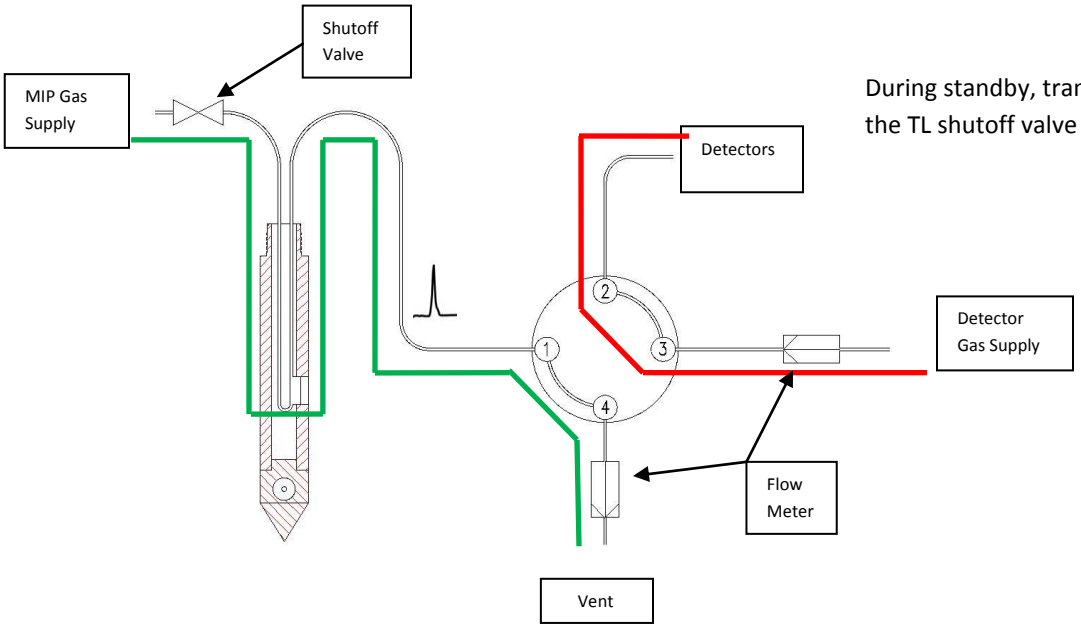
Valve configuration 1 is used during standby, collection and the first part of the transport mode. In Figure 12 the system is in the collection mode when the sample is being collected at the membrane. The trunkline carrier gas is plugged off at the 3-way shutoff valve at the surface allowing no flow to go through the trunkline. The detectors continue to receive a supply clean carrier gas passing through valve positions 3-2 and on to the detectors.



When samples are collected down-hole, the shutoff valve is closed blocking the trunkline flow which allows contaminants to accumulate behind the membrane.

Figure 12: Configuration #1 is the primary valve configuration used in standby, collection and transport modes.

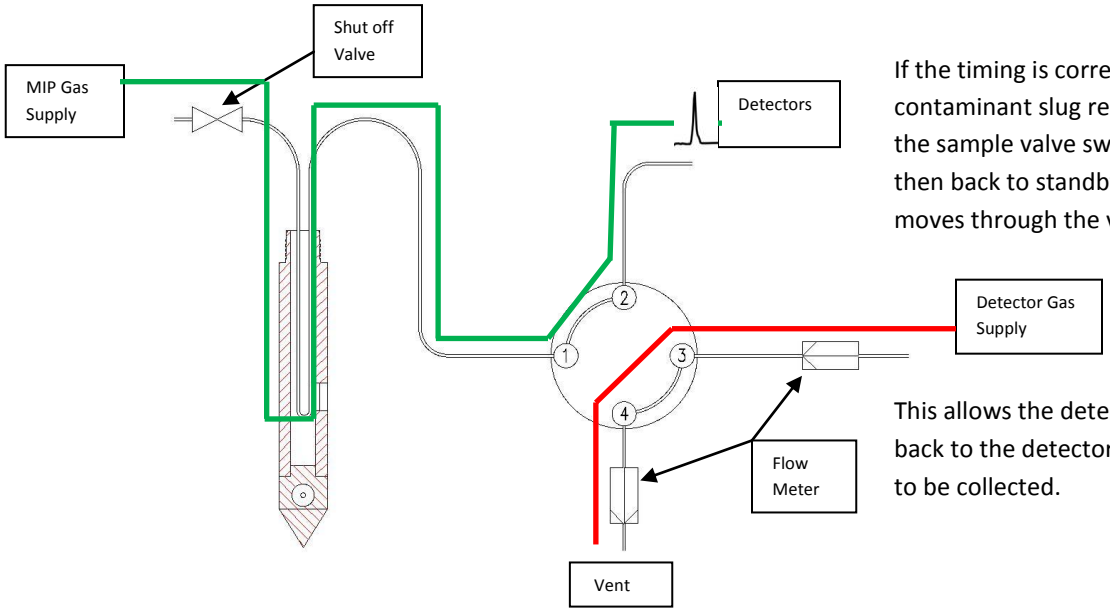
In Figure 13, the trunkline carrier gas is restarted and flowing through the 4-port valve positions 1-4 and venting through a flow meter. Clean carrier gas from GC is cycling through a flow meter then through valve positions 3-2 and onto the detectors.



During standby, transport and inject modes the TL shutoff valve is open.

Figure 13: Transport of the sample to the surface with the valve still in the primary configuration.

In Figure 14, the 4-port valve is switched to direct the trunkline carrier gas to the detectors through valve ports 1-2. This is valve configuration 2 which is used only during the "inject to detector" mode which is at the end of the transport mode as the sample peak approaches the top of the trunkline.

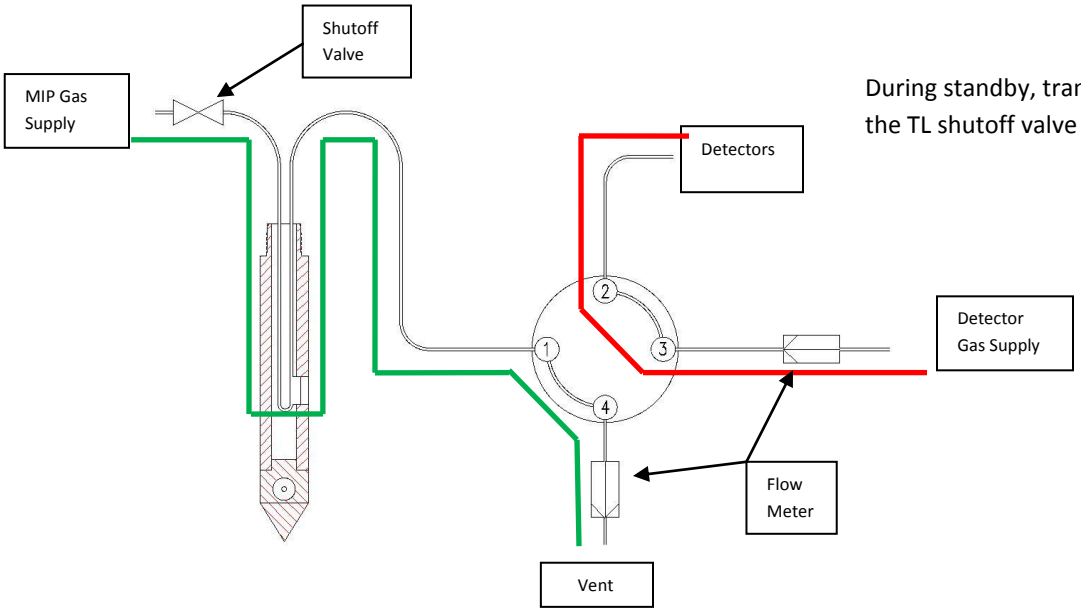


If the timing is correct, prior to the contaminant slug reaching the instruments the sample valve switches to inject and then back to standby after the response moves through the valve.

This allows the detector gas supply to move back to the detectors and the next sample to be collected.

Figure 14: Redirection of the sample to the detectors occurs in valve configuration #2: This valve configuration is used only during the injection mode.

Figure 15 is the standby mode which occurs when the "inject to detector" time has expired. The valve switches directing the trunkline carrier gas through the 4-port valve positions 1-4 and venting through a flow meter. Clean carrier gas from GC is cycling through a flow meter then through valve positions 3-2 and onto the detectors.



During standby, transport and inject modes the TL shutoff valve is open.

Figure 15: Standby mode with the valve in the primary configuration.

APPENDIX E:
Calibration Data for Vironex

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored.

EC PRE-LOG TESTS BYPASSED

HPT06.zip

SITE INFORMATION -- DIRECT IMAGE HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex,Inc
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: K8050 HPT Probe with Wenner
80 INCH STRING POT USED
ROD LENGTH: 5 feet

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Jan 7 2014 12:04:18

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	16.705	0.0	115.180
TOP with FLOW>0	17.232	282.4	118.810
BOTTOM with FLOW=0	16.482	0.0	113.640
BOTTOM with FLOW>0	17.017	278.6	117.330

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: DEFAULT, 0.000, 0.000, 0.000, 0.000, 1.000, 0.000
LOG START TIME: Tue Jan 7 2014 12:11:17

LOG END DEPTH: 24.65 ft (7.513 m)
LOG END TIME: Tue Jan 7 2014 12:43:41

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Jan 7 2014 12:54:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	16.814	0.0	115.930
TOP with FLOW>0	17.237	278.5	118.850
BOTTOM with FLOW=0	16.584	0.0	114.340
BOTTOM with FLOW>0	17.025	279.3	117.380

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

EC not functioning properly. Disregard data.

EC PRE-LOG TESTS BYPASSED

HPT08.zip

SITE INFORMATION -- DIRECT IMAGE HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex,Inc
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: K8050 HPT Probe with Wenner
80 INCH STRING POT USED
ROD LENGTH: 5 feet

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Jan 7 2014 14:23:03

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	16.758	0.0	115.540
TOP with FLOW>0	17.272	278.1	119.080
BOTTOM with FLOW=0	16.545	0.0	114.070
BOTTOM with FLOW>0	17.024	276.9	117.380

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: DEFAULT, 0.000, 0.000, 0.000, 0.000, 1.000, 0.000
LOG START TIME: Tue Jan 7 2014 14:25:23

Probe advancement with HPT flow valve and/or pump switch turned off at 29.35 ft (8.946 m).
LOG END DEPTH: 29.95 ft (9.129 m)
LOG END TIME: Tue Jan 7 2014 14:52:57

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Jan 7 2014 14:53:00

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	16.821	0.0	115.980
TOP with FLOW>0	19.845	268.3	136.830
BOTTOM with FLOW=0	16.609	0.0	114.520
BOTTOM with FLOW>0	19.391	263.5	133.700

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

EC not functioning properly. Disregard EC data.

EC PRE-LOG TESTS BYPASSED

HPT09.zip

SITE INFORMATION -- DIRECT IMAGE HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: K8050 HPT Probe with Wenner
80 INCH STRING POT USED
ROD LENGTH: 5 feet

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Jan 6 2014 07:20:31

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	17.047	0.0	117.540
TOP with FLOW>0	17.414	258.1	120.060
BOTTOM with FLOW=0	16.839	0.0	116.100
BOTTOM with FLOW>0	17.183	257.8	118.470

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.4 kPa)

TRANSDUCER TEST PASSED

HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: DEFAULT, 0.000, 0.000, 0.000, 0.000, 1.000, 0.000
LOG START TIME: Mon Jan 6 2014 07:27:05

LOG END DEPTH: 30.45 ft (9.281 m)
LOG END TIME: Mon Jan 6 2014 08:11:17

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Jan 6 2014 08:11:21

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	17.270	0.0	119.070
TOP with FLOW>0	17.700	254.2	122.040
BOTTOM with FLOW=0	17.044	0.0	117.520
BOTTOM with FLOW>0	17.470	252.7	120.450

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored.

EC PRE-LOG TESTS BYPASSED

HPT10.zip

SITE INFORMATION -- DIRECT IMAGE HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: K8050 HPT Probe with Wenner
80 INCH STRING POT USED
ROD LENGTH: 5 feet

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Jan 6 2014 10:25:25

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	16.907	0.0	116.570
TOP with FLOW>0	17.396	285.8	119.940
BOTTOM with FLOW=0	16.680	0.0	115.000
BOTTOM with FLOW>0	17.176	288.4	118.430

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: DEFAULT, 0.000, 0.000, 0.000, 0.000, 1.000, 0.000
Probe advancement with HPT flow valve and/or pump switch turned off at 0.00 ft (0.000 m).
LOG START TIME: Mon Jan 6 2014 10:28:00

LOG END DEPTH: 26.45 ft (8.062 m)
LOG END TIME: Mon Jan 6 2014 10:56:53

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Jan 6 2014 11:09:34

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	16.989	0.0	117.130
TOP with FLOW>0	17.510	277.8	120.730
BOTTOM with FLOW=0	16.769	0.0	115.620
BOTTOM with FLOW>0	17.297	277.9	119.260

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored.

APPENDIX F:
Calibration Data for Columbia

TESTS BYPASSED

M01.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Mon Sep 23 2013 12:22:34

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 28.80 FEET 8.778 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Mon Sep 23 2013 13:13:11

TEST VALUE P/F

INSTRUMENT CALIBRATION TESTS
10 OHM: 10.3 OHMS PASS
100 OHM: 99.2 OHMS PASS
1000 OHM: 956.8 OHMS PASS

M05.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Mon Sep 23 2013 13:33:55

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
2.05	10	10	10	1

LOG END DEPTH: 28.65 FEET 8.732 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Mon Sep 23 2013 14:26:15

TESTS BYPASSED

M08.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Mon Sep 23 2013 15:29:04

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 25.20 FEET 7.681 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Mon Sep 23 2013 16:09:37

TESTS BYPASSED

M13.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 18 2013 10:08:14

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 33.00 FEET 10.058 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 18 2013 11:15:14

TEST VALUE P/F

INSTRUMENT CALIBRATION TESTS
10 OHM: 10.3 OHMS PASS
100 OHM: 99.4 OHMS PASS
1000 OHM: 960.9 OHMS PASS

M15.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 18 2013 11:46:24

ATTENUATION CHANGES
DEPTH DET1 DET2 DET3 DET4
0.00 1 1 1 1
0.00 10 10 10 1
LOG END DEPTH: 31.95 FEET 9.738 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 18 2013 12:50:10

TESTS BYPASSED

M17.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 18 2013 13:21:54

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 28.15 FEET 8.580 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 18 2013 14:18:13

TESTS BYPASSED

M19.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 18 2013 14:53:46

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 27.55 FEET 8.397 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 18 2013 15:43:01

TESTS BYPASSED

M21.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 18 2013 16:02:23

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.25 FEET 9.220 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 18 2013 16:57:44

TESTS BYPASSED

M29.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 07:53:50

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 29.45 FEET 8.976 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 08:43:54

TESTS BYPASSED

M37.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 19 2013 09:36:09

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 26.60 FEET 8.108 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 19 2013 10:20:49

TESTS BYPASSED

M39.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 19 2013 08:15:41

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.00 FEET 9.144 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 19 2013 09:08:12

TESTS BYPASSED

M42.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 16:10:28

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 31.00 FEET 9.449 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 16:57:47

TESTS BYPASSED

M44.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 19 2013 10:52:57

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 28.25 FEET 8.611 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 19 2013 11:47:03

TESTS BYPASSED

M45.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 14:46:31

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 29.90 FEET 9.113 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 15:48:09

TESTS BYPASSED

M46.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 25 2013 08:00:29

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 32.95 FEET 10.043 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 25 2013 09:00:34

TESTS BYPASSED

M47.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 19 2013 12:13:41

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 34.60 FEET 10.546 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 19 2013 13:23:03

TESTS BYPASSED

M48.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Mon Sep 23 2013 10:19:22

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 14.50 FEET 4.420 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Mon Sep 23 2013 11:08:10

TESTS BYPASSED

M49.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 25 2013 09:33:36

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 31.00 FEET 9.449 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 25 2013 10:21:08

TESTS BYPASSED

M51.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 19 2013 14:10:58

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 29.05 FEET 8.854 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 19 2013 14:59:56

TEST VALUE P/F

INSTRUMENT CALIBRATION TESTS
10 OHM: 10.5 OHMS PASS
100 OHM: 100.2 OHMS PASS
1000 OHM: 980.6 OHMS PASS

M53.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Mon Sep 23 2013 07:55:09

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

TESTS BYPASSED

M54.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 16:15:30

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 31.55 FEET 9.616 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 17:02:19

TESTS BYPASSED

M55.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 12:29:36

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.95 FEET 9.433 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 13:22:41

TESTS BYPASSED

M56.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 13:45:58

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 29.75 FEET 9.068 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 14:35:36

TESTS BYPASSED

M57.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 25 2013 10:45:42

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 29.65 FEET 9.037 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 25 2013 11:34:28

TESTS BYPASSED

M60.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 19 2013 15:32:12

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 32.85 FEET 10.013 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 19 2013 16:24:48

TESTS BYPASSED

M60.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 15:03:21

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 26.85 FEET 8.184 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 15:47:47

TESTS BYPASSED

M63.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 07:53:26

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 31.45 FEET 9.586 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 08:43:07

TESTS BYPASSED

M65.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 25 2013 13:33:36

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 28.95 FEET 8.824 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 25 2013 14:24:08

TESTS BYPASSED

M68.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 09:52:52

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.10 FEET 9.174 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 10:42:19

TEST VALUE P/F

INSTRUMENT CALIBRATION TESTS
10 OHM: 10.3 OHMS PASS
100 OHM: 99.2 OHMS PASS
1000 OHM: 959.4 OHMS PASS

M69.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Fri Sep 20 2013 11:12:05

ATTENUATION CHANGES
DEPTH DET1 DET2 DET3 DET4
0.00 1 1 1 1
0.00 10 10 10 1
LOG END DEPTH: 31.55 FEET 9.616 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Fri Sep 20 2013 11:59:59

TESTS BYPASSED

M72.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Wed Sep 25 2013 12:07:44

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.70 FEET 9.357 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Wed Sep 25 2013 13:01:17

TESTS BYPASSED

M73.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 10:36:00

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 23.40 FEET 7.132 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 11:18:55

TESTS BYPASSED

M74.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 09:29:09

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 23.85 FEET 7.269 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 10:13:05

TESTS BYPASSED

M78.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Mon Sep 23 2013 16:32:49

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1
5.80	100	10	10	1
6.50	100	100	10	1
13.85	10	10	10	1

LOG END DEPTH: 23.95 FEET 7.300 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Mon Sep 23 2013 17:09:17

TEST VALUE P/F

INSTRUMENT CALIBRATION TESTS
10 OHM: 10.4 OHMS PASS
100 OHM: 99.9 OHMS PASS
1000 OHM: 973.4 OHMS PASS

M80.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 08:07:17

ATTENUATION CHANGES
DEPTH DET1 DET2 DET3 DET4
0.00 1 1 1 1
0.00 10 10 10 1
LOG END DEPTH: 29.70 FEET 9.053 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 08:56:25

TESTS BYPASSED

M85.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 16:40:37

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.10 FEET 9.174 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 17:24:47

TESTS BYPASSED

M87.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 11:51:22

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 31.65 FEET 9.647 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 12:46:01

TESTS BYPASSED

M91.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Tue Sep 24 2013 13:12:19

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 28.00 FEET 8.534 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Tue Sep 24 2013 14:09:49

TESTS BYPASSED

M98.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 15:27:25

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 28.70 FEET 8.748 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 16:14:55

TESTS BYPASSED

M100.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 13:59:22

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 29.25 FEET 8.915 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 14:48:00

TESTS BYPASSED

M101.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 12:39:35

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 26.90 FEET 8.199 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 13:24:26

TESTS BYPASSED

M102.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 11:33:49

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

LOG END DEPTH: 30.50 FEET 9.296 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 12:18:19

TESTS BYPASSED

M103.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 09:18:20

ATTENUATION CHANGES

DEPTH	DET1	DET2	DET3	DET4
0.00	1	1	1	1
0.00	10	10	10	1

TEST VALUE P/F

INSTRUMENT CALIBRATION TESTS
10 OHM: 10.3 OHMS PASS
100 OHM: 99.4 OHMS PASS
1000 OHM: 965.5 OHMS PASS

M104.INF

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

DATA FILE FORMAT:
(FT) (mS/M) (FT/MIN) (T MIN) (T MAX) (PSI) (M) (M/MIN) (KPA)
GAS FILE FORMAT:
D1MIN D1MAX D2MIN D2MAX D3MIN D3MAX D4MIN D4MAX

UNITS: ENGLISH

PROBE AND ARRAY: MP6520 MIP PROBE
100 INCH STRING POT USED
DETECTOR NAME: PID FID ECD DET4
LOG START TIME: Thu Sep 26 2013 10:24:02

ATTENUATION CHANGES
DEPTH DET1 DET2 DET3 DET4
0.00 1 1 1 1
0.00 10 10 10 1
LOG END DEPTH: 25.30 FEET 7.711 METERS

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.00 METERS; 0.00 FEET
UNABLE TO ESTABLISH A FIX

LOG END TIME: Thu Sep 26 2013 11:00:18

EC PRE-LOG TESTS BYPASSED

M201.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M201.pre.tim
RESPONSE TEST START TIME: Sat Jan 4 2014 11:09:31

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Jan 4 2014 11:18:40

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 27.65 ft (8.428 m)
LOG END TIME: Sat Jan 4 2014 12:03:13

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.6	1.0	PASS
High	290.0	289.5	0.2	PASS

M202.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M202.pre.tim
RESPONSE TEST START TIME: Sat Jan 4 2014 09:15:27

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Jan 4 2014 09:17:41

Temperature out of range (79.6 deg C) at 22.00 ft (6.706 m)

Temperature out of range (36.1 deg C) at 22.00 ft (6.706 m)

Temperature out of range (18.6 deg C) at 22.00 ft (6.706 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 27.15 ft (8.275 m)
LOG END TIME: Sat Jan 4 2014 10:44:14

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.4	0.6	PASS
High	290.0	291.3	0.4	PASS

M203.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M203.pre.tim
RESPONSE TEST START TIME: Sat Jan 4 2014 13:29:22

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Jan 4 2014 13:31:54

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 27.60 ft (8.412 m)
LOG END TIME: Sat Jan 4 2014 14:10:09

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

EC PRE-LOG TESTS BYPASSED

M205.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M205.pre.tim
RESPONSE TEST START TIME: Sat Jan 4 2014 08:07:08

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	2	1	1	1
8	16	1	1	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Jan 4 2014 08:13:34

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 30.80 ft (9.388 m)
LOG END TIME: Sat Jan 4 2014 08:56:45

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.7	3.1	PASS
High	290.0	290.6	0.2	PASS

M206.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M206.pre.tim
RESPONSE TEST START TIME: Sun Dec 22 2013 08:31:35

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Dec 22 2013 08:33:38

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.85 ft (8.793 m)
LOG END TIME: Sun Dec 22 2013 09:16:41

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.4	0.8	PASS
High	290.0	289.1	0.3	PASS

M207.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M207.pre.tim
RESPONSE TEST START TIME: Thu Dec 19 2013 08:36:43

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Thu Dec 19 2013 08:44:56

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 30.55 ft (9.312 m)
LOG END TIME: Thu Dec 19 2013 09:23:18

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 30.55 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.1	0.1	PASS
High	290.0	290.5	0.2	PASS

M207.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M207.pre.tim
RESPONSE TEST START TIME: Wed Dec 18 2013 16:18:38

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Wed Dec 18 2013 16:32:40

Temperature out of range (79.7 deg C) at 11.10 ft (3.383 m)

Temperature out of range (45.1 deg C) at 11.10 ft (3.383 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 11.10 ft (3.383 m)

LOG END TIME: Wed Dec 18 2013 17:03:54

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Boring was abandoned at 11.10 feet bgs due to heater block failure.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	287.3	0.9	PASS

M208.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M208.pre.tim
RESPONSE TEST START TIME: Thu Dec 19 2013 11:01:40

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Thu Dec 19 2013 11:12:47

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.90 ft (9.114 m)
LOG END TIME: Thu Dec 19 2013 12:02:37

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 29.90 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.5	0.8	PASS
High	290.0	289.4	0.2	PASS

M209.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M209.pre.tim
RESPONSE TEST START TIME: Thu Dec 19 2013 09:55:46

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Thu Dec 19 2013 10:03:41

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.60 ft (9.022 m)
LOG END TIME: Thu Dec 19 2013 10:39:38

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 29.60 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.5	PASS
High	290.0	289.5	0.2	PASS

M210.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M210.pre.tim
RESPONSE TEST START TIME: Sun Jan 5 2014 07:59:33

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
27	16	1	1	1
43	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Jan 5 2014 08:08:31

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.70 ft (8.748 m)
LOG END TIME: Sun Jan 5 2014 08:59:31

LATITUDE: 0.000000000
LONGITUDE: 0.000000000

ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.2	0.4	PASS
High	290.0	284.6	1.8	PASS

M211.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M211.pre.tim
RESPONSE TEST START TIME: Wed Dec 18 2013 10:05:15

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Wed Dec 18 2013 10:12:05

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.65 ft (8.733 m)
LOG END TIME: Wed Dec 18 2013 10:47:58

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 28.65 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.5	PASS
High	290.0	285.1	1.7	PASS

M212.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M212.pre.tim
RESPONSE TEST START TIME: Wed Dec 18 2013 12:54:46

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Wed Dec 18 2013 13:07:15

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 27.50 ft (8.382 m)
LOG END TIME: Wed Dec 18 2013 13:40:25

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 27.50 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	290.4	0.1	PASS

M213.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M213.pre.tim
RESPONSE TEST START TIME: Sun Dec 22 2013 06:25:28

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
14	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Dec 22 2013 06:29:45

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 27.60 ft (8.412 m)
LOG END TIME: Sun Dec 22 2013 07:16:02

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored to 6 inches bgs. FID response from 0 to 1 ft bgs is due to relighting the FID, please disregard.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.5	0.9	PASS
High	290.0	288.9	0.4	PASS

M214.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M214.pre.tim
RESPONSE TEST START TIME: Wed Dec 18 2013 11:23:20

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Wed Dec 18 2013 11:38:09

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.60 ft (9.022 m)
LOG END TIME: Wed Dec 18 2013 12:14:32

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 29.60 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.3	4.1	PASS
High	290.0	292.5	0.9	PASS

M215.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M215.pre.tim
RESPONSE TEST START TIME: Sun Dec 22 2013 07:29:02

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Dec 22 2013 07:31:24

MIP Pressure out of range (14.2 psi / 98 kPa) at 26.90 ft (8.199 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.65 ft (8.733 m)
LOG END TIME: Sun Dec 22 2013 08:15:21

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Cored through asphalt to 6 inches bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.2	PASS
High	290.0	288.2	0.6	PASS

M216.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M216.pre.tim
RESPONSE TEST START TIME: Thu Dec 19 2013 12:25:41

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Thu Dec 19 2013 12:36:24

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.60 ft (9.022 m)
LOG END TIME: Thu Dec 19 2013 13:07:05

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 29.60 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.4	PASS
High	290.0	291.8	0.6	PASS

M218.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M218.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 13:55:47

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Fri Dec 20 2013 13:59:06

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.75 ft (8.763 m)
LOG END TIME: Fri Dec 20 2013 14:40:32

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored to 6 inches bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.4	0.8	PASS
High	290.0	290.5	0.2	PASS

M219.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M219.pre.tim
COMPOUND: TCE and Toluene
CONCENTRATION: 5 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Dec 19 2013 12:48:35

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: FID XSD ECD PID
LOG START TIME: Thu Dec 19 2013 12:52:00

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	1	1	4	1
25.85	7.879	1	1	16	1
26.45	8.062	4	1	16	1

LOG END DEPTH: 31.05 ft (9.464 m)
LOG END TIME: Thu Dec 19 2013 13:29:01

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 29.55 ft bgs.

EC PRE-LOG TESTS BYPASSED

M220.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 13:42:47

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.20 ft (8.595 m)
LOG END TIME: Sat Dec 21 2013 14:24:07

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.2	PASS
High	290.0	291.1	0.4	PASS

M221.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M221.pre.tim
RESPONSE TEST START TIME: Sat Dec 21 2013 14:40:31

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 14:46:21

MIP Pressure out of range (13.9 psi / 96 kPa) at 9.85 ft (3.002 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.15 ft (8.885 m)
LOG END TIME: Sat Dec 21 2013 15:28:49

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	2.9	PASS
High	290.0	290.7	0.2	PASS

M222.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M222.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 09:52:43

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Fri Dec 20 2013 10:01:04

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.80 ft (8.778 m)
LOG END TIME: Fri Dec 20 2013 10:38:09

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.6	1.1	PASS
High	290.0	289.3	0.3	PASS

M223.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M223.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 11:34:14

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Fri Dec 20 2013 11:37:52

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.90 ft (9.114 m)
LOG END TIME: Fri Dec 20 2013 12:20:11

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.2	PASS
High	290.0	290.4	0.1	PASS

M224.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M224.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 12:42:56

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Fri Dec 20 2013 12:53:01

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.85 ft (9.098 m)
LOG END TIME: Fri Dec 20 2013 13:39:54

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	290.6	0.2	PASS

M225.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M225.pre.tim
COMPOUND: TCE and Toluene
CONCENTRATION: 5 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Dec 19 2013 14:01:01

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	4	1	16	1
17	2	1	16	1
1:01	2	1	16	1
1:16	2	1	1	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Thu Dec 19 2013 14:03:26

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	2	1	1	1
0.40	0.122	2	1	1	1

1.85 0.564 16 1 1 1
LOG END DEPTH: 29.25 ft (8.915 m)
LOG END TIME: Thu Dec 19 2013 14:54:52

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored to 6 inches bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.5	PASS
High	290.0	287.3	0.9	PASS

M226.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M226.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 06:30:13

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
16	4	1	1	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD

MIP Pressure out of range (16.2 psi / 111 kPa) at 1.50 ft (0.457 m)

LOG START TIME: Fri Dec 20 2013 06:40:22

MIP Pressure out of range (16.2 psi / 111 kPa) at 2.45 ft (0.747 m)

MIP Pressure Alarm Has Been Disabled 2.50 ft 0.762 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)		DET1	DET2	DET3	DET4
0.00	0.000	16	1	1	1	
3.30	1.006	16	1	2	1	
11.60	3.536	16	1	4	1	
11.65	3.551	16	2	4	1	
14.35	4.374	16	2	8	1	
14.60	4.450	16	8	8	1	
15.95	4.862	16	8	16	1	

LOG END DEPTH: 28.30 ft (8.626 m)
LOG END TIME: Fri Dec 20 2013 07:18:23

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.6	1.0	PASS
High	290.0	288.0	0.7	PASS

M227.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M227.pre.tim
COMPOUND: TCE and Toluene
CONCENTRATION: 5 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Dec 19 2013 15:29:25

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	1	1	1
13	16	1	1	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Thu Dec 19 2013 15:31:51

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	1	1	1
3.45	1.052	16	1	4	1
4.15	1.265	16	4	4	1

LOG END DEPTH: 28.30 ft (8.626 m)

LOG END TIME: Thu Dec 19 2013 16:07:15

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored to 6 inches bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	286.8	1.1	PASS

M228.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M228.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 08:51:16

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Fri Dec 20 2013 08:57:34

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.30 ft (8.931 m)
LOG END TIME: Fri Dec 20 2013 09:40:47

LATITUDE: 0.000000000

LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	290.0	0.0	PASS

M229.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M229.pre.tim
COMPOUND: TCE only
CONCENTRATION: 10 ppm
FLOW: 55 mL/min
RESPONSE TEST START TIME: Fri Dec 20 2013 07:50:11

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	8	16	1
15	16	8	16	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Fri Dec 20 2013 07:53:58

MIP Pressure Alarm Has Been Enabled 11.30 ft 3.444 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1
26.20	7.986	16	4	4	1

LOG END DEPTH: 27.60 ft (8.412 m)
LOG END TIME: Fri Dec 20 2013 08:30:47

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	2.0	PASS
High	290.0	289.8	0.1	PASS

M230.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M230.pre.tim
RESPONSE TEST START TIME: Tue Dec 17 2013 17:04:22

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Tue Dec 17 2013 17:16:01

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 26.85 ft (8.184 m)
LOG END TIME: Tue Dec 17 2013 17:54:27

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 26.85 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.4	0.8	PASS
High	290.0	283.8	2.1	PASS

M236.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M236.pre.tim
RESPONSE TEST START TIME: Tue Dec 17 2013 15:31:19

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Tue Dec 17 2013 15:57:40

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.70 ft (8.748 m)
LOG END TIME: Tue Dec 17 2013 16:31:53

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 28.70 feet bgs.

EC PRE-LOG TESTS BYPASSED

M233.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 10:34:12

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.00 ft (8.534 m)
LOG END TIME: Sat Dec 21 2013 11:13:55

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.0	0.0	PASS
High	290.0	288.1	0.6	PASS

M234.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M234.pre.tim
RESPONSE TEST START TIME: Tue Dec 17 2013 11:24:18

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
18	4	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD

Temperature out of range (79.9 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Tue Dec 17 2013 11:27:10

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	4	4	4	1
5.20	1.585	4	4	4	1

LOG END DEPTH: 28.65 ft (8.733 m)
LOG END TIME: Tue Dec 17 2013 12:38:38

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 28.65 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.1	0.2	PASS
High	290.0	267.5	7.8	PASS

M235.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.4 Build: 12226

COMPANY: Vironex
OPERATOR: Ryan Mulford
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M235.pre.tim
RESPONSE TEST START TIME: Tue Dec 17 2013 13:44:38

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	4	4	4	1

TRIP TIME: 50 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Tue Dec 17 2013 14:14:46

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	4	4	4	1
13.15	4.008	4	4	4	1
17.10	5.212	16	4	4	1

LOG END DEPTH: 28.75 ft (8.763 m)
LOG END TIME: Tue Dec 17 2013 14:53:52

LATITUDE: 0.000000000
LONGITUDE: 0.000000000

ELEVATION: 0.000 METERS 0.00 FEET

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Refusal at 28.75 feet bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.5	1.0	PASS
High	290.0	289.4	0.2	PASS

M237.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M237.pre.tim
RESPONSE TEST START TIME: Sat Dec 21 2013 12:29:15

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 12:32:13

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 1.70 ft (0.518 m)
LOG END TIME: Sat Dec 21 2013 12:36:55

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.9	1.6	PASS
High	290.0	289.8	0.1	PASS

M238.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M238.pre.tim
RESPONSE TEST START TIME: Sat Dec 21 2013 08:58:47

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 09:03:33

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.30 ft (8.626 m)
LOG END TIME: Sat Dec 21 2013 09:42:15

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.2	PASS
High	290.0	291.6	0.6	PASS

M239.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M239.pre.tim
RESPONSE TEST START TIME: Sat Dec 21 2013 07:50:38

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1
10	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 07:55:18

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.50 ft (8.687 m)
LOG END TIME: Sat Dec 21 2013 08:38:58

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.2	0.4	PASS
High	290.0	289.8	0.1	PASS

M240.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M240.pre.tim
RESPONSE TEST START TIME: Sat Dec 21 2013 06:29:04

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
24	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 06:32:55

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.75 ft (8.763 m)
LOG END TIME: Sat Dec 21 2013 07:15:10

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

FID response at 0 to 0.2 feet bgs is due to relighting the FID. Please disregard.

EC PRE-LOG TESTS BYPASSED

M241.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sat Dec 21 2013 12:46:29

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 28.70 ft (8.748 m)
LOG END TIME: Sat Dec 21 2013 13:24:23

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored to 6 inches bgs.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.2	0.4	PASS
High	290.0	291.4	0.5	PASS

M242.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Jan 5 2014 14:16:49

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.80 ft (9.083 m)
LOG END TIME: Sun Jan 5 2014 15:03:21

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.5	PASS
High	290.0	291.0	0.3	PASS

M243.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M243.pre.tim
RESPONSE TEST START TIME: Sun Jan 5 2014 15:24:50

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Jan 5 2014 15:27:02

MIP Pressure out of range (15.5 psi / 107 kPa) at 2.90 ft (0.884 m)

MIP Pressure out of range (15.5 psi / 107 kPa) at 4.00 ft (1.219 m)

MIP Pressure Alarm Has Been Disabled 4.30 ft 1.311 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.45 ft (8.976 m)
LOG END TIME: Sun Jan 5 2014 16:05:43

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.4	0.7	PASS
High	290.0	289.4	0.2	PASS

M244.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc.
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M244.pre.tim
RESPONSE TEST START TIME: Tue Jan 7 2014 10:09:56

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
16	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Tue Jan 7 2014 10:13:21

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1
8.65	2.637	16	4	16	1

LOG END DEPTH: 28.95 ft (8.824 m)
LOG END TIME: Tue Jan 7 2014 10:56:21

LATITUDE: 0.000000000
LONGITUDE: 0.000000000

ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

None.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	54.7	0.5	PASS
High	290.0	289.8	0.1	PASS

M246.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M246.pre.tim
RESPONSE TEST START TIME: Sun Jan 5 2014 09:15:14

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Sun Jan 5 2014 09:17:14

MIP Pressure out of range (16.0 psi / 111 kPa) at 7.65 ft (2.332 m)

Temperature out of range (79.9 deg C) at 8.25 ft (2.515 m)

MIP Pressure out of range (13.7 psi / 95 kPa) at 8.25 ft (2.515 m)

Temperature out of range (62.7 deg C) at 8.25 ft (2.515 m)

MIP Pressure out of range (13.9 psi / 96 kPa) at 8.25 ft (2.515 m)

MIP Pressure out of range (16.2 psi / 111 kPa) at 8.25 ft (2.515 m)

Temperature out of range (45.2 deg C) at 8.25 ft (2.515 m)

Temperature out of range (40.0 deg C) at 8.25 ft (2.515 m)

Temperature out of range (35.6 deg C) at 8.25 ft (2.515 m)

Temperature out of range (32.0 deg C) at 8.25 ft (2.515 m)

Temperature out of range (29.0 deg C) at 8.25 ft (2.515 m)

Temperature out of range (26.9 deg C) at 8.25 ft (2.515 m)

Temperature out of range (24.6 deg C) at 8.25 ft (2.515 m)

Temperature out of range (22.6 deg C) at 8.25 ft (2.515 m)

Temperature out of range (21.0 deg C) at 8.25 ft (2.515 m)

Temperature out of range (19.4 deg C) at 8.25 ft (2.515 m)

Temperature out of range (17.6 deg C) at 8.25 ft (2.515 m)

Temperature out of range (15.8 deg C) at 8.25 ft (2.515 m)

Temperature out of range (13.6 deg C) at 8.25 ft (2.515 m)

Temperature out of range (11.9 deg C) at 8.25 ft (2.515 m)

Temperature out of range (10.5 deg C) at 8.25 ft (2.515 m)

Temperature out of range (9.5 deg C) at 8.25 ft (2.515 m)

Temperature out of range (8.5 deg C) at 8.25 ft (2.515 m)

Temperature out of range (7.8 deg C) at 8.25 ft (2.515 m)

Temperature out of range (7.3 deg C) at 8.25 ft (2.515 m)

Temperature out of range (6.7 deg C) at 8.25 ft (2.515 m)

Temperature out of range (6.3 deg C) at 8.25 ft (2.515 m)

Temperature out of range (6.1 deg C) at 8.25 ft (2.515 m)

Temperature out of range (5.7 deg C) at 8.25 ft (2.515 m)

Temperature out of range (5.7 deg C) at 8.25 ft (2.515 m)

Temperature out of range (4.9 deg C) at 8.25 ft (2.515 m)

MIP Pressure out of range (10.1 psi / 70 kPa) at 8.25 ft (2.515 m)

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.6	1.1	PASS
High	290.0	291.6	0.5	PASS

M250.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M250.pre.tim
RESPONSE TEST START TIME: Mon Jan 6 2014 14:06:46

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
27	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Mon Jan 6 2014 14:09:11

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.90 ft (9.114 m)
LOG END TIME: Mon Jan 6 2014 14:50:35

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

EC POST-LOG TESTS BYPASSED

********** USER NOTES **********

Concrete cored.

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	290.0	0.0	PASS

M251.zip

SITE INFORMATION -- DIRECT IMAGE MIP PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.5 Build: 13172

COMPANY: Vironex, Inc
OPERATOR: DEC
PROJECT ID: Whirlpool Facility
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MP6520 MIP Probe with Top Dipole
80 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M251.pre.tim
RESPONSE TEST START TIME: Mon Jan 6 2014 15:15:01

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	16	4	4	1

TRIP TIME: 75 sec
Gas Used: nitrogen
DETECTOR NAME: ECD PID FID XSD
LOG START TIME: Mon Jan 6 2014 15:17:23

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	16	4	4	1

LOG END DEPTH: 29.85 ft (9.098 m)
LOG END TIME: Mon Jan 6 2014 15:59:39

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.9	3.4	PASS
High	290.0	296.9	2.4	PASS

M300.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M300.pre.tim
RESPONSE TEST START TIME: Mon Aug 4 2014 09:43:58

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 4 2014 09:47:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.374	0.0	106.000
TOP with FLOW>0	15.639	154.2	107.830
BOTTOM with FLOW=0	15.155	0.0	104.490
BOTTOM with FLOW>0	15.434	154.7	106.410

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD210091,0.0000,0.0000,0.0000,0.0000,9.9620e-1,-1.3140
LOG START TIME: Mon Aug 4 2014 09:52:57

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.95 ft (7.910 m)
LOG END TIME: Mon Aug 4 2014 10:28:43

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 4 2014 10:28:46

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.2	3.9	PASS
High	290.0	263.5	9.1	PASS

M301.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M301.pre.tim
RESPONSE TEST START TIME: Mon Aug 4 2014 10:44:40

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 4 2014 10:46:46

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.430	0.0	106.380
TOP with FLOW>0	15.664	157.8	108.000
BOTTOM with FLOW=0	15.210	0.0	104.870
BOTTOM with FLOW>0	15.449	157.2	106.520

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD210091,0.0000,0.0000,0.0000,0.0000,9.9620e-1,-1.3140
LOG START TIME: Mon Aug 4 2014 10:59:50

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.85 ft (7.879 m)
LOG END TIME: Mon Aug 4 2014 11:31:04

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 4 2014 11:31:09

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.1	3.9	PASS
High	290.0	297.8	2.7	PASS

M302.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M302.pre.tim
RESPONSE TEST START TIME: Mon Aug 4 2014 11:38:34

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 4 2014 11:43:52

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.490	0.0	106.800
TOP with FLOW>0	16.074	155.3	110.830
BOTTOM with FLOW=0	15.277	0.0	105.330
BOTTOM with FLOW>0	15.871	155.1	109.420

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD210091,0.0000,0.0000,0.0000,0.0000,9.9620e-1,-1.3140
LOG START TIME: Mon Aug 4 2014 11:54:00

Temperature out of range (79.9 deg C) at 23.05 ft (7.026 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.80 ft (7.864 m)
LOG END TIME: Mon Aug 4 2014 12:30:03

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 4 2014 12:30:07

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.2	PASS
High	290.0	298.1	2.8	PASS

M303.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M303.pre.tim
RESPONSE TEST START TIME: Mon Aug 4 2014 14:29:50

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 51 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 4 2014 14:31:59

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.514	0.0	106.960
TOP with FLOW>0	15.854	151.0	109.310
BOTTOM with FLOW=0	15.293	0.0	105.440
BOTTOM with FLOW>0	15.621	150.3	107.700

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD210091,0.0000,0.0000,0.0000,0.0000,9.9620e-1,-1.3140
LOG START TIME: Mon Aug 4 2014 14:50:28

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 27.95 ft (8.519 m)
LOG END TIME: Mon Aug 4 2014 15:32:14

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 4 2014 15:32:17

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	53.6	2.5	PASS
High	290.0	298.1	2.8	PASS

M304.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M304.pre.tim
RESPONSE TEST START TIME: Mon Aug 4 2014 16:21:44

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 48 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 4 2014 16:24:54

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.246	0.0	105.120
TOP with FLOW>0	15.476	165.1	106.700
BOTTOM with FLOW=0	15.043	0.0	103.710
BOTTOM with FLOW>0	15.256	164.4	105.190

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Mon Aug 4 2014 16:37:08

Temperature out of range (79.9 deg C) at 19.05 ft (5.806 m)

Temperature out of range (57.2 deg C) at 19.05 ft (5.806 m)

Temperature out of range (47.9 deg C) at 19.05 ft (5.806 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 24.20 ft (7.376 m)
LOG END TIME: Mon Aug 4 2014 17:33:03

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 4 2014 17:33:11

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	297.7	2.7	PASS

M305.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M305.pre.tim
RESPONSE TEST START TIME: Tue Aug 5 2014 08:23:03

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 46 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 5 2014 08:25:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.432	0.0	106.400
TOP with FLOW>0	15.738	159.8	108.510
BOTTOM with FLOW=0	15.204	0.0	104.830
BOTTOM with FLOW>0	15.478	159.3	106.720

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Tue Aug 5 2014 08:29:20

MIP Pressure out of range (17.4 psi / 120 kPa) at 20.20 ft (6.157 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 28.70 ft (8.748 m)
LOG END TIME: Tue Aug 5 2014 09:30:33

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 5 2014 09:30:36

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	2.1	PASS
High	290.0	298.5	2.9	PASS

M306.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M306.pre.tim
RESPONSE TEST START TIME: Tue Aug 5 2014 09:40:41

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 46 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 5 2014 09:44:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.389	0.0	106.100
TOP with FLOW>0	15.575	156.8	107.380
BOTTOM with FLOW=0	15.171	0.0	104.600
BOTTOM with FLOW>0	15.360	156.7	105.900

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Tue Aug 5 2014 09:54:00

MIP Pressure out of range (15.6 psi / 108 kPa) at 17.40 ft (5.304 m)

MIP Pressure out of range (10.6 psi / 73 kPa) at 18.10 ft (5.517 m)

Temperature out of range (79.6 deg C) at 18.10 ft (5.517 m)

MIP Pressure out of range (15.7 psi / 109 kPa) at 18.10 ft (5.517 m)

Temperature out of range (44.4 deg C) at 18.10 ft (5.517 m)

MIP Pressure out of range (13.6 psi / 94 kPa) at 18.10 ft (5.517 m)

MIP Pressure out of range (15.8 psi / 109 kPa) at 18.10 ft (5.517 m)

MIP Pressure out of range (13.6 psi / 94 kPa) at 18.10 ft (5.517 m)

MIP Pressure out of range (16.0 psi / 110 kPa) at 18.10 ft (5.517 m)

MIP Pressure out of range (13.1 psi / 90 kPa) at 18.10 ft (5.517 m)

Temperature out of range (37.0 deg C) at 18.10 ft (5.517 m)

Temperature out of range (36.9 deg C) at 18.10 ft (5.517 m)

Temperature out of range (35.8 deg C) at 18.10 ft (5.517 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4

0.00 0.000 10 10 10 1
LOG END DEPTH: 27.60 ft (8.412 m)
LOG END TIME: Tue Aug 5 2014 11:39:12

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 5 2014 11:39:15

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.3	2.3	PASS
High	290.0	298.3	2.9	PASS

M307.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M307.pre.tim
RESPONSE TEST START TIME: Tue Aug 5 2014 11:48:59

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 49 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 5 2014 11:52:40

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.386	0.0	106.080
TOP with FLOW>0	15.537	144.8	107.120
BOTTOM with FLOW=0	15.158	0.0	104.510
BOTTOM with FLOW>0	15.320	143.8	105.630

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Tue Aug 5 2014 12:04:06

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.30 ft (7.711 m)
LOG END TIME: Tue Aug 5 2014 13:05:58

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 5 2014 13:06:04

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.5	2.7	PASS
High	290.0	298.5	2.9	PASS

M308.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M308.pre.tim
RESPONSE TEST START TIME: Tue Aug 5 2014 13:48:30

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 49 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 5 2014 13:51:11

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.378	0.0	106.030
TOP with FLOW>0	15.932	150.3	109.850
BOTTOM with FLOW=0	15.161	0.0	104.530
BOTTOM with FLOW>0	15.711	149.8	108.320

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Tue Aug 5 2014 14:15:19

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 26.45 ft (8.062 m)
LOG END TIME: Tue Aug 5 2014 15:00:39

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 5 2014 15:00:43

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.4	4.4	PASS
High	290.0	298.7	3.0	PASS

M309.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M309.pre.tim
RESPONSE TEST START TIME: Wed Aug 6 2014 11:18:09

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 6 2014 11:22:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.781	0.0	108.810
TOP with FLOW>0	16.329	150.8	112.590
BOTTOM with FLOW=0	15.571	0.0	107.360

BOTTOM with FLOW>0 16.075 149.8 110.840

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Wed Aug 6 2014 11:28:42

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.00 ft (7.620 m)
LOG END TIME: Wed Aug 6 2014 12:17:21

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 6 2014 12:17:24

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.6	PASS
High	290.0	297.4	2.6	PASS

M310.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M310.pre.tim
RESPONSE TEST START TIME: Wed Aug 6 2014 12:26:41

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 52 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 6 2014 12:29:57

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.316	0.0	105.600
TOP with FLOW>0	15.560	156.8	107.280
BOTTOM with FLOW=0	15.093	0.0	104.060

BOTTOM with FLOW>0 15.334 156.5 105.720

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Wed Aug 6 2014 13:27:01

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 14.10 ft (4.298 m)
LOG END TIME: Wed Aug 6 2014 13:55:00

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 6 2014 13:55:03

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.9	3.4	PASS
High	290.0	298.4	2.9	PASS

M311.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M311.pre.tim
RESPONSE TEST START TIME: Wed Aug 6 2014 15:58:27

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 53 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 6 2014 15:59:40

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.184	0.0	104.690
TOP with FLOW>0	15.570	149.3	107.350
BOTTOM with FLOW=0	14.969	0.0	103.210
BOTTOM with FLOW>0	15.305	144.6	105.530

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Wed Aug 6 2014 16:02:38

MIP Pressure out of range (10.9 psi / 75 kPa) at 25.90 ft (7.894 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.90 ft (7.894 m)
LOG END TIME: Wed Aug 6 2014 17:15:13

LATITUDE: 0.000000000
LONGITUDE: 0.000000000

ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 6 2014 17:15:16

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.9	3.4	PASS
High	290.0	298.4	2.9	PASS

M312.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M312.pre.tim
RESPONSE TEST START TIME: Thu Aug 7 2014 12:26:13

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 7 2014 12:28:53

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.198	0.0	104.780
TOP with FLOW>0	15.622	159.2	107.710
BOTTOM with FLOW=0	14.973	0.0	103.240
BOTTOM with FLOW>0	15.407	158.3	106.220

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Thu Aug 7 2014 12:34:39

Low Level Sequence Missed Between 0.8ft and 1.2ft

MIP Pressure out of range (12.7 psi / 88 kPa) at 1.95 ft (0.594 m)

MIP Pressure out of range (12.8 psi / 88 kPa) at 3.00 ft (0.914 m)

MIP Pressure out of range (12.8 psi / 88 kPa) at 4.00 ft (1.219 m)

MIP Pressure out of range (12.8 psi / 88 kPa) at 4.95 ft (1.509 m)

MIP Pressure Alarm Has Been Disabled 5.00 ft 1.524 m
Low Level Sequence Missed Between 17.8ft and 18.2ft
Low Level Sequence Missed Between 18.8ft and 19.2ft
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 19.65 ft (5.989 m)
LOG END TIME: Thu Aug 7 2014 13:48:43

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 7 2014 13:48:48

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	2.0	PASS
High	290.0	298.3	2.9	PASS

M313.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M313.pre.tim
RESPONSE TEST START TIME: Thu Aug 7 2014 16:20:56

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 7 2014 16:23:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.190	0.0	104.730
TOP with FLOW>0	15.383	147.7	106.070
BOTTOM with FLOW=0	14.977	0.0	103.260
BOTTOM with FLOW>0	15.182	147.3	104.680

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20281A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580
LOG START TIME: Thu Aug 7 2014 16:33:46

MIP Pressure out of range (12.3 psi / 85 kPa) at 1.20 ft (0.366 m)

Low Level Sequence Missed Between 1.8ft and 2.2ft

MIP Pressure out of range (12.3 psi / 85 kPa) at 2.25 ft (0.686 m)

MIP Pressure out of range (12.3 psi / 85 kPa) at 3.20 ft (0.975 m)

Low Level Sequence Missed Between 2.8ft and 3.2ft
MIP Pressure Alarm Has Been Disabled 3.25 ft 0.991 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 19.55 ft (5.959 m)
LOG END TIME: Thu Aug 7 2014 17:32:01

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 7 2014 17:32:03

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.3	2.5	PASS
High	290.0	298.1	2.8	PASS

M314.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M314.pre.tim
RESPONSE TEST START TIME: Fri Aug 8 2014 10:06:46

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 50 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 8 2014 10:10:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.267	0.0	105.260
TOP with FLOW>0	15.513	143.5	106.960
BOTTOM with FLOW=0	15.045	0.0	103.730
BOTTOM with FLOW>0	15.312	136.7	105.570

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20271A,0.0000,0.0000,0.0000,0.0000,9.9670e-1,-1.5580

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Fri Aug 8 2014 10:16:44

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 13.65 ft (4.161 m)
LOG END TIME: Fri Aug 8 2014 11:02:57

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 8 2014 11:03:00

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	3.0	PASS
High	290.0	298.0	2.7	PASS

M315.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M315.pre.tim
RESPONSE TEST START TIME: Fri Aug 8 2014 12:09:35

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 52 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 8 2014 12:16:11

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.133	0.0	104.340
TOP with FLOW>0	15.321	141.4	105.630
BOTTOM with FLOW=0	14.916	0.0	102.840
BOTTOM with FLOW>0	15.118	140.4	104.240

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20365A,0.0000,0.0000,0.0000,0.0000,9.9080e-1,-1.3660

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Fri Aug 8 2014 12:17:19

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 23.20 ft (7.071 m)
LOG END TIME: Fri Aug 8 2014 13:57:43

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 8 2014 13:57:46

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	2.0	PASS
High	290.0	299.9	3.4	PASS

M316.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M316.pre.tim
RESPONSE TEST START TIME: Mon Aug 11 2014 08:34:01

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 11 2014 08:36:28

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.241	0.0	105.080
TOP with FLOW>0	15.769	144.8	108.720
BOTTOM with FLOW=0	15.031	0.0	103.640
BOTTOM with FLOW>0	15.559	143.8	107.280

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 0.00 ft (0.000 m)
LOG END TIME: Mon Aug 11 2014 08:45:08

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 11 2014 08:45:11

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.9	5.3	PASS
High	290.0	288.3	0.6	PASS

M317.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M317.pre.tim
RESPONSE TEST START TIME: Mon Aug 11 2014 13:23:21

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 11 2014 13:26:08

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.235	0.0	105.040
TOP with FLOW>0	15.839	140.9	109.200
BOTTOM with FLOW=0	15.016	0.0	103.530
BOTTOM with FLOW>0	15.616	142.7	107.670

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

Temperature out of range (80.0 deg C) at 0.00 ft (0.000 m)

Temperature out of range (74.7 deg C) at 0.00 ft (0.000 m)

Temperature out of range (70.0 deg C) at 0.00 ft (0.000 m)

Temperature out of range (64.6 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Mon Aug 11 2014 13:30:41

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 19.95 ft (6.081 m)
LOG END TIME: Mon Aug 11 2014 15:25:54

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET

GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 11 2014 15:25:57

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.9	5.3	PASS
High	290.0	300.3	3.5	PASS

M318.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M318.pre.tim
RESPONSE TEST START TIME: Mon Aug 11 2014 16:48:02

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 42 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 11 2014 16:50:14

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.278	0.0	105.340
TOP with FLOW>0	15.926	147.5	109.800
BOTTOM with FLOW=0	15.057	0.0	103.810
BOTTOM with FLOW>0	15.716	147.2	108.360

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Mon Aug 11 2014 17:00:46

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 22.10 ft (6.736 m)
LOG END TIME: Mon Aug 11 2014 18:24:52

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 11 2014 18:24:56

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.5	2.8	PASS
High	290.0	299.5	3.3	PASS

M319.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M319.pre.tim
RESPONSE TEST START TIME: Tue Aug 12 2014 10:23:00

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 12 2014 10:24:35

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.217	0.0	104.920
TOP with FLOW>0	15.817	150.6	109.050
BOTTOM with FLOW=0	14.987	0.0	103.330
BOTTOM with FLOW>0	15.599	151.7	107.550

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500
LOG START TIME: Tue Aug 12 2014 10:34:24

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 20.60 ft (6.279 m)
LOG END TIME: Tue Aug 12 2014 11:59:27

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 12 2014 11:59:32

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	58.5	6.4	PASS
High	290.0	300.4	3.6	PASS

M320.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M320.pre.tim
RESPONSE TEST START TIME: Tue Aug 12 2014 12:16:54

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 12 2014 12:20:06

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.332	0.0	105.710
TOP with FLOW>0	16.022	144.3	110.470
BOTTOM with FLOW=0	15.127	0.0	104.300
BOTTOM with FLOW>0	15.809	148.8	109.000

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Tue Aug 12 2014 12:32:31

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 25.50 ft (7.772 m)
LOG END TIME: Tue Aug 12 2014 13:56:45

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 12 2014 13:56:48

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.4	4.4	PASS
High	290.0	300.8	3.7	PASS

M321.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M321.pre.tim
RESPONSE TEST START TIME: Tue Aug 12 2014 16:05:02

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 41 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 12 2014 16:08:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.285	0.0	105.380
TOP with FLOW>0	16.291	146.8	112.320
BOTTOM with FLOW=0	15.067	0.0	103.890
BOTTOM with FLOW>0	16.100	147.5	111.000

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Tue Aug 12 2014 16:21:31

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 22.30 ft (6.797 m)
LOG END TIME: Tue Aug 12 2014 17:45:12

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 12 2014 17:45:22

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

EC PRE-LOG TESTS BYPASSED

M322.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 13 2014 08:52:00

PRE-LOG HPT REFERENCE TESTS BYPASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)

Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Wed Aug 13 2014 08:52:04

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 24.00 ft (7.315 m)
LOG END TIME: Wed Aug 13 2014 10:08:19

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 13 2014 10:08:30

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	2.8	PASS
High	290.0	300.2	3.5	PASS

M323.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M323.pre.tim
RESPONSE TEST START TIME: Wed Aug 13 2014 10:19:46

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 13 2014 10:23:23

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.425	0.0	106.350
TOP with FLOW>0	16.448	144.7	113.410
BOTTOM with FLOW=0	15.201	0.0	104.810
BOTTOM with FLOW>0	16.189	145.1	111.620

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Wed Aug 13 2014 10:33:05

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 28.10 ft (8.565 m)
LOG END TIME: Wed Aug 13 2014 12:05:29

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 13 2014 12:05:35

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.7	PASS
High	290.0	300.6	3.7	PASS

M324.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M324.pre.tim
RESPONSE TEST START TIME: Wed Aug 13 2014 12:32:39

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 13 2014 12:36:22

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.433	0.0	106.400
TOP with FLOW>0	16.787	139.4	115.740
BOTTOM with FLOW=0	15.213	0.0	104.890
BOTTOM with FLOW>0	16.554	139.9	114.130

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500
LOG START TIME: Wed Aug 13 2014 12:39:02

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 28.15 ft (8.580 m)
LOG END TIME: Wed Aug 13 2014 15:18:42

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 13 2014 15:18:48

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.7	3.1	PASS
High	290.0	300.9	3.8	PASS

M325.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M325.pre.tim
RESPONSE TEST START TIME: Wed Aug 13 2014 15:35:32

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 13 2014 15:39:53

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.441	0.0	106.460
TOP with FLOW>0	17.203	158.7	118.610
BOTTOM with FLOW=0	15.213	0.0	104.890
BOTTOM with FLOW>0	16.948	159.7	116.850

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD30366A,0.0000,0.0000,0.0000,0.0000,9.9550e-1,-1.2500

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Wed Aug 13 2014 16:28:55

MIP Pressure out of range (12.8 psi / 89 kPa) at 6.00 ft (1.829 m)

MIP Pressure out of range (12.9 psi / 89 kPa) at 7.00 ft (2.134 m)

MIP Pressure out of range (12.9 psi / 89 kPa) at 7.05 ft (2.149 m)

MIP Pressure Alarm Has Been Disabled 7.55 ft 2.301 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 34.10 ft (10.394 m)
LOG END TIME: Wed Aug 13 2014 18:18:05

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 13 2014 18:18:15

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.2	2.1	PASS
High	290.0	300.8	3.7	PASS

M326A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M326A.pre.tim
RESPONSE TEST START TIME: Thu Aug 14 2014 10:24:53

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 14 2014 10:26:09

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.321	0.0	105.640
TOP with FLOW>0	15.456	153.1	106.560
BOTTOM with FLOW=0	15.106	0.0	104.150
BOTTOM with FLOW>0	15.239	153.0	105.070

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690
LOG START TIME: Thu Aug 14 2014 10:30:04

Low Level Sequence Missed Between 2.8ft and 3.2ft
Low Level Sequence Missed Between 3.8ft and 4.2ft
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 14.60 ft (4.450 m)
LOG END TIME: Thu Aug 14 2014 11:15:42

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 14 2014 11:15:46

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	3.0	PASS
High	290.0	300.4	3.6	PASS

M327.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M327.pre.tim
RESPONSE TEST START TIME: Thu Aug 14 2014 11:58:37

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 14 2014 12:01:43

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.313	0.0	105.580
TOP with FLOW>0	15.432	146.6	106.400
BOTTOM with FLOW=0	15.095	0.0	104.080
BOTTOM with FLOW>0	15.202	147.1	104.820

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Thu Aug 14 2014 12:18:14

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 14.15 ft (4.313 m)
LOG END TIME: Thu Aug 14 2014 13:12:47

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 14 2014 13:12:53

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.6	PASS
High	290.0	300.3	3.6	PASS

M328.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M328.pre.tim
RESPONSE TEST START TIME: Thu Aug 14 2014 13:55:43

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 14 2014 13:59:12

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.280	0.0	105.350
TOP with FLOW>0	15.418	156.5	106.300
BOTTOM with FLOW=0	15.057	0.0	103.820
BOTTOM with FLOW>0	15.198	156.5	104.780

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Thu Aug 14 2014 14:13:44

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 17.50 ft (5.334 m)
LOG END TIME: Thu Aug 14 2014 15:14:03

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 14 2014 15:14:07

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

EC PRE-LOG TESTS BYPASSED

M329A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 39 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 15 2014 08:26:25

PRE-LOG HPT REFERENCE TESTS BYPASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)

Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Fri Aug 15 2014 08:26:29

MIP Pressure out of range (11.6 psi / 80 kPa) at 1.30 ft (0.396 m)

MIP Pressure Alarm Has Been Disabled 1.40 ft 0.427 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 37.35 ft (11.384 m)
LOG END TIME: Fri Aug 15 2014 10:40:16

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 15 2014 10:40:21

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.7	3.1	PASS
High	290.0	304.0	4.8	PASS

M330.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M330.pre.tim
RESPONSE TEST START TIME: Fri Aug 15 2014 11:03:08

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 15 2014 11:15:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.354	0.0	105.860
TOP with FLOW>0	15.479	144.7	106.720
BOTTOM with FLOW=0	15.135	0.0	104.350
BOTTOM with FLOW>0	15.257	144.8	105.200

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Fri Aug 15 2014 11:19:15

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 30.20 ft (9.205 m)
LOG END TIME: Fri Aug 15 2014 13:42:33

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 15 2014 13:42:36

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	59.0	7.2	PASS
High	290.0	302.0	4.1	PASS

M331.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M331.pre.tim
RESPONSE TEST START TIME: Mon Aug 18 2014 08:31:00

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 18 2014 08:35:05

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.176	0.0	104.630
TOP with FLOW>0	15.535	156.9	107.110
BOTTOM with FLOW=0	14.969	0.0	103.210
BOTTOM with FLOW>0	15.309	158.6	105.550

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690
LOG START TIME: Mon Aug 18 2014 08:40:24

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 16.10 ft (4.907 m)
LOG END TIME: Mon Aug 18 2014 09:31:21

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 18 2014 09:31:25

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	59.2	7.6	PASS
High	290.0	302.7	4.4	PASS

M332.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M332.pre.tim
RESPONSE TEST START TIME: Mon Aug 18 2014 10:17:46

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 18 2014 10:21:32

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.261	0.0	105.220
TOP with FLOW>0	15.372	140.4	105.990
BOTTOM with FLOW=0	15.046	0.0	103.740
BOTTOM with FLOW>0	15.151	139.6	104.460

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Mon Aug 18 2014 10:25:41

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 15.10 ft (4.602 m)
LOG END TIME: Mon Aug 18 2014 11:45:04

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 18 2014 11:45:08

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	42.7	22.5	FAIL
High	290.0	300.6	3.6	PASS

Pre-Log EC Troubleshooting Tests

Test	Value	P/F

Instrument Calibration Tests

10 Ohms:	10.5 Ohms	PASS
100 Ohms:	100.5 Ohms	PASS
1000 Ohms:	962.9 Ohms	PASS

M333.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 10s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 60s

MIP PRE-LOG RESPONSE TEST

FILENAME: M333.pre.tim
RESPONSE TEST START TIME: Mon Aug 18 2014 13:34:06

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 18 2014 13:37:25

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.175	0.0	104.630
TOP with FLOW>0	15.291	146.3	105.430
BOTTOM with FLOW=0	14.954	0.0	103.100
BOTTOM with FLOW>0	15.074	145.9	103.930

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 10 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 60 s

LOG START TIME: Mon Aug 18 2014 13:40:22

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 11.10 ft (3.383 m)
LOG END TIME: Mon Aug 18 2014 14:18:23

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 18 2014 14:18:29

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	60.3	9.6	PASS
High	290.0	303.6	4.7	PASS

M334.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M334.pre.tim
RESPONSE TEST START TIME: Tue Aug 19 2014 13:32:40

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 39 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 19 2014 13:34:51

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.166	0.0	104.560
TOP with FLOW>0	15.362	152.6	105.920
BOTTOM with FLOW=0	14.951	0.0	103.080
BOTTOM with FLOW>0	15.128	148.5	104.310

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20333A,0.0000,0.0000,0.0000,0.0000,9.9390e-1,-1.3690

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Tue Aug 19 2014 13:57:28

MIP Pressure out of range (10.8 psi / 74 kPa) at 32.80 ft (9.997 m)

MIP Pressure out of range (7.7 psi / 53 kPa) at 32.85 ft (10.013 m)

MIP Pressure out of range (11.2 psi / 77 kPa) at 33.85 ft (10.317 m)

MIP Pressure out of range (8.0 psi / 55 kPa) at 33.85 ft (10.317 m)

MIP Pressure out of range (7.5 psi / 52 kPa) at 34.85 ft (10.622 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 37.90 ft (11.552 m)
LOG END TIME: Tue Aug 19 2014 15:47:32

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 19 2014 15:47:40

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

EC PRE-LOG TESTS BYPASSED

M335a.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST BYPASSED

TRIP TIME: 37 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 20 2014 08:47:36

PRE-LOG HPT REFERENCE TESTS BYPASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520
LOG START TIME: Wed Aug 20 2014 08:47:40

MIP Pressure out of range (10.3 psi / 71 kPa) at 23.60 ft (7.193 m)

MIP Pressure Alarm Has Been Disabled 23.90 ft 7.285 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 38.55 ft (11.750 m)
LOG END TIME: Wed Aug 20 2014 10:35:43

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 20 2014 10:35:50

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.3	4.1	PASS
High	290.0	301.0	3.8	PASS

M336.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M336.pre.tim
RESPONSE TEST START TIME: Wed Aug 20 2014 11:09:34

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 39 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 20 2014 11:11:45

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.299	0.0	105.480
TOP with FLOW>0	15.456	133.3	106.570
BOTTOM with FLOW=0	15.091	0.0	104.050
BOTTOM with FLOW>0	15.253	133.2	105.170

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Wed Aug 20 2014 11:14:43

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 34.20 ft (10.424 m)
LOG END TIME: Wed Aug 20 2014 12:47:00

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 20 2014 12:47:03

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.9	5.3	PASS
High	290.0	301.2	3.9	PASS

M337.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M337.pre.tim
RESPONSE TEST START TIME: Wed Aug 20 2014 13:38:06

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 41 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 20 2014 13:40:18

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.297	0.0	105.470
TOP with FLOW>0	15.650	141.7	107.910
BOTTOM with FLOW=0	15.082	0.0	103.990
BOTTOM with FLOW>0	15.382	140.5	106.060

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Wed Aug 20 2014 13:43:31

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 37.65 ft (11.476 m)
LOG END TIME: Wed Aug 20 2014 16:04:37

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 20 2014 16:04:42

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.0	3.6	PASS
High	290.0	299.6	3.3	PASS

M338.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: M338.pre.tim
RESPONSE TEST START TIME: Thu Aug 21 2014 08:20:04

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1
6	10	10	10	1

TRIP TIME: 41 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 21 2014 08:24:35

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.170	0.0	104.590
TOP with FLOW>0	15.369	144.9	105.960
BOTTOM with FLOW=0	14.953	0.0	103.100

BOTTOM with FLOW>0 15.167 144.4 104.570

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520
LOG START TIME: Thu Aug 21 2014 08:29:24

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 1.00 ft (0.305 m)
LOG END TIME: Thu Aug 21 2014 08:31:16

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 21 2014 08:31:19

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.1	3.8	PASS
High	290.0	301.2	3.9	PASS

M339.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M339.pre.tim
RESPONSE TEST START TIME: Thu Aug 21 2014 11:09:26

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 41 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 21 2014 11:12:03

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.303	0.0	105.510
TOP with FLOW>0	15.506	150.0	106.910
BOTTOM with FLOW=0	15.091	0.0	104.050
BOTTOM with FLOW>0	15.279	150.7	105.340

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Thu Aug 21 2014 11:20:49

MIP Pressure out of range (10.7 psi / 74 kPa) at 2.20 ft (0.671 m)

MIP Pressure out of range (10.7 psi / 74 kPa) at 3.05 ft (0.930 m)

MIP Pressure Alarm Has Been Disabled 4.20 ft 1.280 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 31.80 ft (9.693 m)
LOG END TIME: Thu Aug 21 2014 12:46:42

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 21 2014 12:46:49

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.8	3.3	PASS
High	290.0	300.5	3.6	PASS

M340.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M340.pre.tim
RESPONSE TEST START TIME: Thu Aug 21 2014 13:39:36

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 41 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 21 2014 13:42:06

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.451	0.0	106.530
TOP with FLOW>0	15.628	143.0	107.750
BOTTOM with FLOW=0	15.219	0.0	104.930
BOTTOM with FLOW>0	15.437	143.7	106.440

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Thu Aug 21 2014 13:45:25

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 28.85 ft (8.793 m)
LOG END TIME: Thu Aug 21 2014 15:10:59

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 21 2014 15:11:02

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.1	3.8	PASS
High	290.0	298.7	3.0	PASS

M341.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M341.pre.tim
RESPONSE TEST START TIME: Thu Aug 21 2014 15:21:04

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 42 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 21 2014 15:23:51

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.462	0.0	106.600
TOP with FLOW>0	15.566	141.7	107.330
BOTTOM with FLOW=0	15.238	0.0	105.060
BOTTOM with FLOW>0	15.353	141.7	105.860

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Thu Aug 21 2014 15:35:33

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 36.25 ft (11.049 m)
LOG END TIME: Thu Aug 21 2014 17:15:29

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 21 2014 17:15:32

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.1	3.8	PASS
High	290.0	300.7	3.7	PASS

M342.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M342.pre.tim
RESPONSE TEST START TIME: Fri Aug 22 2014 08:24:04

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 37 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 22 2014 08:26:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.213	0.0	104.890
TOP with FLOW>0	15.436	156.7	106.430
BOTTOM with FLOW=0	14.995	0.0	103.390
BOTTOM with FLOW>0	15.235	155.7	105.040

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Fri Aug 22 2014 08:40:51

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 24.60 ft (7.498 m)
LOG END TIME: Fri Aug 22 2014 09:40:55

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 22 2014 09:40:58

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.2	4.0	PASS
High	290.0	300.8	3.7	PASS

M343.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M343.pre.tim
RESPONSE TEST START TIME: Fri Aug 22 2014 09:50:08

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 22 2014 09:54:49

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.321	0.0	105.630
TOP with FLOW>0	15.455	155.6	106.560
BOTTOM with FLOW=0	15.102	0.0	104.120
BOTTOM with FLOW>0	15.239	155.3	105.070

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Fri Aug 22 2014 10:02:30

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 26.15 ft (7.971 m)
LOG END TIME: Fri Aug 22 2014 11:05:33

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 22 2014 11:05:37

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.3	4.3	PASS
High	290.0	301.2	3.9	PASS

M344.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M344.pre.tim
RESPONSE TEST START TIME: Fri Aug 22 2014 11:15:12

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 39 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 22 2014 11:17:49

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.333	0.0	105.720
TOP with FLOW>0	15.504	146.8	106.900
BOTTOM with FLOW=0	15.105	0.0	104.150
BOTTOM with FLOW>0	15.279	146.2	105.340

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520
LOG START TIME: Fri Aug 22 2014 11:26:10

Low Level Sequence Missed Between 22.8ft and 23.2ft
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 27.15 ft (8.275 m)
LOG END TIME: Fri Aug 22 2014 12:37:12

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 22 2014 12:37:15

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.8	5.2	PASS
High	290.0	301.3	3.9	PASS

M345.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M345.pre.tim
RESPONSE TEST START TIME: Fri Aug 22 2014 12:49:02

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Aug 22 2014 12:51:45

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.388	0.0	106.100
TOP with FLOW>0	15.537	161.3	107.120
BOTTOM with FLOW=0	15.184	0.0	104.690
BOTTOM with FLOW>0	15.331	162.2	105.700

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520
LOG START TIME: Fri Aug 22 2014 12:58:45

Low Level Sequence Missed Between 18.8ft and 19.2ft
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 30.05 ft (9.159 m)
LOG END TIME: Fri Aug 22 2014 14:17:43

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Aug 22 2014 14:17:47

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.4	4.5	PASS
High	290.0	300.9	3.7	PASS

M346.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M346.pre.tim
RESPONSE TEST START TIME: Mon Aug 25 2014 08:26:44

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 25 2014 08:29:21

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.197	0.0	104.780
TOP with FLOW>0	15.658	150.1	107.960
BOTTOM with FLOW=0	14.970	0.0	103.210
BOTTOM with FLOW>0	15.430	151.2	106.380

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520
LOG START TIME: Mon Aug 25 2014 08:33:55

MIP Pressure out of range (11.6 psi / 80 kPa) at 1.25 ft (0.381 m)

MIP Pressure Alarm Has Been Disabled 1.60 ft 0.488 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 30.95 ft (9.434 m)
LOG END TIME: Mon Aug 25 2014 09:51:53

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 25 2014 09:52:01

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	2.8	PASS
High	290.0	300.6	3.7	PASS

M347.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M347.pre.tim
RESPONSE TEST START TIME: Mon Aug 25 2014 11:19:09

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 39 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Aug 25 2014 11:21:52

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.264	0.0	105.240
TOP with FLOW>0	15.451	161.7	106.530
BOTTOM with FLOW=0	15.047	0.0	103.740
BOTTOM with FLOW>0	15.246	161.0	105.120

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20344A,0.0000,0.0000,0.0000,0.0000,9.9450e-1,-1.3520

Temperature out of range (79.4 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Mon Aug 25 2014 14:04:21

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 11.10 ft (3.383 m)
LOG END TIME: Mon Aug 25 2014 14:37:03

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Aug 25 2014 14:37:07

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	2.8	PASS
High	290.0	299.8	3.4	PASS

M348.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M348.pre.tim
RESPONSE TEST START TIME: Tue Aug 26 2014 11:37:10

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Aug 26 2014 11:42:18

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.339	0.0	105.760
TOP with FLOW>0	15.407	146.0	106.230
BOTTOM with FLOW=0	15.122	0.0	104.270
BOTTOM with FLOW>0	15.195	145.7	104.760

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990

MIP Pressure out of range (n/a psi / n/a kPa) at 0.10 ft (0.030 m)

LOG START TIME: Tue Aug 26 2014 11:49:01

MIP Pressure Alarm Has Been Disabled 0.90 ft 0.274 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 24.65 ft (7.513 m)
LOG END TIME: Tue Aug 26 2014 14:43:55

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Aug 26 2014 14:43:58

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.4	4.4	PASS
High	290.0	300.5	3.6	PASS

M349.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M349.pre.tim
RESPONSE TEST START TIME: Wed Aug 27 2014 09:48:43

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 37 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 27 2014 09:50:26

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.203	0.0	104.820
TOP with FLOW>0	16.237	150.7	111.950
BOTTOM with FLOW=0	14.973	0.0	103.240
BOTTOM with FLOW>0	16.018	145.1	110.440

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990
LOG START TIME: Wed Aug 27 2014 09:55:20

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 21.85 ft (6.660 m)
LOG END TIME: Wed Aug 27 2014 10:52:14

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 27 2014 10:52:24

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.5	4.6	PASS
High	290.0	299.7	3.4	PASS

M350.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M350.pre.tim
RESPONSE TEST START TIME: Wed Aug 27 2014 11:01:03

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 27 2014 11:05:21

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.398	0.0	106.160
TOP with FLOW>0	16.688	140.5	115.060
BOTTOM with FLOW=0	15.164	0.0	104.550
BOTTOM with FLOW>0	16.461	138.5	113.500

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Wed Aug 27 2014 11:14:11

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 27.55 ft (8.397 m)
LOG END TIME: Wed Aug 27 2014 12:31:15

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 27 2014 12:31:19

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.7	4.9	PASS
High	290.0	300.3	3.5	PASS

M351.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M351.pre.tim
RESPONSE TEST START TIME: Wed Aug 27 2014 12:57:52

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 27 2014 13:00:10

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.318	0.0	105.610
TOP with FLOW>0	17.998	152.2	124.090
BOTTOM with FLOW=0	15.094	0.0	104.070
BOTTOM with FLOW>0	17.741	152.2	122.320

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

Low Level Sequence Missed Between 0.8ft and 1.2ft
LOG START TIME: Wed Aug 27 2014 13:36:46

Low Level Sequence Missed Between 2.8ft and 3.2ft
Low Level Sequence Missed Between 3.8ft and 4.2ft
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 28.90 ft (8.809 m)
LOG END TIME: Wed Aug 27 2014 14:49:39

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 27 2014 14:49:43

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.7	4.9	PASS
High	290.0	300.7	3.7	PASS

M352.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M352.pre.tim
RESPONSE TEST START TIME: Wed Aug 27 2014 15:01:42

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Aug 27 2014 15:05:37

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.283	0.0	105.370
TOP with FLOW>0	22.707	151.4	156.560
BOTTOM with FLOW=0	15.041	0.0	103.700
BOTTOM with FLOW>0	22.302	151.1	153.760

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.24 psi (1.7 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Wed Aug 27 2014 15:40:13

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 33.15 ft (10.104 m)
LOG END TIME: Wed Aug 27 2014 17:21:38

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Aug 27 2014 17:21:41

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.2	4.1	PASS
High	290.0	299.9	3.4	PASS

M353.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M353.pre.tim
RESPONSE TEST START TIME: Thu Aug 28 2014 08:08:41

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 38 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 28 2014 08:11:50

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.212	0.0	104.890
TOP with FLOW>0	18.739	144.5	129.200
BOTTOM with FLOW=0	14.997	0.0	103.400
BOTTOM with FLOW>0	18.438	144.9	127.120

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990
LOG START TIME: Thu Aug 28 2014 08:18:12

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 23.45 ft (7.148 m)
LOG END TIME: Thu Aug 28 2014 09:13:45

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 28 2014 09:13:50

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.9	3.5	PASS
High	290.0	279.6	3.6	PASS

M354.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M354.pre.tim
RESPONSE TEST START TIME: Thu Aug 28 2014 10:48:27

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 40 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 28 2014 10:53:34

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.199	0.0	104.790
TOP with FLOW>0	16.629	158.7	114.650
BOTTOM with FLOW=0	14.995	0.0	103.390
BOTTOM with FLOW>0	16.432	152.0	113.300

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990
LOG START TIME: Thu Aug 28 2014 11:21:40

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 23.45 ft (7.148 m)
LOG END TIME: Thu Aug 28 2014 12:08:10

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 28 2014 12:08:15

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	58.9	7.1	PASS
High	290.0	301.0	3.8	PASS

M355.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M355.pre.tim
RESPONSE TEST START TIME: Thu Aug 28 2014 12:22:38

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 41 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 28 2014 12:26:30

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.283	0.0	105.370
TOP with FLOW>0	17.970	144.8	123.900
BOTTOM with FLOW=0	15.054	0.0	103.790
BOTTOM with FLOW>0	17.738	145.1	122.300

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.23 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990
LOG START TIME: Thu Aug 28 2014 12:33:30

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 23.05 ft (7.026 m)
LOG END TIME: Thu Aug 28 2014 13:27:57

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 28 2014 13:28:01

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	58.1	5.6	PASS
High	290.0	301.2	3.9	PASS

M356.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M356.pre.tim
RESPONSE TEST START TIME: Thu Aug 28 2014 13:38:47

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 42 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 28 2014 13:43:04

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.286	0.0	105.400
TOP with FLOW>0	19.943	149.1	137.500
BOTTOM with FLOW=0	15.051	0.0	103.770
BOTTOM with FLOW>0	19.711	149.7	135.900

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.24 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

Temperature out of range (150.4 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Aug 28 2014 13:47:01

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 29.80 ft (9.083 m)
LOG END TIME: Thu Aug 28 2014 15:40:59

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 28 2014 15:41:04

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED

MIP Pressure Alarm Has Been Disabled 0.00 ft 0.000 m

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.9	5.3	PASS
High	290.0	301.3	3.9	PASS

M357.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.6 Build: 14139

COMPANY: Columbia Technologies
OPERATOR: DJM
PROJECT ID: Fort Smith
CLIENT: Environ
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
100 INCH STRING POT USED
ROD LENGTH: 4 feet

Low Level Settings
Length of Increment: 1ft
Length of Window: 0.2ft
Time at 0 ROP: 3s
No Flow Time: 60s
Vent Trunkline: 20s
Inject to Detectors: 30s

MIP PRE-LOG RESPONSE TEST

FILENAME: M357.pre.tim
RESPONSE TEST START TIME: Thu Aug 28 2014 15:53:00

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	10	10	10	1

TRIP TIME: 42 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Aug 28 2014 15:57:55

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.264	0.0	105.240
TOP with FLOW>0	20.681	190.3	142.590
BOTTOM with FLOW=0	15.042	0.0	103.710
BOTTOM with FLOW>0	20.379	191.9	140.510

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: PID FID ECD (none)
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20364A,0.0000,0.0000,0.0000,0.0000,9.9170e-1,-1.3990

Low Level Values Changed (0 ft)
Length of Increment: 1 ft
Length of Window: 0.2 ft
Time at 0 ROP: 3 s
No Flow Time: 60 s
Vent Trunkline: 20 s
Inject to Detectors: 30 s

LOG START TIME: Thu Aug 28 2014 16:10:31

MIP Pressure out of range (9.6 psi / 66 kPa) at 5.20 ft (1.585 m)

MIP Pressure out of range (9.6 psi / 66 kPa) at 6.10 ft (1.859 m)

MIP Pressure out of range (9.7 psi / 67 kPa) at 7.55 ft (2.301 m)

MIP Pressure Alarm Has Been Disabled 8.05 ft 2.454 m
ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4
0.00	0.000	10	10	10	1

LOG END DEPTH: 34.75 ft (10.592 m)
LOG END TIME: Thu Aug 28 2014 17:44:46

LATITUDE: 0.000000000
LONGITUDE: 0.000000000
ELEVATION: 0.000 METERS 0.00 FEET
GPS Quality: None

MIP POST-LOG RESPONSE TEST BYPASSED

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Aug 28 2014 17:44:51

POST-LOG HPT REFERENCE TESTS BYPASSED

EC POST-LOG TESTS BYPASSED