Attachment A
MIP/HPT Boring Logs

Stock Drilling, Inc.

MIHPT Boring Summary

Lower Town, Ann Arbor, MI

Prepared for GHD

Prepared by Jonathan Wiley

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MIHPT Boring Summary

Lower Town, Ann Arbor, MI

Index:

A: Introduction

B: Project Summary

C: General Observations/Notes

D: Response Testing of Geoprobe MIHPT

E: MIP Function

F: Gas Phase Detector Operation

G: HPT Function

H: EC Function

I: Disclaimer

J: Individual Logs

Introduction

The MIHPT investigation of Lower Town took place on February 1, 2016 thru February 9, 2016. The investigation consisted of twenty-five MIHPT borings. The number and locations of the borings were specified by the GHD represenitive on site.

Project Summary

Monday, February 1, 2016

We arrived onsite at 8:30 AM. Prior to starting work we went over the health and safety plan and discussed the site history and goals for the project. Prior to boring MIP-34 we had to remove the HPT screen and remove some silt that had collected behind it. We had to repeat the same steps prior to MIP-36. We completed five MIHPT borings for the day.

Tuesday, February 2, 2016

Prior to starting work we went over the health and safety plan. It took a little longer for the Gas Chromatograph to warm up due to the cold temperatures. We did encounter any issues and completed five MIHPT borings for the day.

Wednesday, February 3, 2016

Prior to starting work we went over the health and safety plan. On boring MIP-12 the thermal couple in the MIHPT probe went out. This regulates the temperature of the heat block. We bypassed the thermal couple to allow the heat block to stay on to complete the boring. After the boring was complete we switched to the spare trunk line. Upon hooking up the spare trunk line and completed the flow checks we found that there was a blockage in the return gas line. We disassembled the MIHPT probe to check that it wasn't a connection issue. We found that it wasn't and proceeded to flush the return line with methanol to force out any particles within. With increased carrier gas pressure we successfully cleared the line. We continued to let the trunk line flow to ensure that the methanol has been purged. We then hooked it back up to the GC to complete a calibration. Apparently there was some residual methanol in the trunk line and it caused the PID and FID baselines to be elevated to high to continue. We packed up and headed back to the shop to let flow over night. We were offsite at 3:45 pm. We completed two borings MIHPT borings for the day.

Thursday, February 4, 2016

Prior to beginning work we went over the health and safety plan. We fired up the MIP and found that the PID and FID baselines were elevated again even though they were normal the night before. We allowed some time for the baseline to drop onsite but it was dropping slowly. We decided to switch to installing temp wells to utilize the rest of the day. The MIP was offsite at 10:30 am and the geoprobe remained onsite to install three temp wells. We did not complete any MIHPT borings.

Friday, February 5, 2016

Prior to starting work we went over the health and safety plan. On boring MIP-12 the string pot went out which measures our boring depth. We switched to our spare but while installing it the wire unstrung from the inner spring spool. We disassembled it and fixed it to complete the boring. During calibration on boring MIP-14 we found that the PID/FID baselines were elevated again. We decided to switch to our other trunk line to continue. During calibration of the spare trunk line we found a flow issue and disassembled the probe. We did not find any mechanical issues. We suspect that there was moisture in the return line from condensation due to the temperature change from down hole to ambient air. In cold temperatures the condensation can freeze and create a decrease in carrier gas flow. We increased the carrier gas pressure and removed the blockage. This corrected the issue and we were able to complete the boring. We completed three MIHPT borings for the day.

Monday, February 8, 2016

Prior to starting work we went over the health and safety plan. We did not encounter any issues and completed five MIHPT borings for the day.

Tuesday, February 9, 2016

Prior to starting work we went over the health and safety plan. During calibration of boring MIP-5 we found that the XSD baseline was still elevated from the previous boring. We had to turn up the column oven temperature and allow some time for the XSD to burn off and reach the starting baseline. The XSD baseline reached the desired level and we completed the boring. We completed five MIHPT borings for the day wrapping up the MIP portion of the project.

General Observations/Notes

Breakdowns/Standbys: We encountered a few trunk line and baseline issues during the project.

Safety Incidents/Stop work: N/A

Validation/Sampling: Conformation borings and water samples were completed.

General Comments: Overall the investigation went well. The site still needs further delineation to fill in some data gaps but we achieved an overall idea of the extent of the plume. The response of the MIHPT was very good at the various locations. We maintained a two man MIHPT crew to expedite progress. Included with this summary is a flash drive containing all of the files for the project. The DI viewer software that is needed to view and alter the logs in their raw form is available for download at www.Geoprobe.com. There are copies of each log in a PDF format enclosed in the flash drive as well that can be viewed on any PDF reader.

Response Testing of Geoprobe® MIHPT

Response testing is used to evaluate the sensitivity of the probe, trunkline and the three detectors utilized. This is done through an aqueous phase response test using various compounds determined for the site. These recorded values are then compared to previous recorded values. Field testing is required before and after the first log, and after each additional log as a form of quality control. The HPT response test is utilized to detect any changes that occur in the HPT screen after it is advanced in the subsurface, and aids in accurately determining static water levels. Field testing is required before and after the first log, and after each additional log to verify the screen is not damaged or clogged. The response test of the EC is done through applying a Test Load. This test applies two different loads to the system that correlate to low and high conductivity readings that the system will see in the subsurface. This test provides the best information of how the system is calibrated and how it will map the encountered lithology.

MIP Function:

The carrier gas is sent from the MIP controller down the trunkline and swept behind a heated membrane in the probe. The carrier gas receives the contaminants that diffuse across the membrane from the soil and brings them to the surface through the trunkline. From here the carrier gas stream is directed into the detector chamber housed on a gas chromatograph for contaminant detection.

Gas Phase Detector Operation:

Photo-Ionization Detector (PID)

The carrier gas stream flows through the detectors ionization chamber where it is continuously irradiated with high energy ultraviolet light. When compounds are present that have a lower ionization potential than the irradiating energy they are ionized. The ions that are formed are drawn to a collector electrode, which produces an ion current proportional to its compound mass. The resulting current is amplified and the output signal is received by the MIP controller for log generation. An ultraviolet lamp typically in the 10.2eV or 10.6eV range in used in this detector. The compounds that will ionize and thus be able to be seen under that energy are primarily carbon double bonds such as petroleum aromatics i.e. benzene and double bonded halogenated solvents i.e. trichloroethylene. Aliphatic or straight chain hydrocarbons, which result from petroleum weathering, and single bonded halogenated solvents typically have higher ionization potentials than the lamp and will not be seen by the PID. The PID is a non-destructive detector and is usually configured as the initial detector in a series.

Benefits: Non-destructive detector that is usually configured in series with another destructive detector. The PID can be used with other detectors such as the XSD to determine compound family.

Sensitivity: Good sensitivity to aromatic hydrocarbons, non sensitive to aliphatic hydrocarbons. Good sensitivity to multi-bonded XVOCs but not single bonded XVOCs.

Flame Ionization Detector (FID)

The carrier gas is combusted and ionized in a hydrogen-air flame. The ionized products are past through an electrode which creates a current that is converted to a voltage signal and outputted to the MIP controller for log generation. The voltage output is directly proportional to the amount of mass of carbon based molecules in the carrier gas. The FID output signal voltage is mass dependant. All VOCs will combust in the FID and can be seen if they are in high enough concentrations. The FID is a destructive detector and is typically in series behind the PID or configured as a stand-alone detector.

Benefits: Best use is as a confirmation detector and when mapping high concentration and product level plumes. The FID will respond to any VOC in high enough concentration.

Sensitivity: Generally low. Responds well to aliphatic hydrocarbons.
Highly sensitive to Methane.

Halogen Specific Detector (XSD)

The model 5360 XSD's reactor assembly is operated between 1,000^{o}C-1,100^{o}C in an oxidative state that converts halogenated organics into free halogen atoms. These halogen atoms are adsorbed onto the activated platinum surface of the detector probe assembly resulting in an increase thermionic emission. This emission current comprised of free electrons, negative and positive ions provides a corresponding voltage that is measured via an electrometer circuit in the detector controller. The detector controller then outputs the signal to the MIP controller for log generation. The XSD responses well to a wide variety of halogenated compounds especially chlorinated. The XSDs sensitivity and response is not reliant to the number of chlorine atoms on a molecule. The XSD responds equally well for Vinyl Chloride, c-1, 2-DCE, and TCE. The XSD is a destructive detector that is either mounted as a second detector in tandem with the PID or as a stand-alone detector.

Benefits: Responds well to halogenated especially chlorinated compounds. Insensitive to hydrocarbons, making it great for mixed plumes. The XSD response is not influenced by the number of halogen atoms on a molecule. The XSD is linear response over 4 orders of magnitude.

Sensitivity: Highly sensitive to chlorinated VOCs, good but lower sensitivity to other halogenated molecules.

HPT Function:

The HPT system is designed to evaluate the hydraulic behavior of unconsolidated materials. As the probe is pushed or hammered at 2cm/s, clean water is pumped through a screen on the side of the HPT probe at a low flow rate, usually less than 300 mL/min. Injection pressure, which is monitored and plotted with depth, is an indication of the hydraulic properties of the soil. That is, a relatively low pressure response would indicate a relatively large grain size, and the ability to easily transmit water. A relatively high pressure response, however, would indicate a relatively small grain size and the lack of ability to transmit water. The probe assembly consists of the section that houses the 100 psi pressure transducer, water and electrical connections, and the probe body with the injection screen and electrical conductivity Wenner array. Injecting water at a constant rate is integral to system operation. A controller box houses components that monitor and regulate the water injection rate and pressure, as well as pressure transducer signal conditioning electronics. The flow rate, up to 1000 mL/min, is set manually on the front of the controller, and a valve is used to turn on or shut off flow. A vane pump provides system pressure ensuring adequate flow to the screen. The pump is secured to a frame with an integrated visual flow meter, and connects to the controller using a hose with quick connect fittings on each end. Water and power are transmitted from the controller to the probe assembly via the trunkline. Data collection occurs in real time by connecting the controller to the field instrument. The field instrument collects, stores and displays transducer pressure, flow rate and electrical conductivity, line pressure, probe rate, and diagnostic parameters, with depth.

Since the HPT pressure response is analogous to relative changes in the ability to transmit water (and therefore the relative change in dominant grain size), the HPT system can be used to identify potential contaminant migration pathways.

The HPT system also can be used to collect profiles of static water pressure data, which can be used to calculate static water levels.

EC Function:

A Wenner array is integrated into the MIHPT probe. This allows collection of soil electrical conductivity (EC) data for lithologic interpretation. In general, the higher the electrical conductivity value, the smaller the grain size, and vice versa. However, other factors can affect EC, such as mineralogy and pore water chemistry (brines, extreme pH, contaminants).

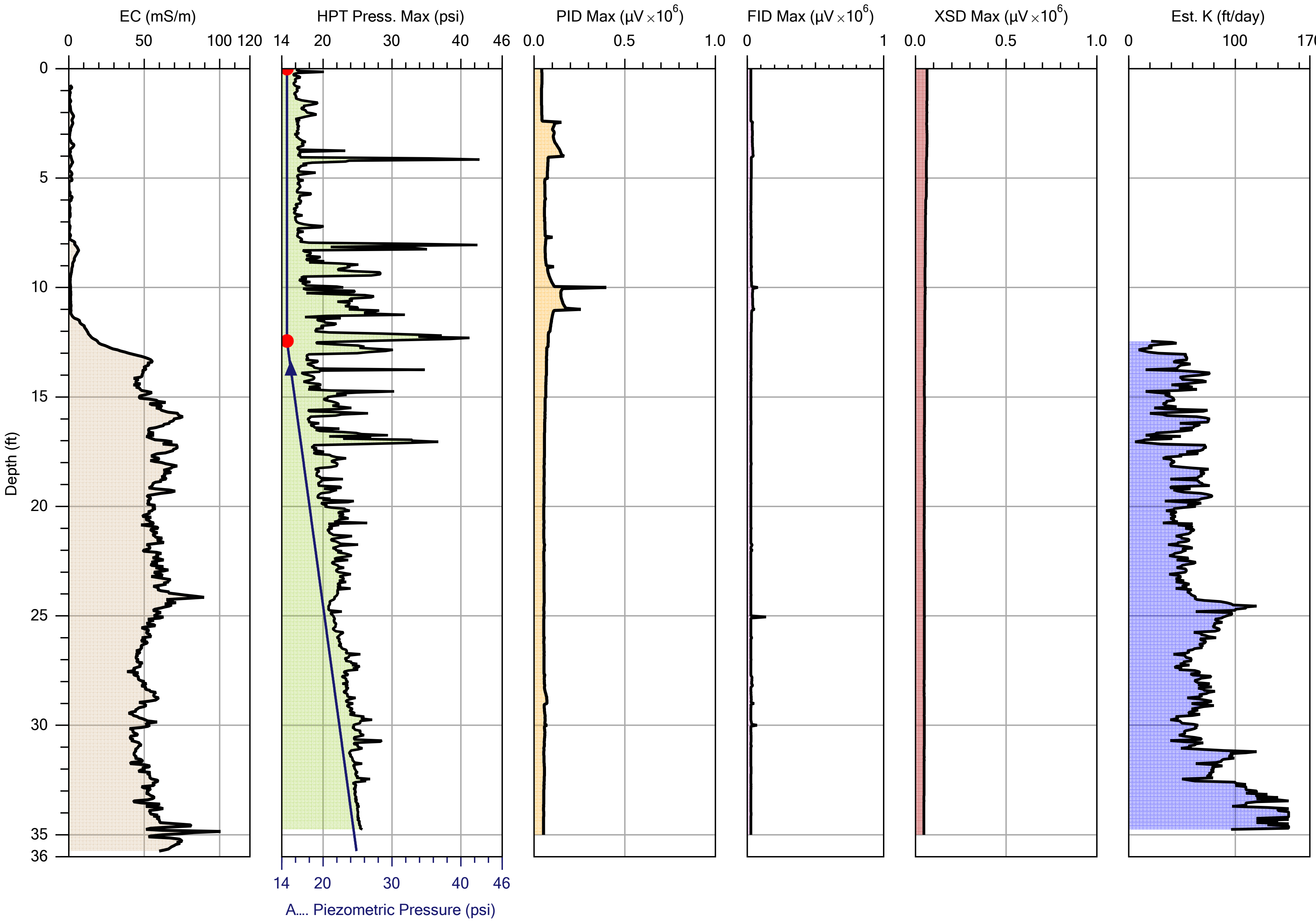
Disclaimer:

The analysis and opinions expressed in this report are based upon data obtained from the samples collected at the indicated locations and from other information discussed in this report. Exceptions, if any, are discussed in the Project Summary. This report is prepared for the exclusive use of our client for their specific application to the project discussed and has been prepared in accordance with generally accepted practices. Reported results shall not be reproduced, except in full, without written approval of Stock Drilling Inc. The sample results relate only to the analytes of locations tested. No warranties, expressed or implied are intended or made.

I certify that the data contained in this final report has been generated and reviewed in accordance with approved methods and our Standard Operating Procedure. Release of this final report is authorized Stock Drilling Inc., which is verified by the following signature.

____________________________________ ____________________

Approval Signature Date



STOCK DRILLING
SAVE THE EARTH
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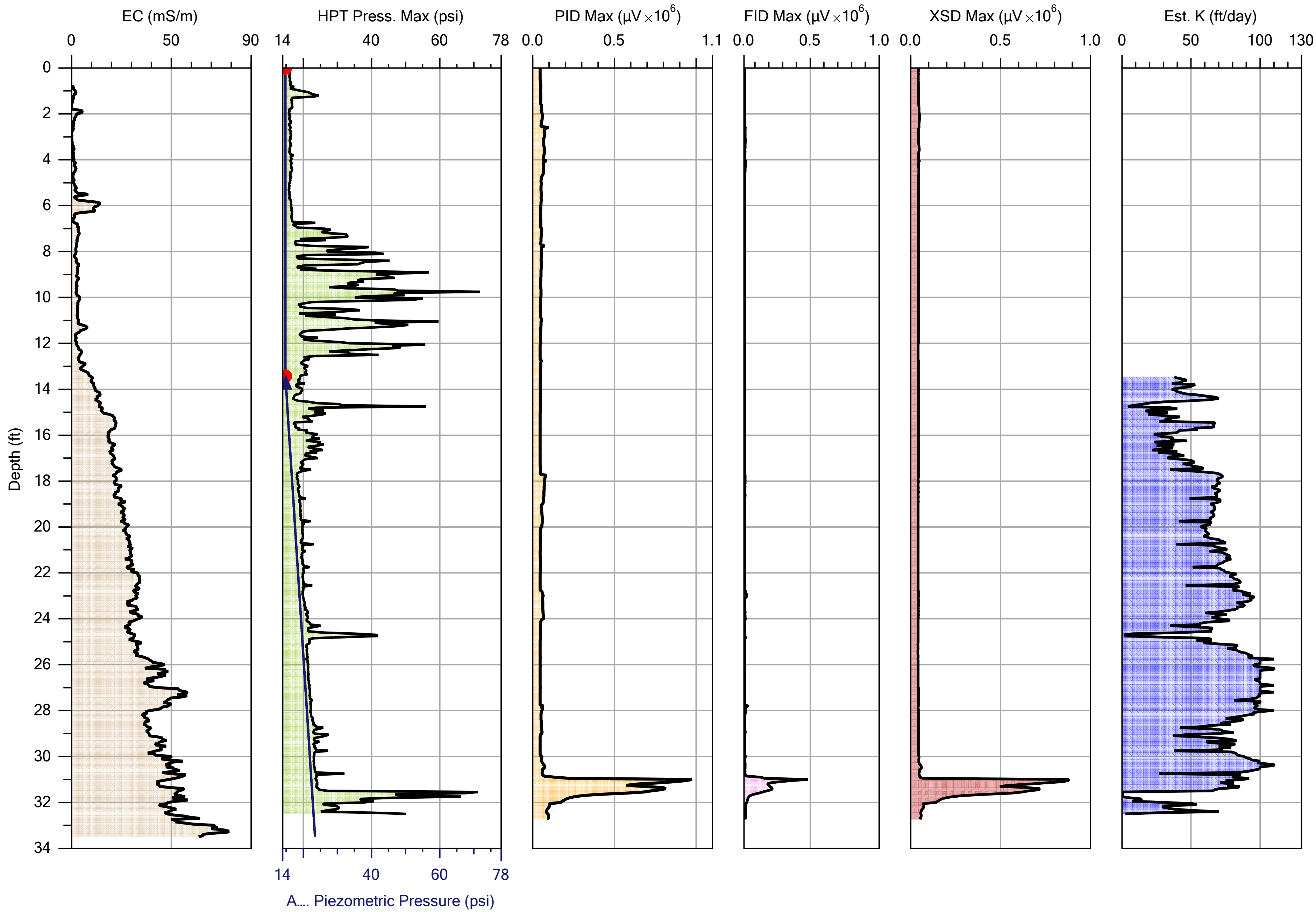
		File: MIP-1.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/9/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 13″ W



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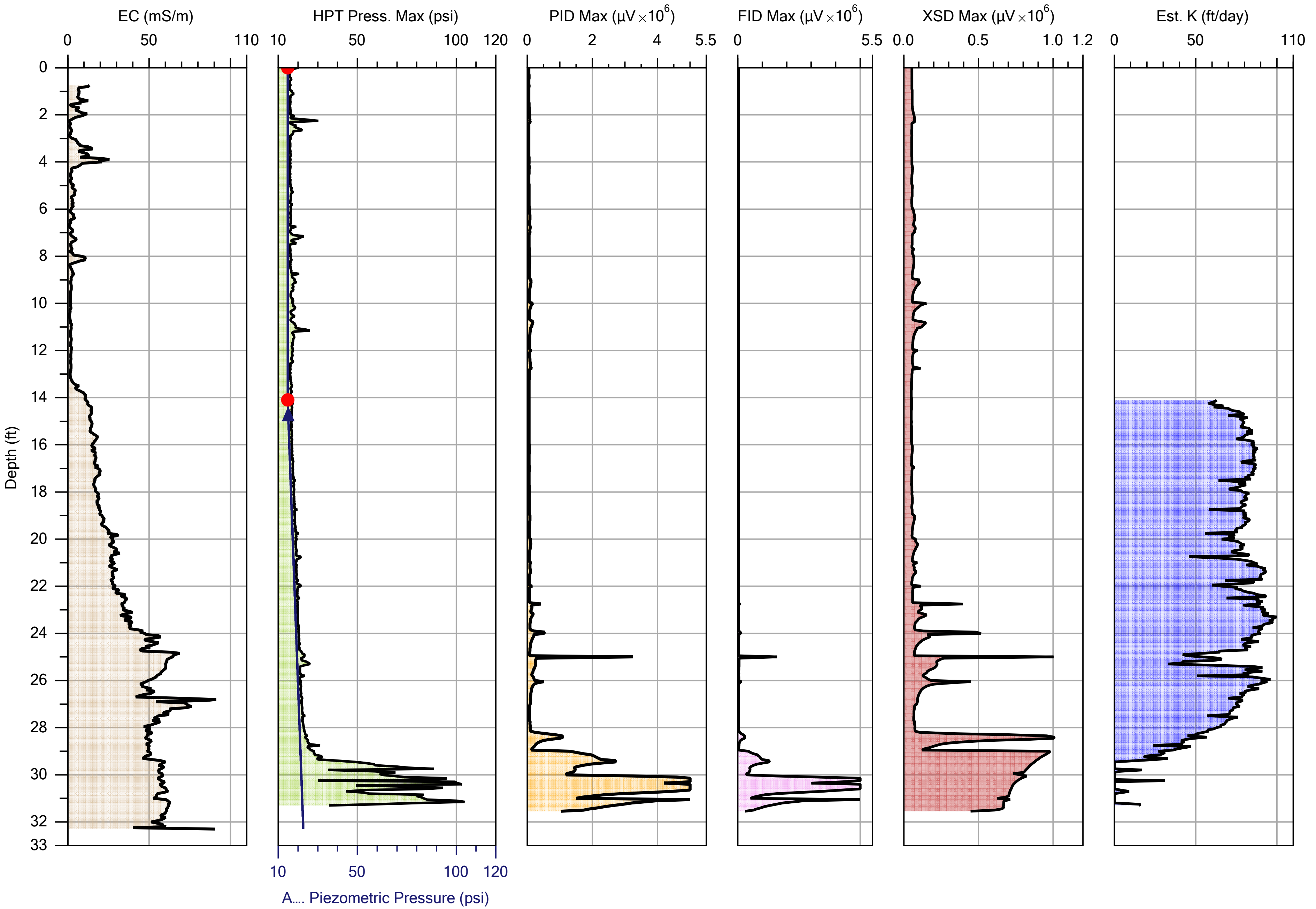
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 14″ W



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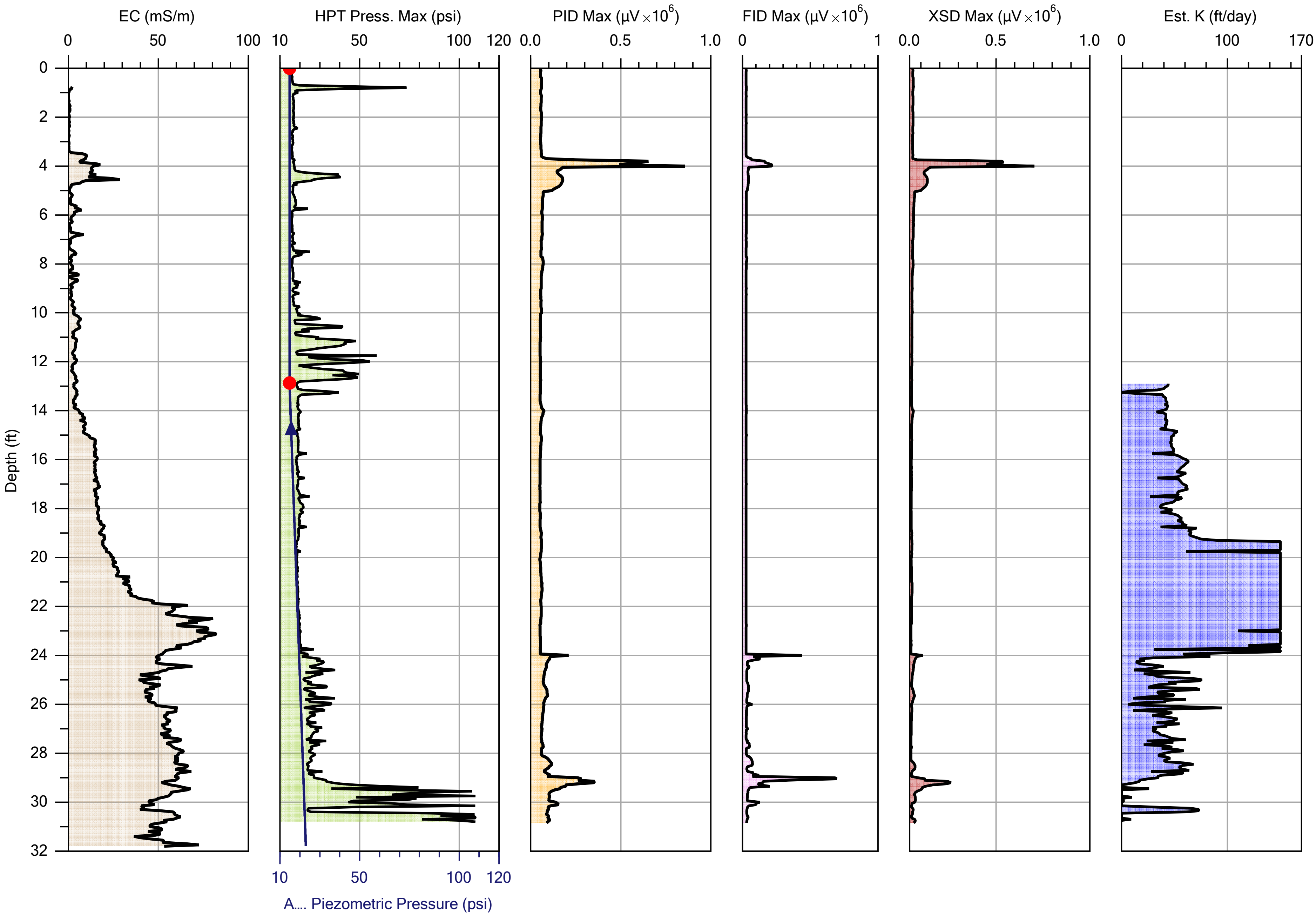
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 14″ W



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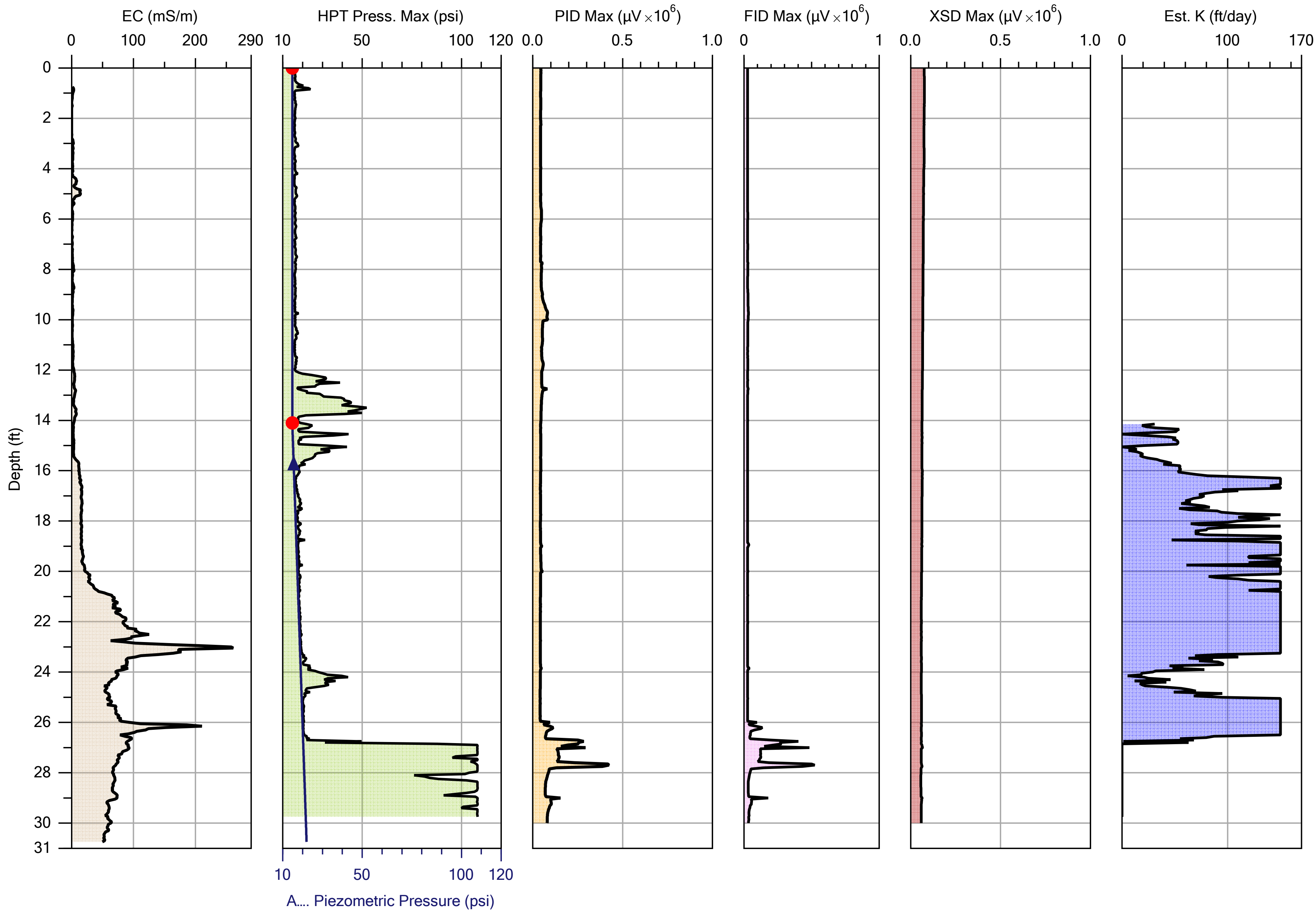
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/9/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 15″ W



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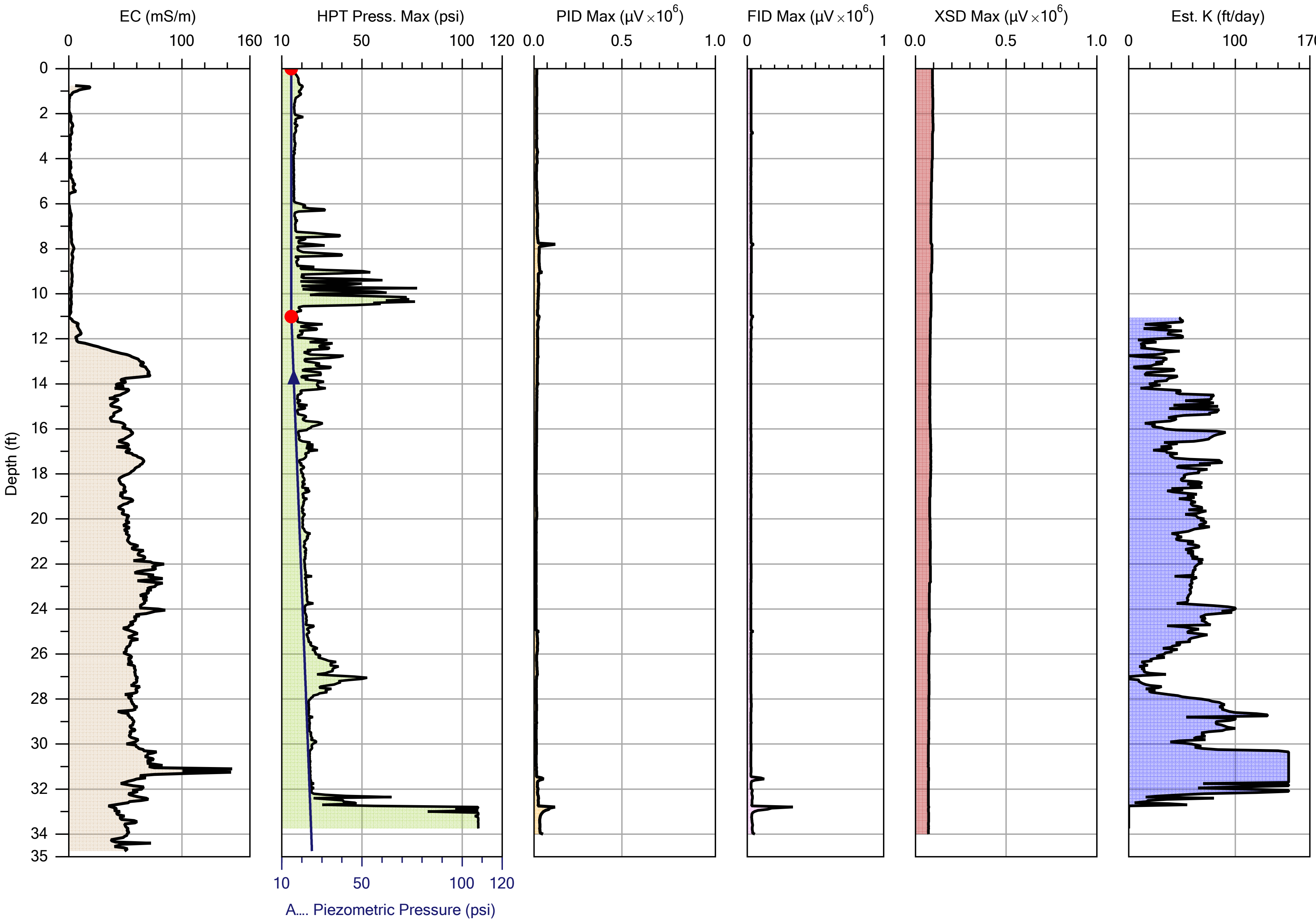
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/9/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 16″ W



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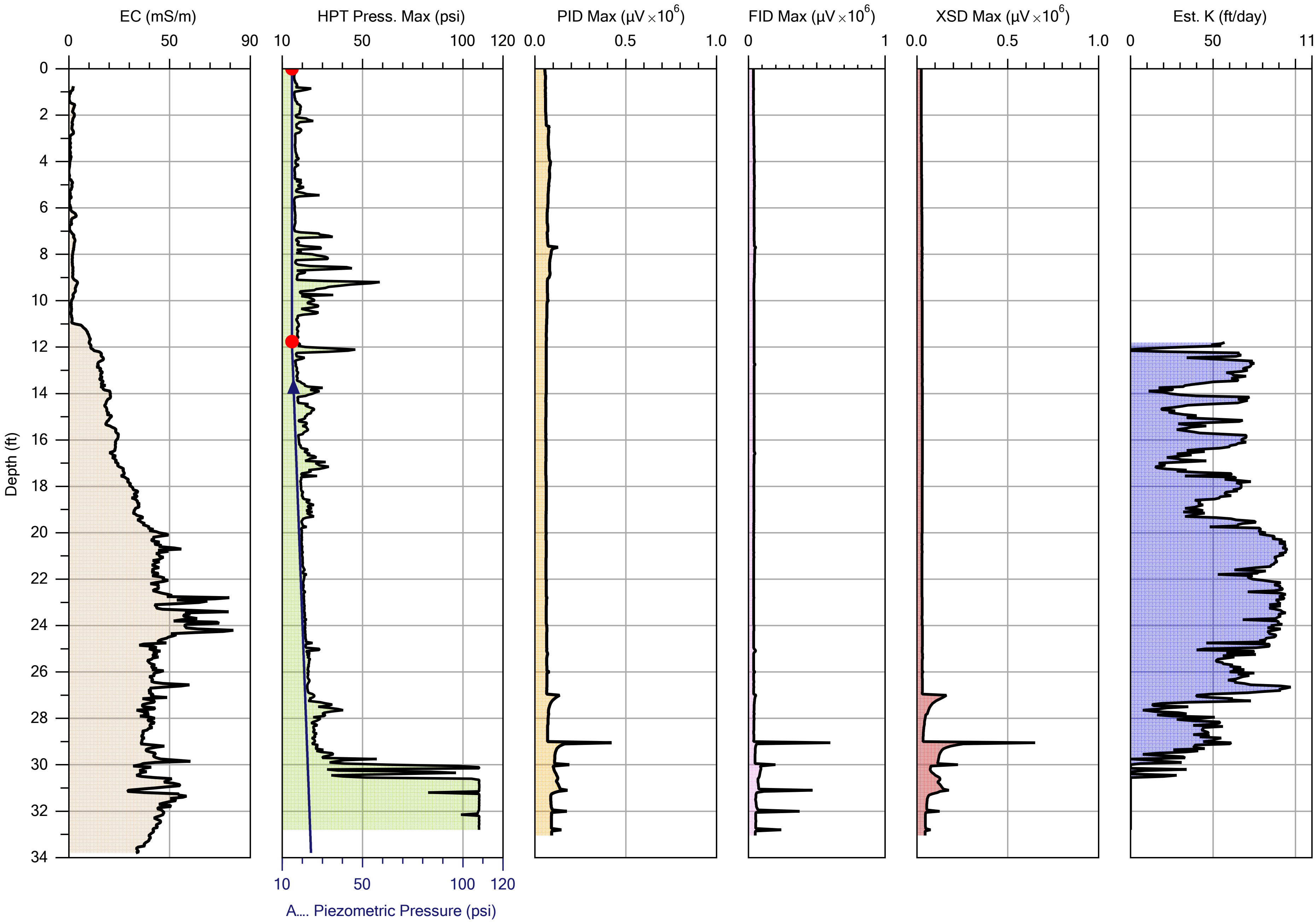
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/8/2016
Project ID: Lower Town	Client: GHD	Location:



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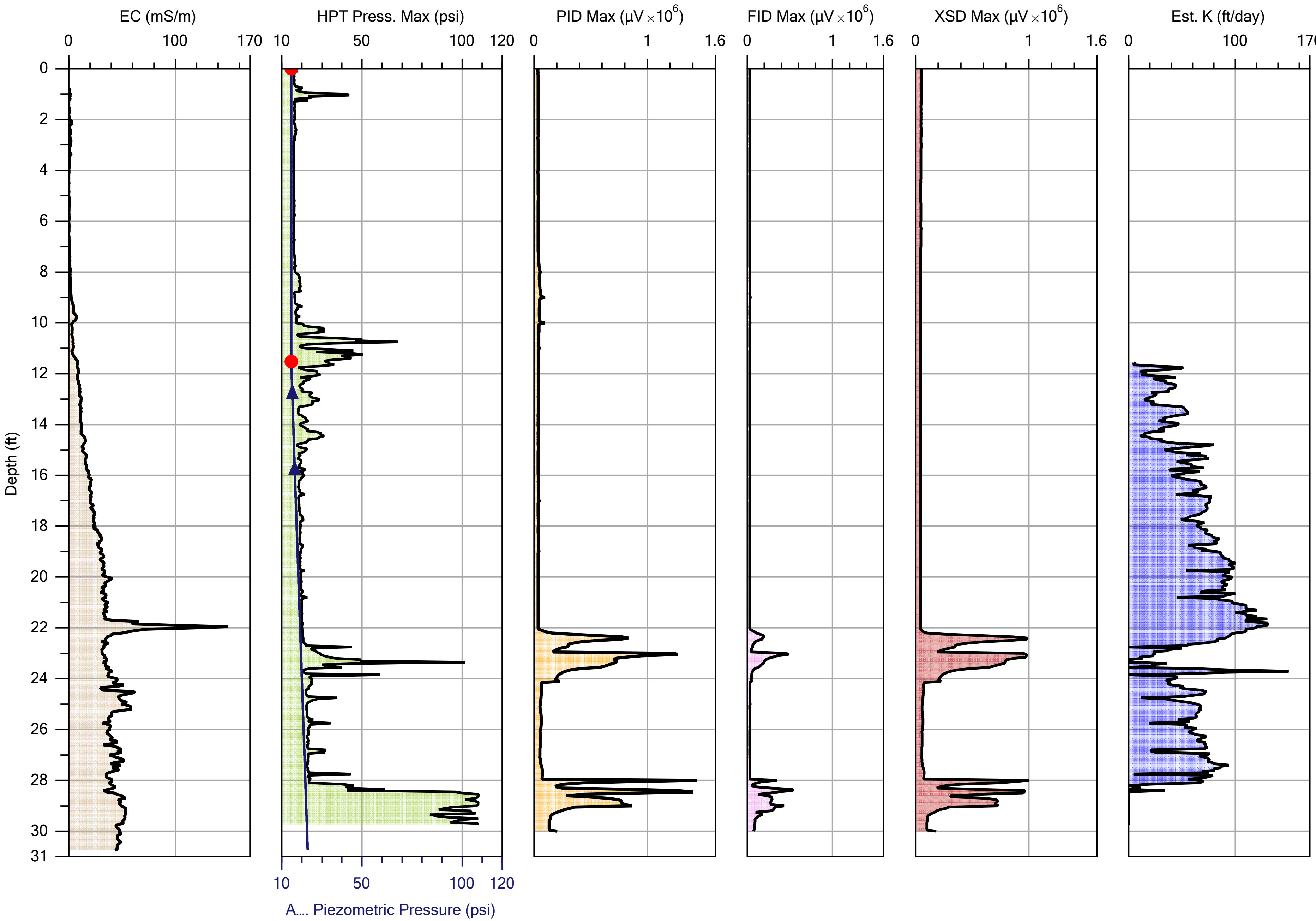
		File: MIP-9.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/8/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 13″ W



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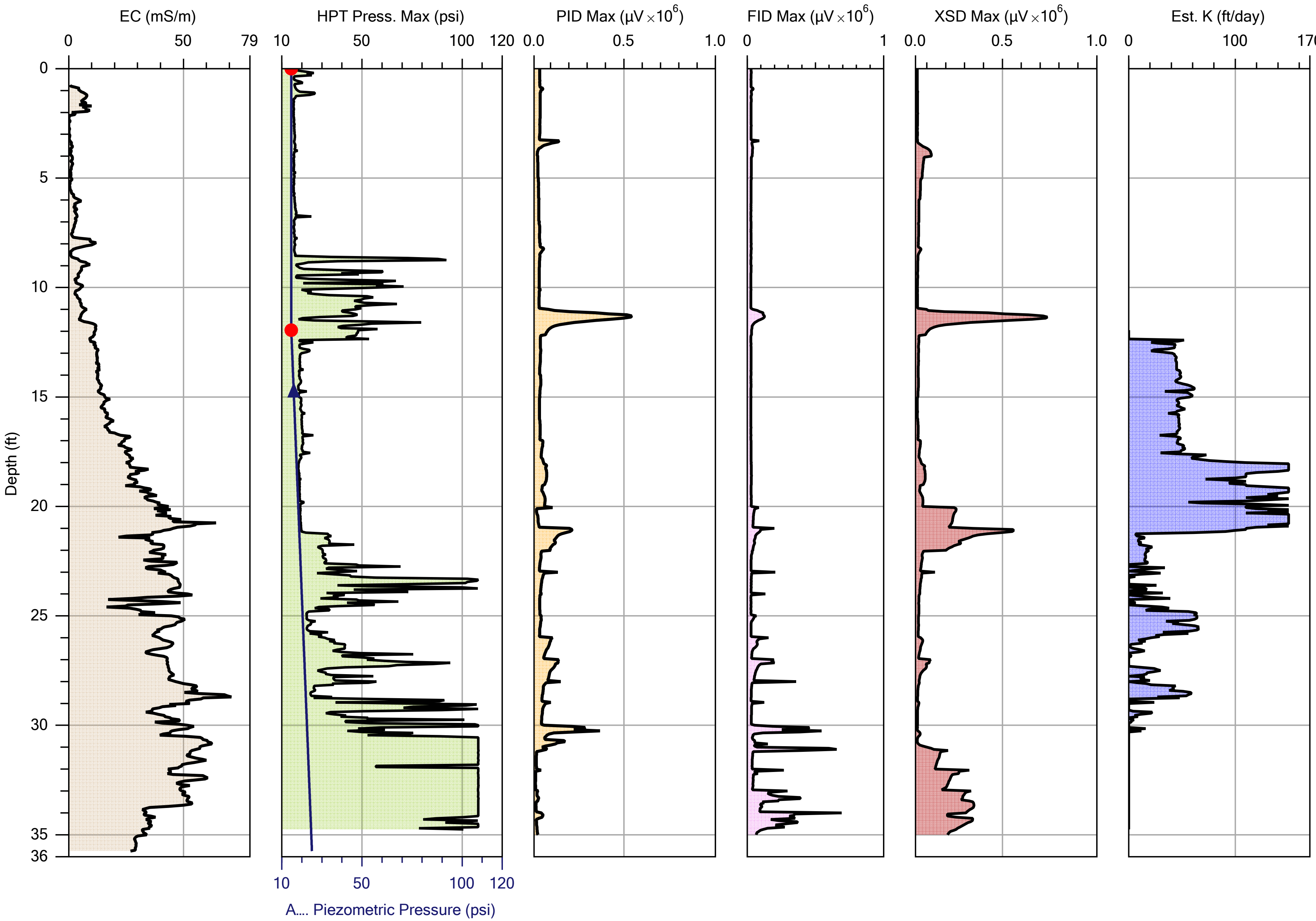
		File: MIP-10.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/3/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 13″ W



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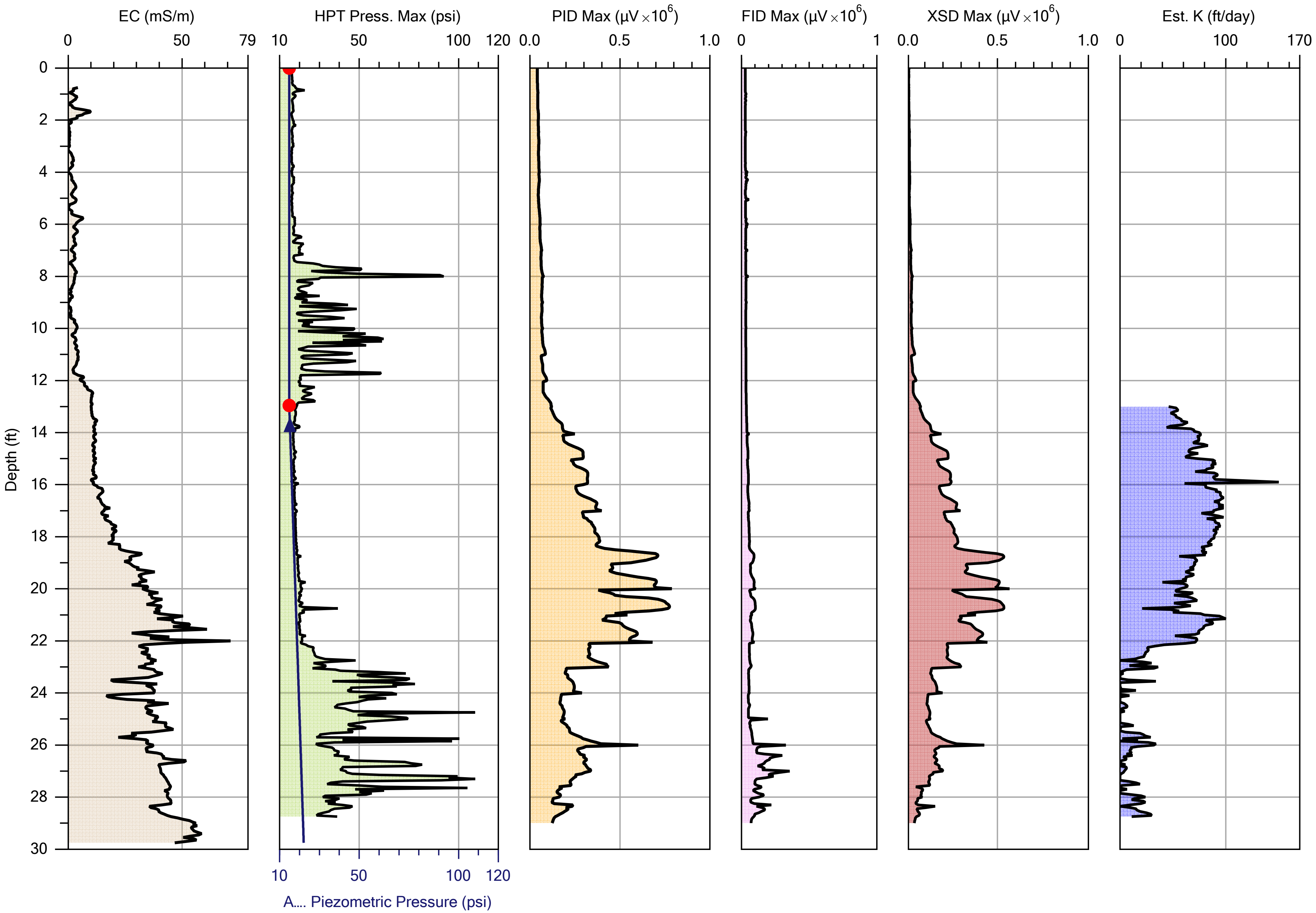
		File: MIP-11.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/3/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 13″ W



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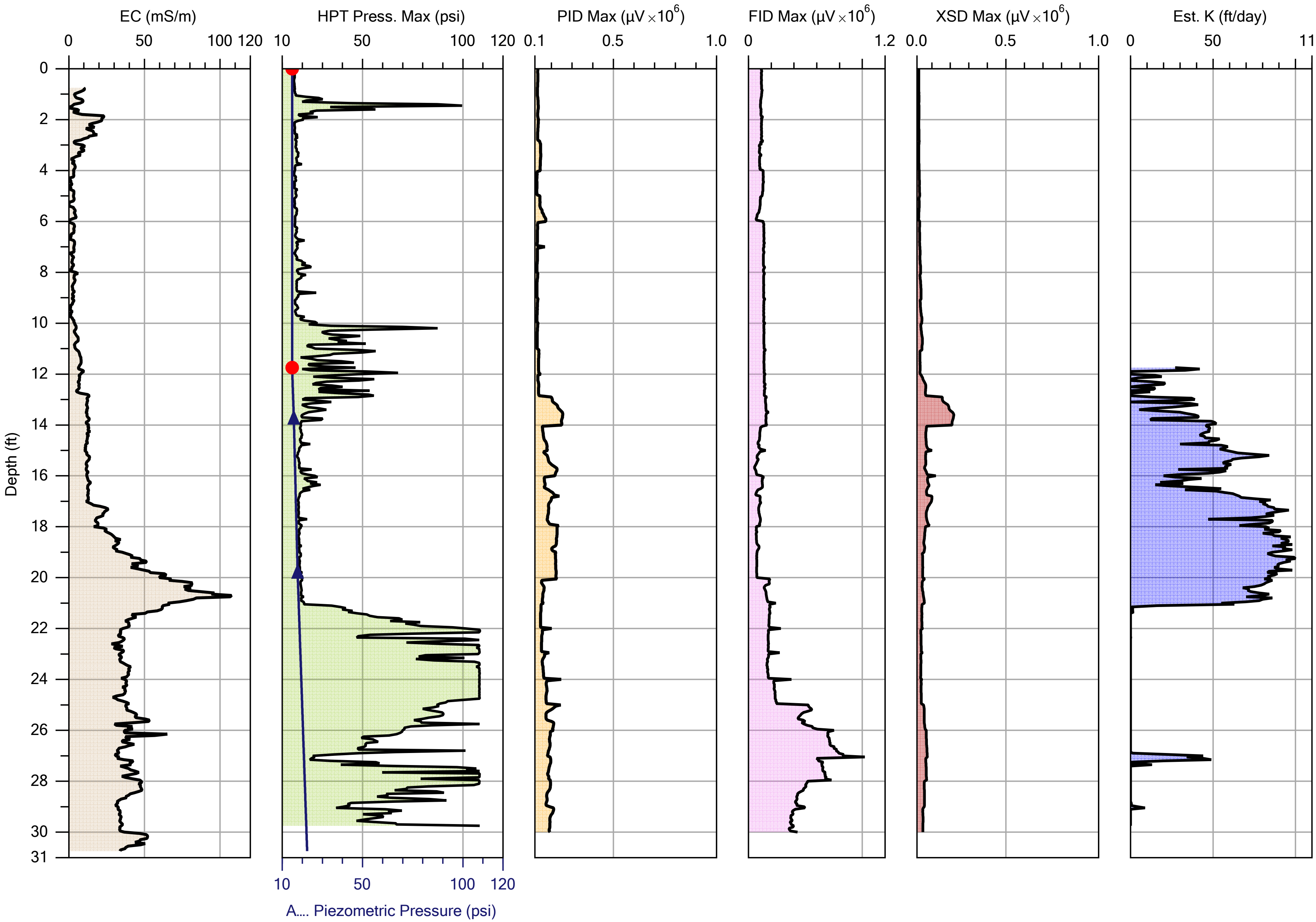
		File: MIP-12.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/5/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 14″ W



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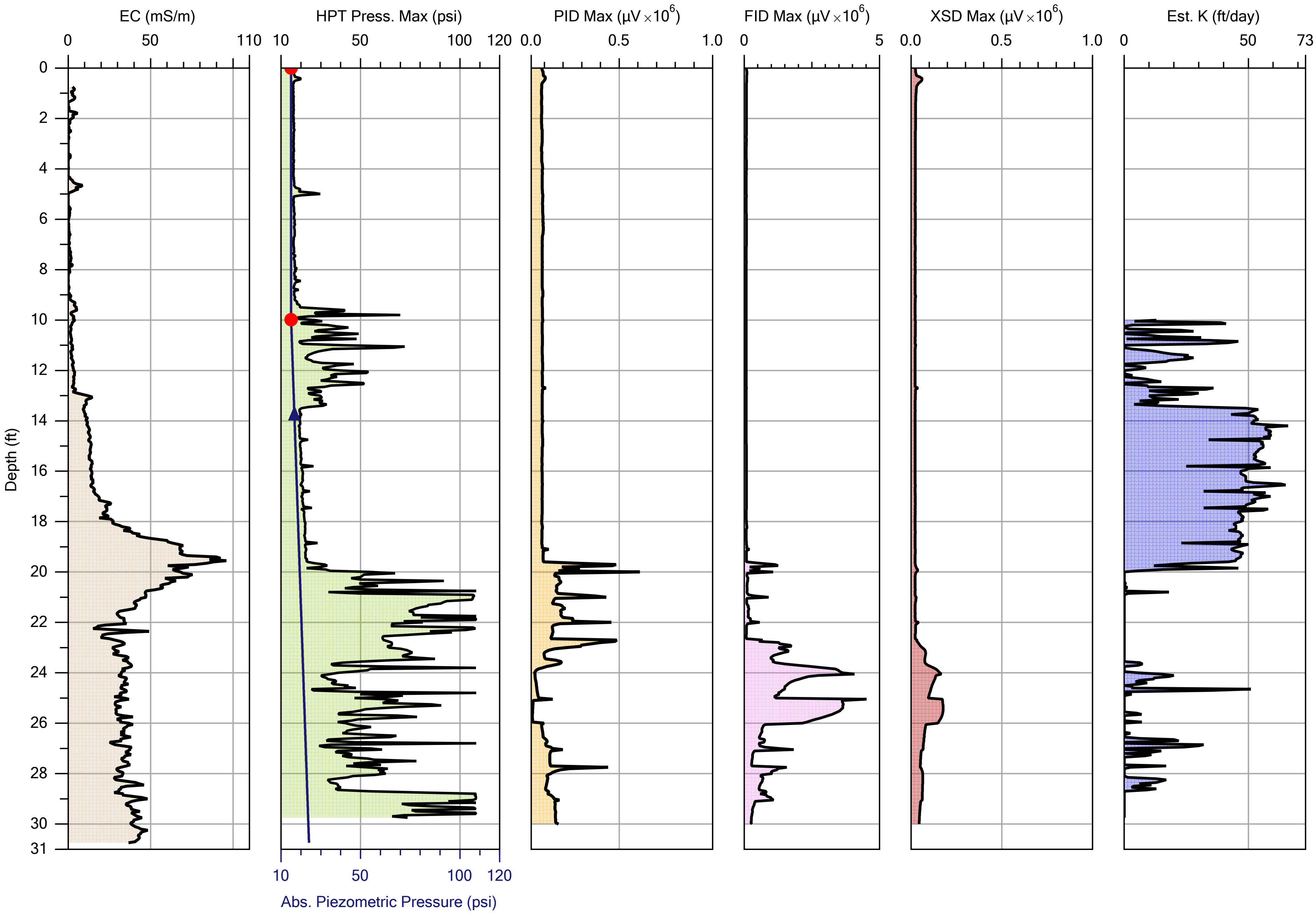
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/5/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 14″ W



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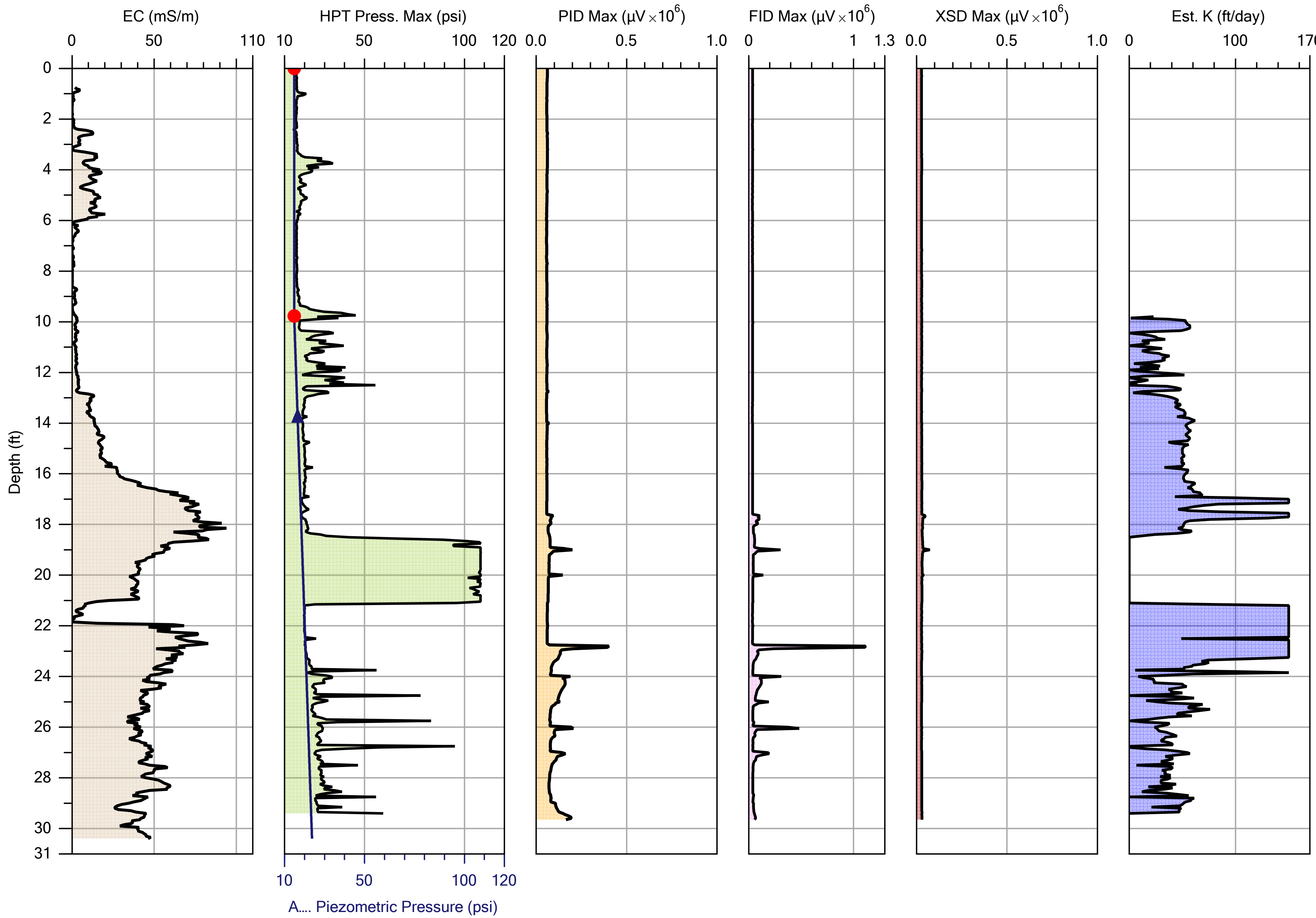

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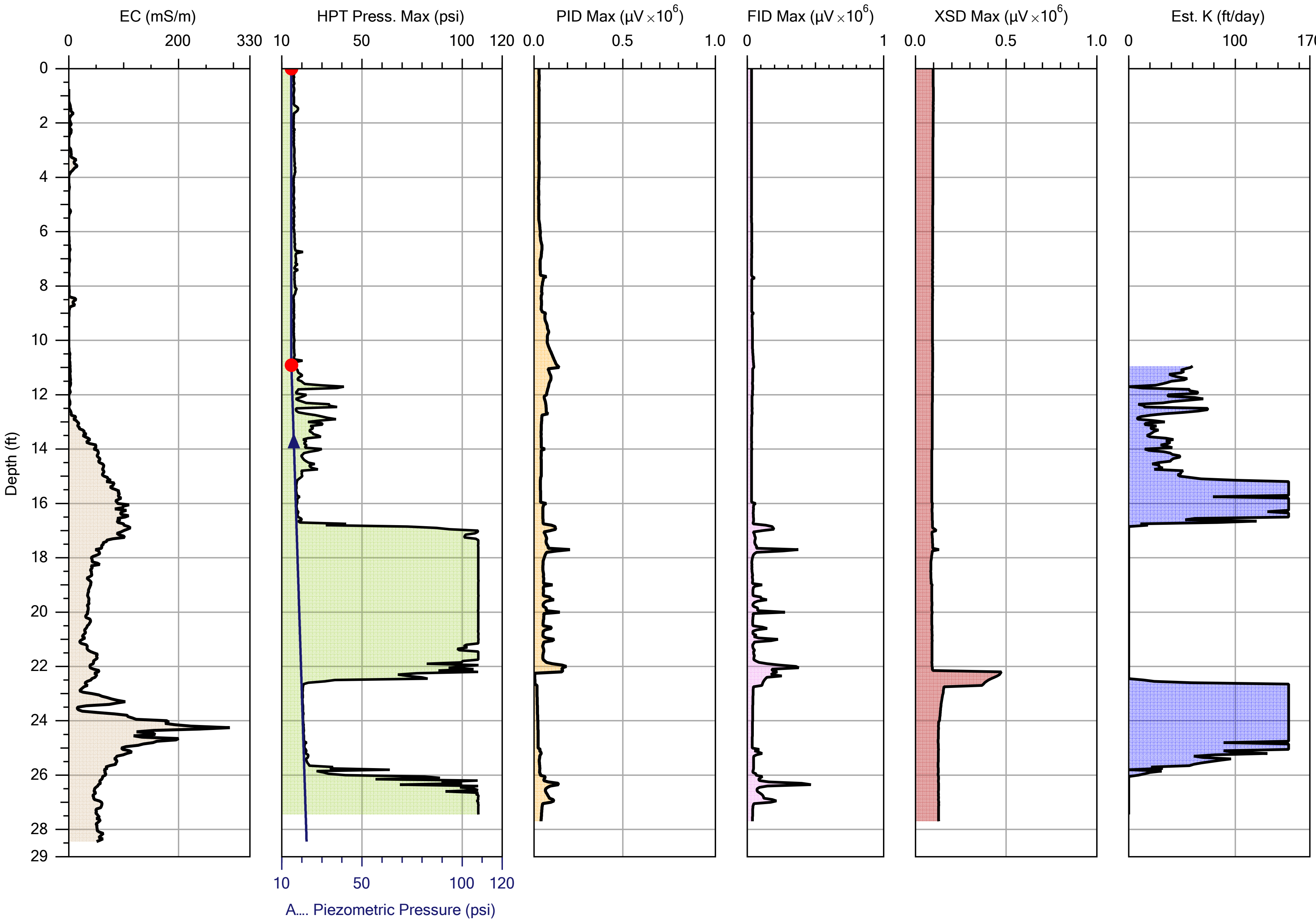
		File: MIP-15.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/8/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 14″ W



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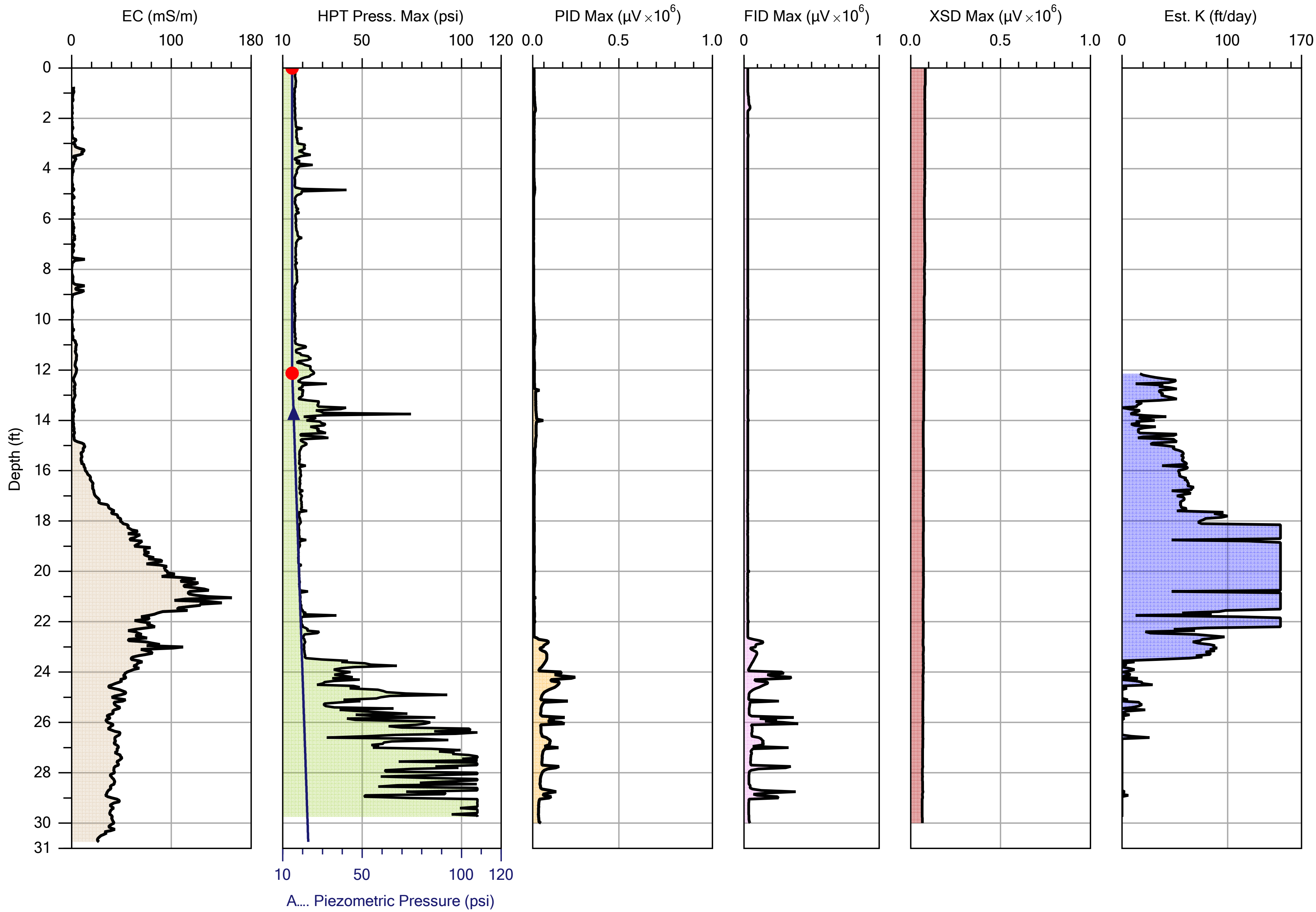
		File: MIP-16.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/8/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 22″ N, 83° 44′ 14″ W



Company: Stock Drilling Inc.	Operator: Jonathan W.	File: MIP-17.MHP
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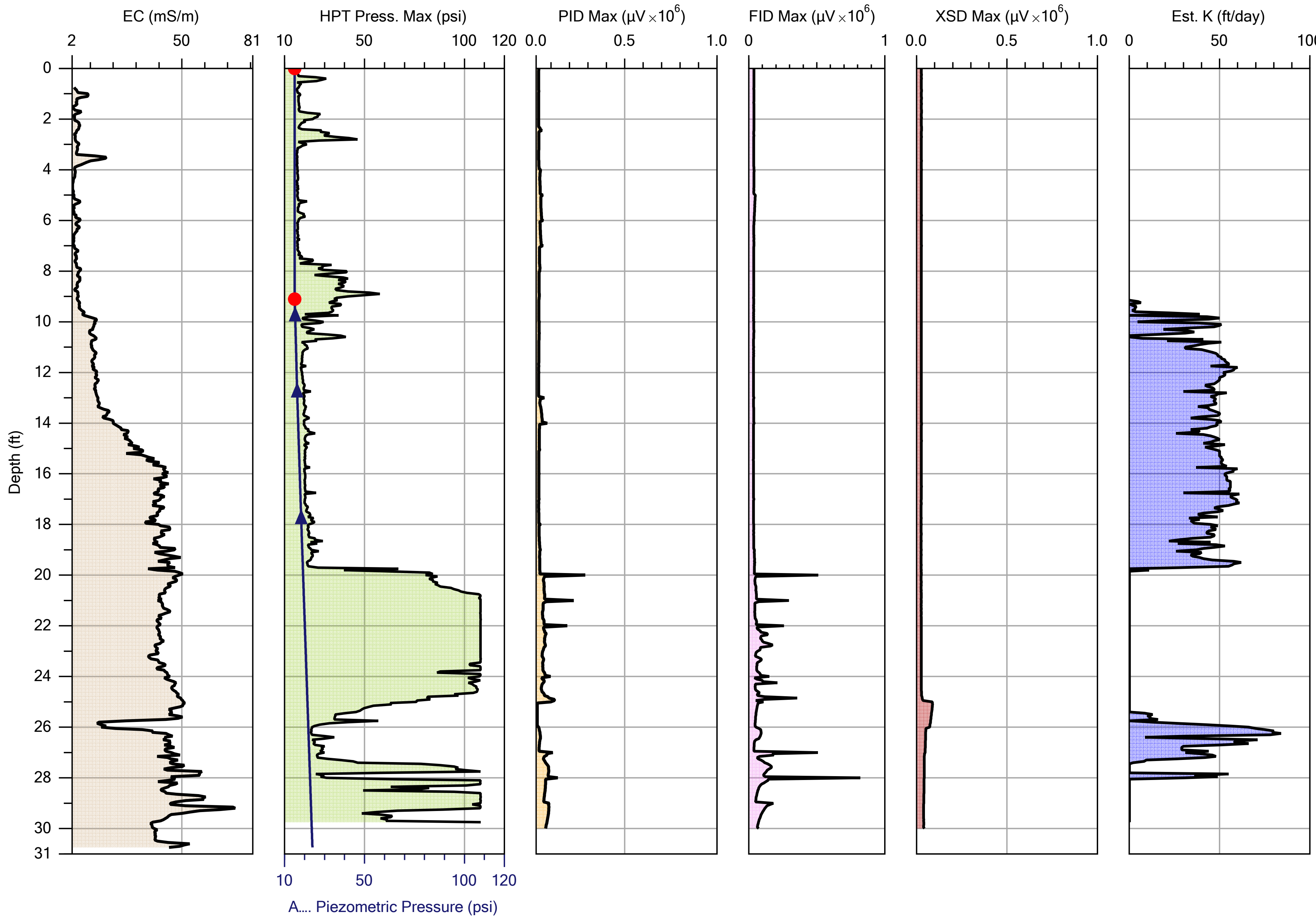
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 16″ W



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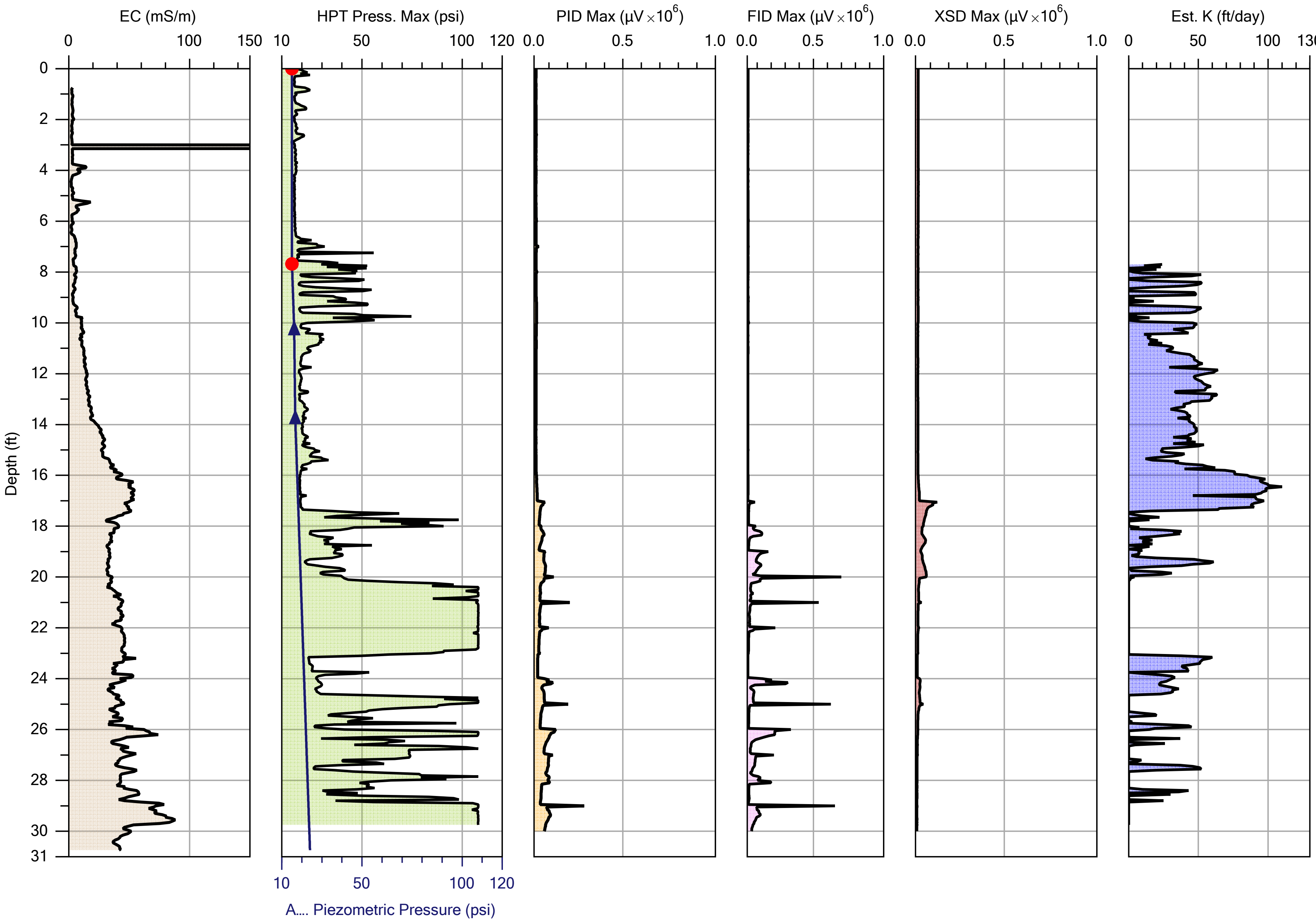
		File: MIP-22.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/2/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 10″ W



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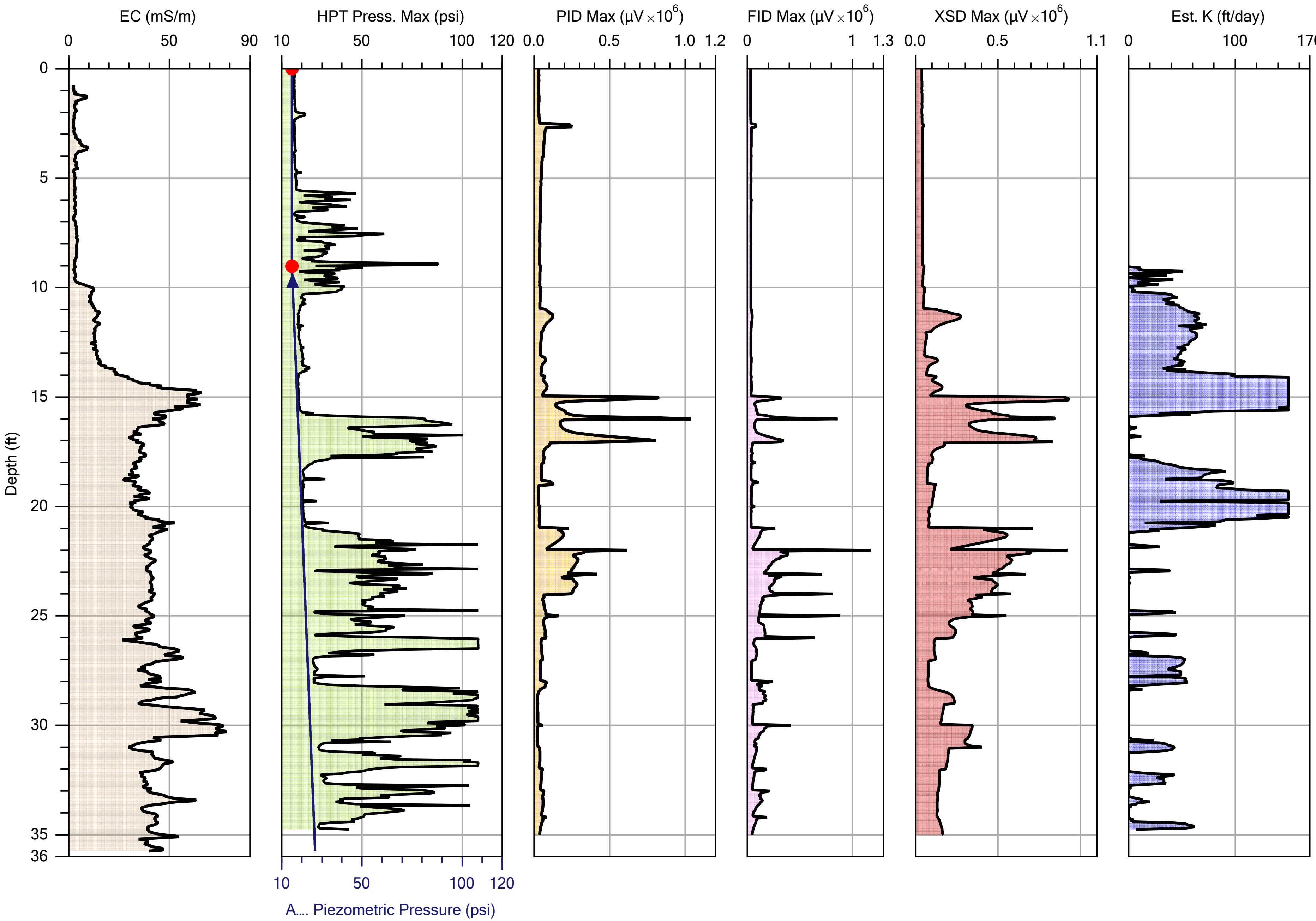
		File: MIP-23.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/2/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 10″ W



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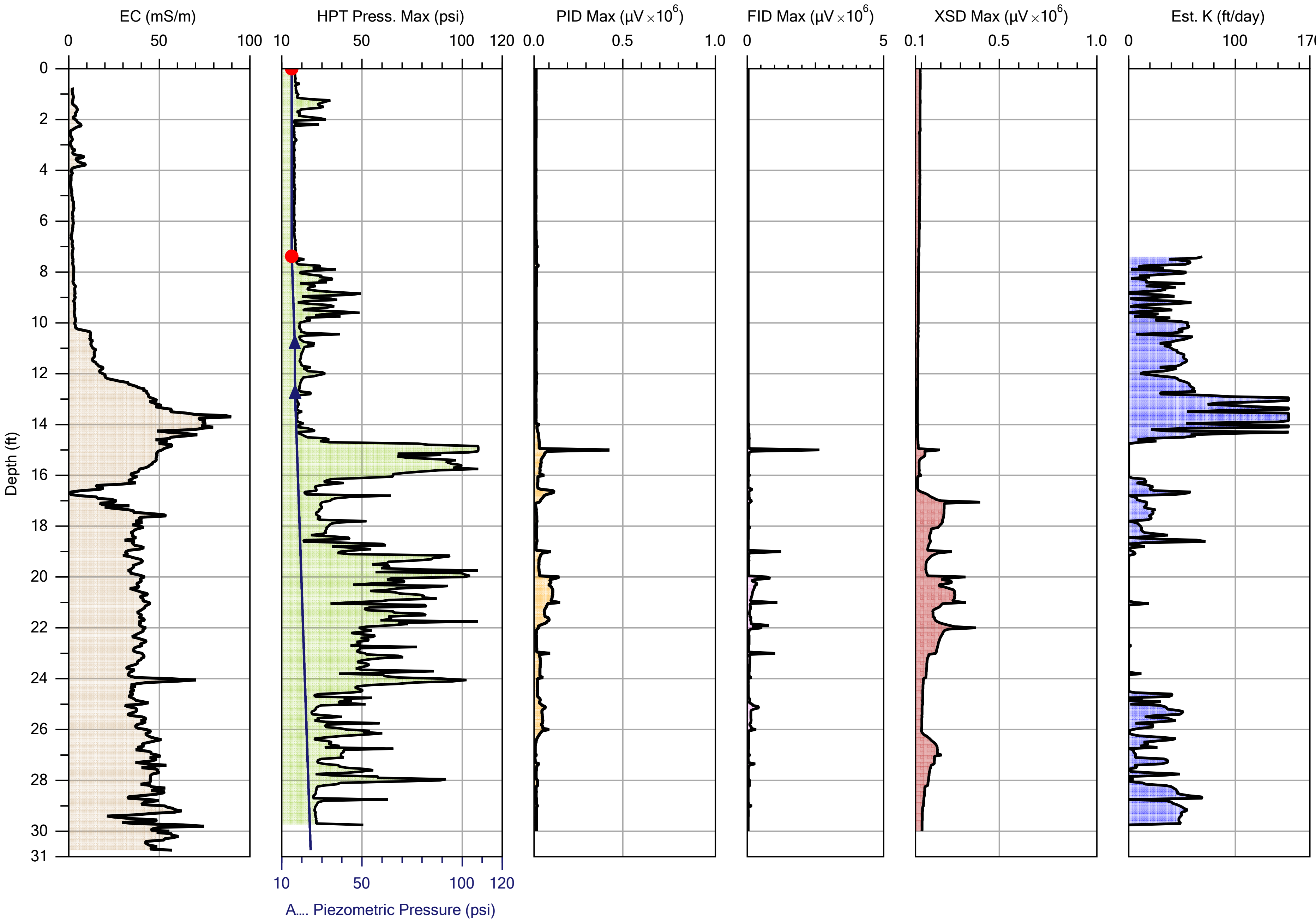
		File: MIP-24.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/2/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 10″ W



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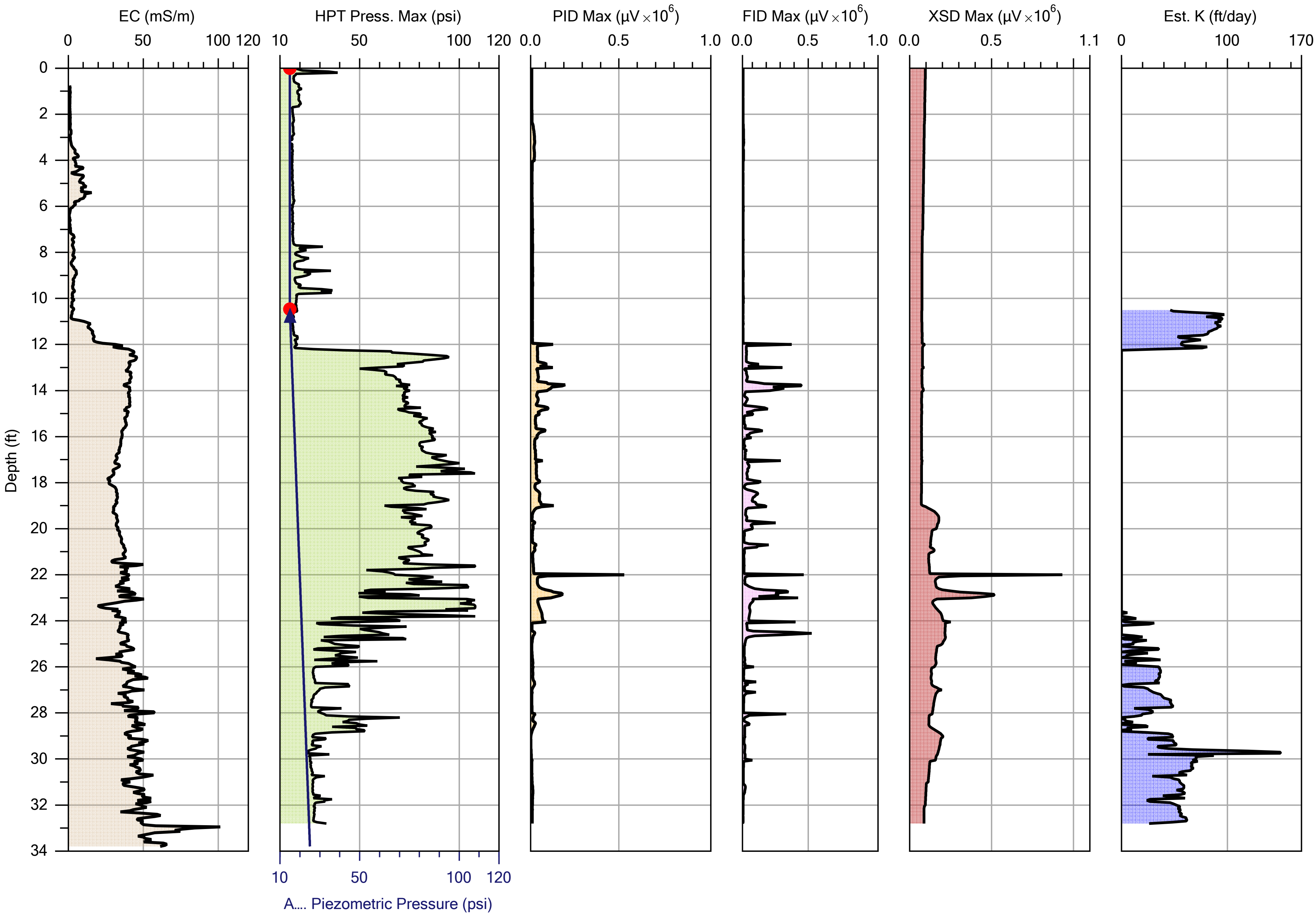
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/2/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 10″ W



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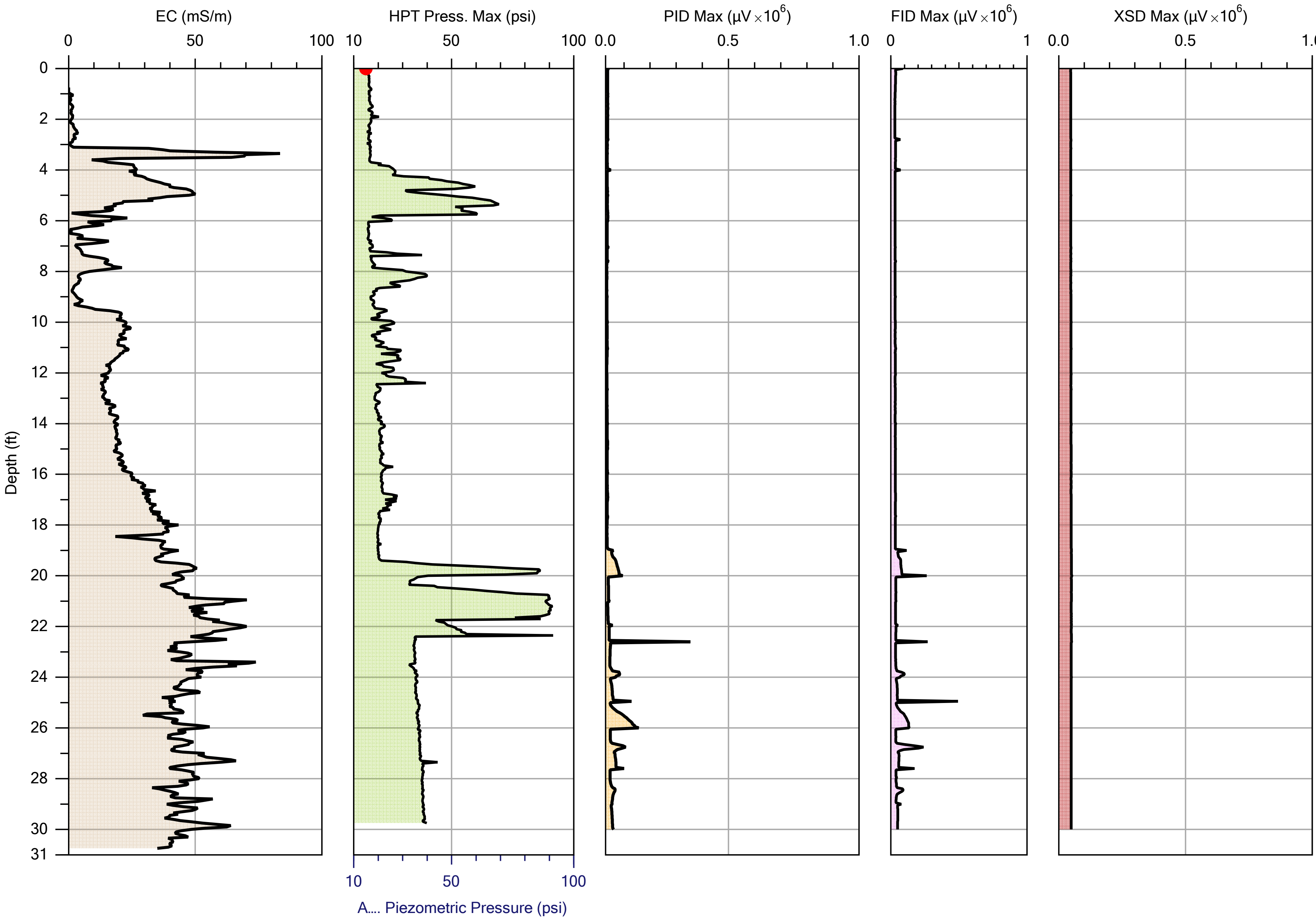
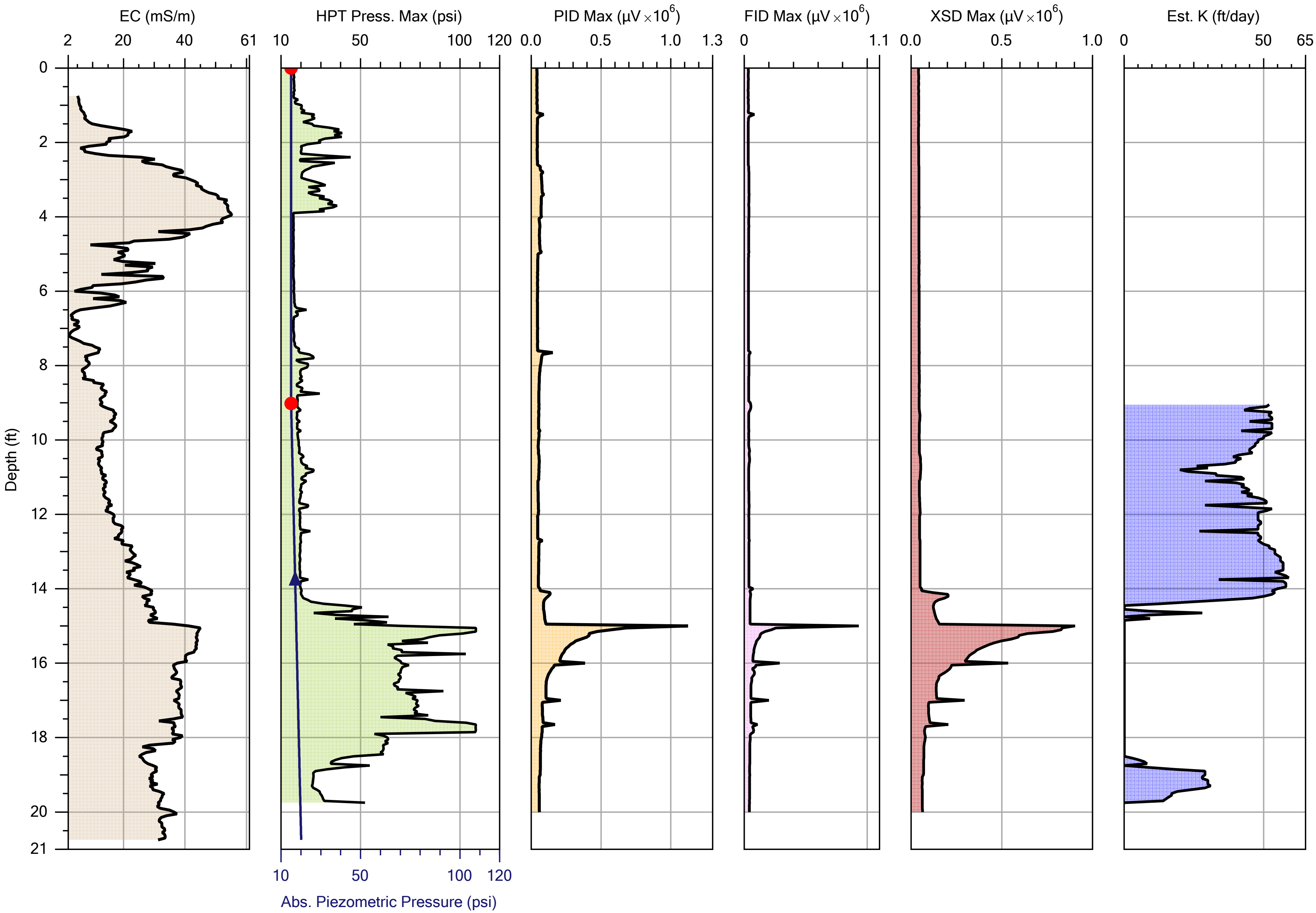
		File: MIP-26.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/2/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 22″ N, 83° 44′ 10″ W



Company: Stock Drilling Inc.	Operator: Jonathan W.	File: MIP-32.MHP Date: 2/1/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 24″ N, 83° 44′ 8″ W



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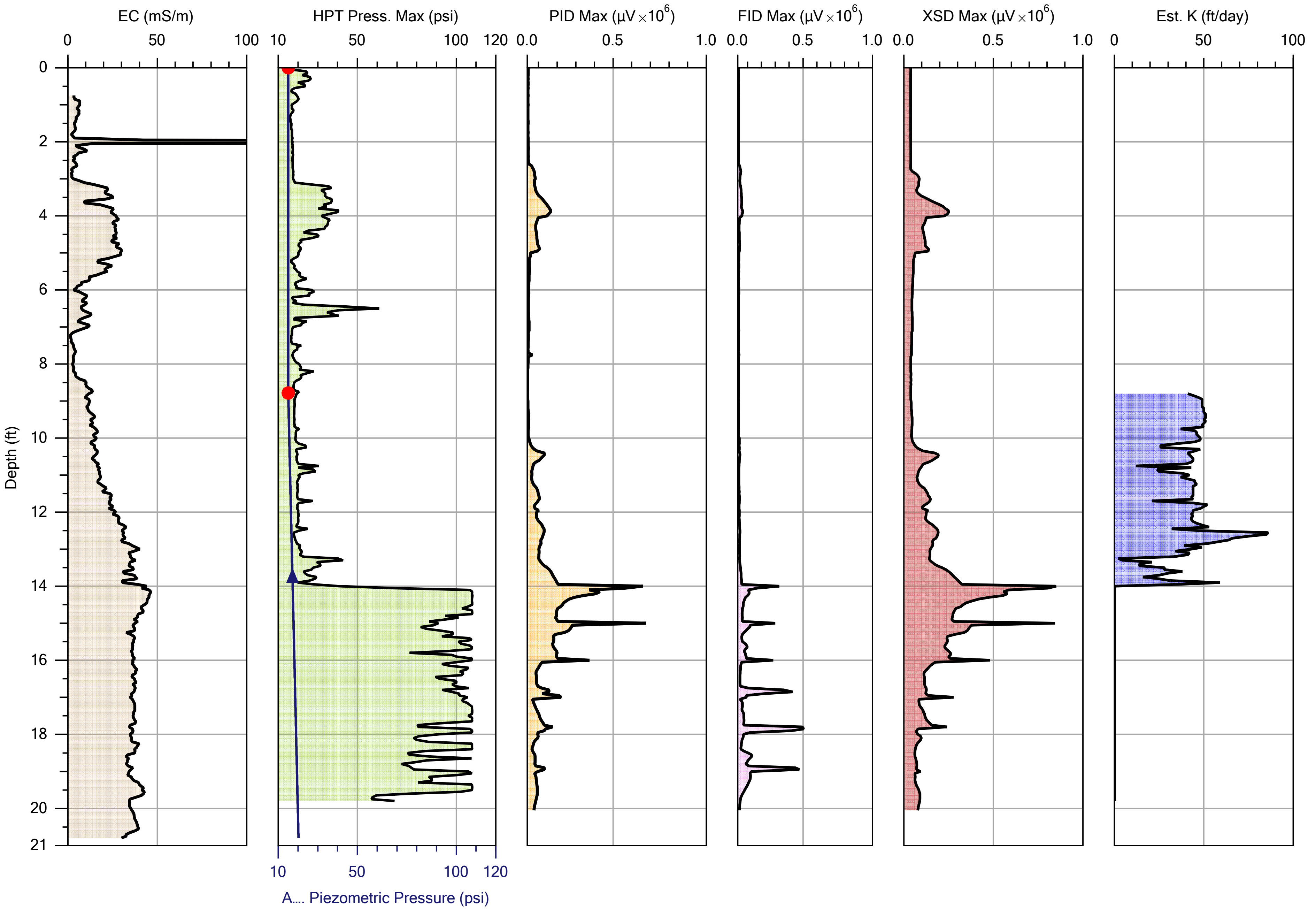
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 8″ W



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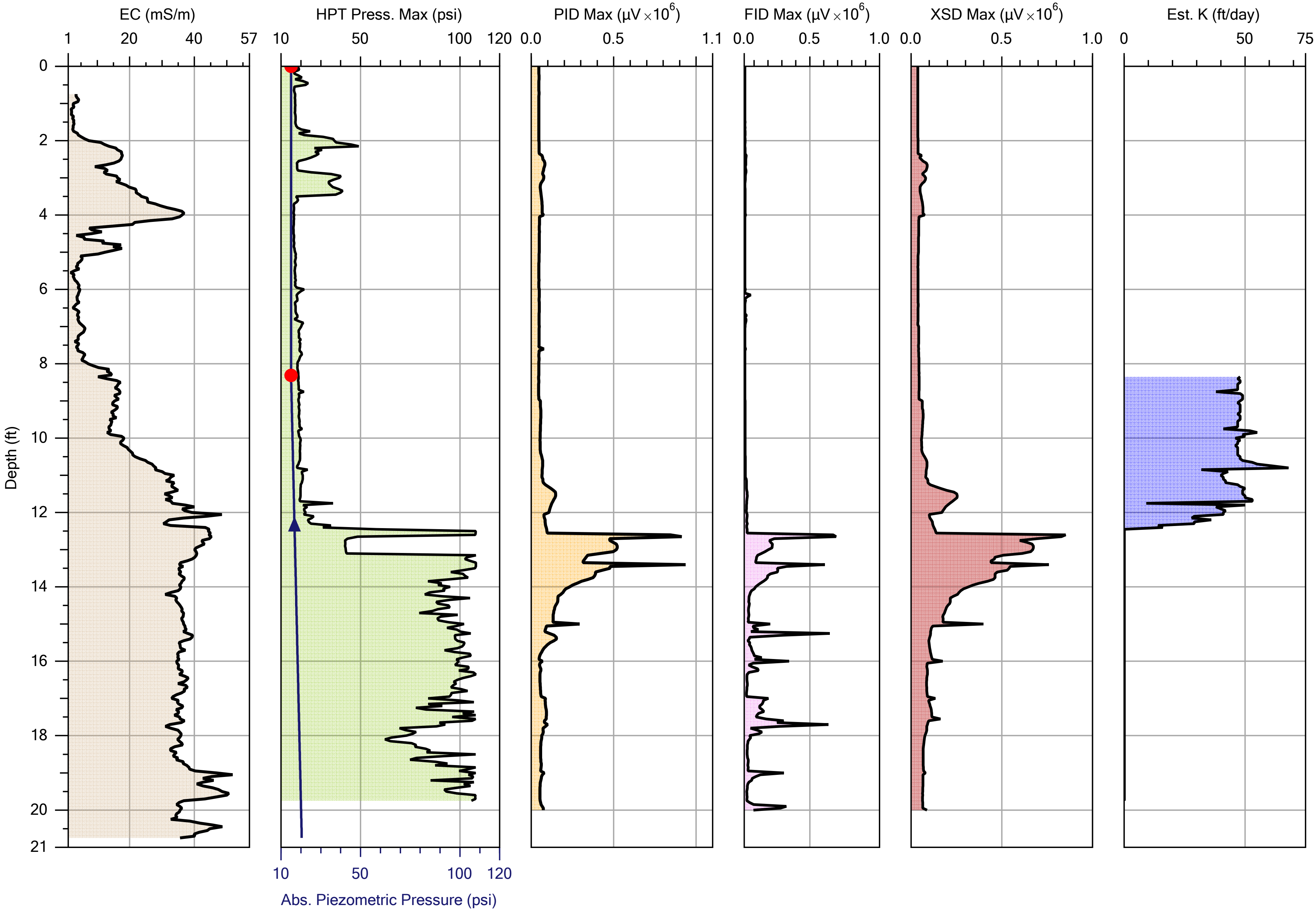
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 8″ W



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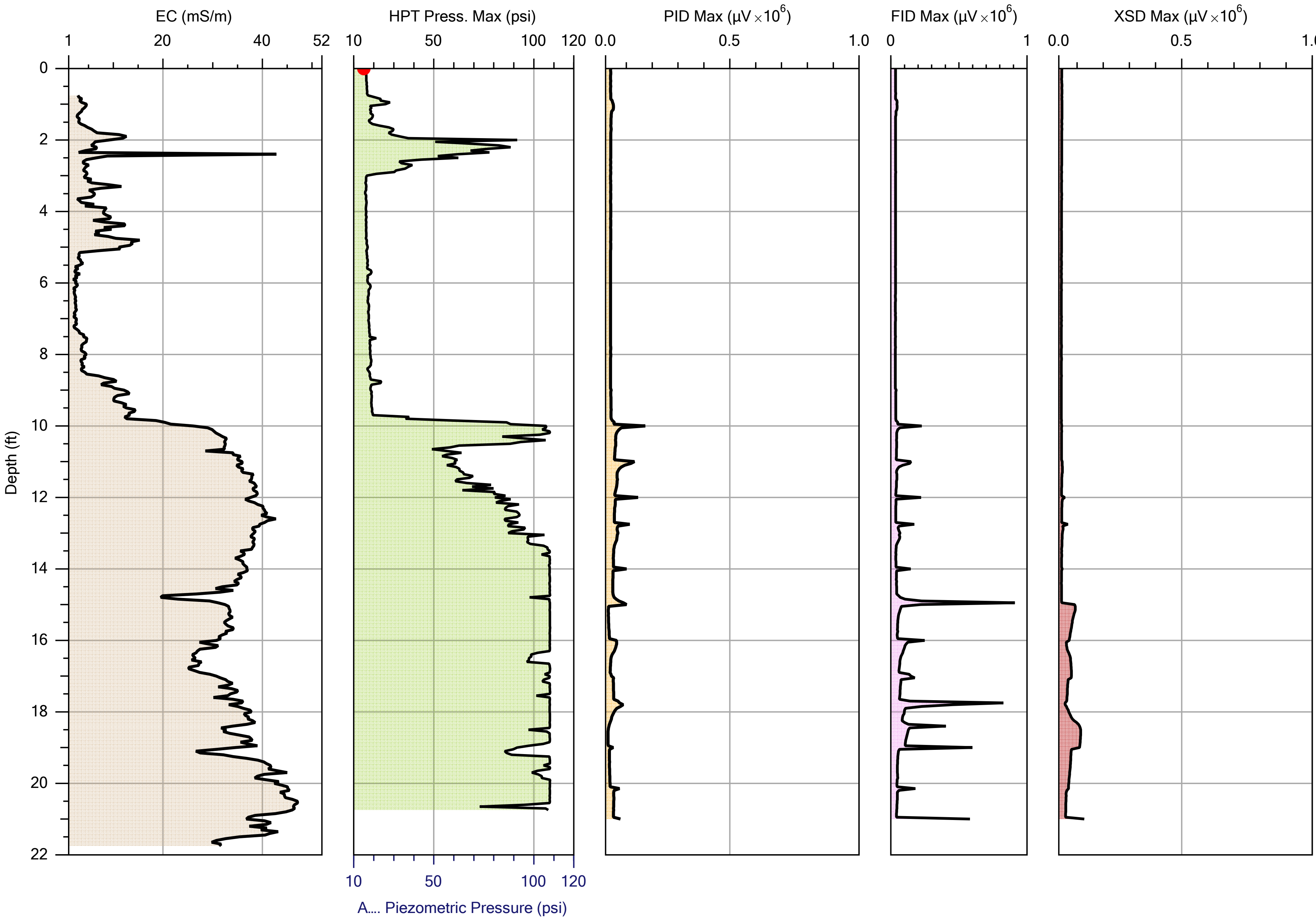
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 8″ W



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		File: MIP-36.MHP
Company: Stock Drilling Inc.	Operator: Jonathan W.	Date: 2/1/2016
Project ID: Lower Town	Client: GHD	Location: 42° 17′ 23″ N, 83° 44′ 8″ W

Attachment B
Stratigraphic and Instrumentation Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

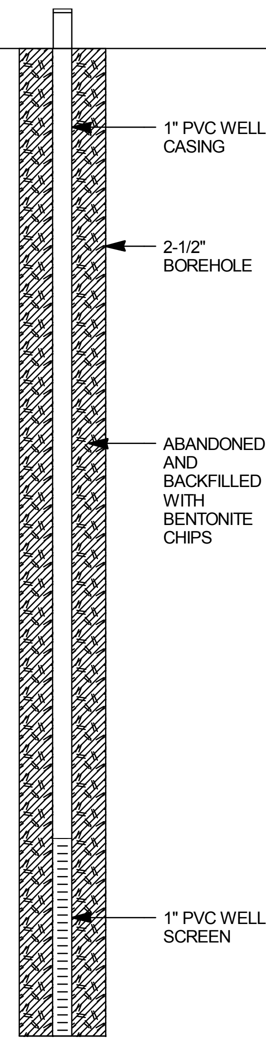
PROJECT NAME: LOWERTOWN PROJECT
PROJECT NUMBER: 11114514
CLIENT: LOWERTOWN PROJECT, LLC
LOCATION: ANN ARBOR, MICHIGAN

HOLE DESIGNATION: MIP-10
DATE COMPLETED: February 10, 2016
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0 – 7.5	SP-SAND (FILL), trace silt and fine to coarse gravel, compact, fine to coarse grained, poorly graded, brown to dark brown, moist	7.50
7.5 – 25	SP-SAND (native), trace silt, compact, fine grained, poorly graded, light brown, moist - brown at 10.5ft BGS - trace fine gravel, fine to coarse grained, wet at 11.5ft BGS - with fine gravel, medium to coarse grained at 15.0ft BGS - fine to coarse grained at 17.0ft BGS - gravelly at 20.0ft BGS - trace fine gravel, fine grained at 21.0ft BGS - fine to coarse grained at 22.3ft BGS - fine grained at 22.6ft BGS - 0.2 silty clay seam, low plasticity, gray, moist at 23.1ft BGS - trace to with silt, trace fine to coarse gravel at 23.5ft BGS	25.00
25	END OF BOREHOLE @ 25.0ft BGS	

Depth scale (ft BGS): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34

TEMP MONITORING WELL



WELL DETAILS
Screened interval:
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1DP		60		--
2DP		85		--
3DP		85		--
4DP		80		--
5DP		90		--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

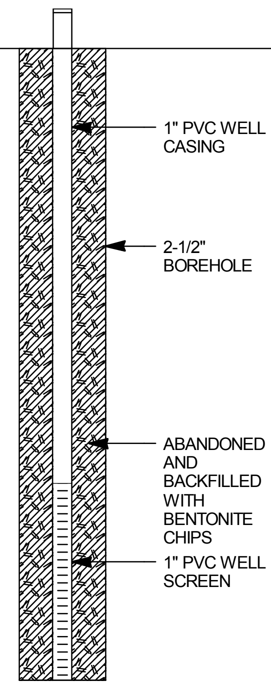
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LOWERTOWN PROJECT
PROJECT NUMBER: 11114514
CLIENT: LOWERTOWN PROJECT, LLC
LOCATION: ANN ARBOR, MICHIGAN

HOLE DESIGNATION: MIP-24
DATE COMPLETED: February 4, 2016
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE NUMBER	REC (%)	'N' VALUE	PID (ppm)
0–6	SP-SAND (FILL), trace silt and fine gravel, compact, fine to medium grained, poorly graded, brown and light brown, moist - 0.2' clayey sand seam, orange brown, moist at 2.5ft BGS - fine to coarse grained at 2.7ft BGS		1DP	66		--
6–15.5	SP-SAND (native), trace to with fine gravel, compact, fine to coarse grained, poorly graded, brown and light brown, moist	6.00	2DP	75		--
			3DP	75		--
15.5–16	ML-SILT, with clay, trace fine sand, firm, non plastic, gray, moist	15.50				
	END OF BOREHOLE @ 16.0ft BGS	16.00				

TEMP MONITORING WELL



WELL DETAILS
Screened interval:
11.00 to 16.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

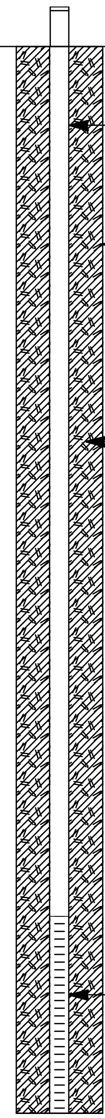
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: LOWERTOWN PROJECT
PROJECT NUMBER: 11114514
CLIENT: LOWERTOWN PROJECT, LLC
LOCATION: ANN ARBOR, MICHIGAN

HOLE DESIGNATION: MIP-26
DATE COMPLETED: February 4, 2016
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. RIVERS

STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
SP-SAND (FILL), trace silt, compact, fine grained, poorly graded, light brown, moist	
SP-SAND (native), trace silt and fine gravel, compact, fine to coarse grained, poorly graded, brown, moist - wet at 10.5ft BGS	5.00
ML-SILT, with clay, trace fine sand, firm, non plastic, gray, moist	12.50
SP-SAND, trace clay, silt and fine gravel, compact, fine to coarse grained, poorly graded, brown, wet - 0.2' sandy clay seam, low plasticity, brown, moist at 23.0ft BGS - 0.2' sandy clay seam, low plasticity, brown, moist at 24.1ft BGS - brownish gray at 24.3ft BGS	21.50
END OF BOREHOLE @ 27.0ft BGS	27.00

TEMP MONITORING WELL



WELL DETAILS
Screened interval:
22.00 to 27.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

SAMPLE

NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1DP		66		--
2DP		75		--
3DP		90		--
4DP		90		--
5DP		90		--
6DP		90		--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

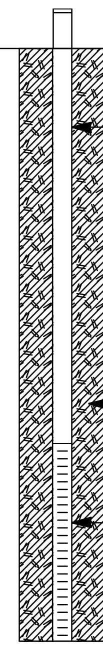
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: LOWERTOWN PROJECT
PROJECT NUMBER: 11114514
CLIENT: LOWERTOWN PROJECT, LLC
LOCATION: ANN ARBOR, MICHIGAN

HOLE DESIGNATION: MIP-34
DATE COMPLETED: February 4, 2016
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
0–4	SP-SAND (FILL), trace clay, silt and fine gravel, compact, fine to coarse grained, poorly graded, brown to dark brown, moist	4.00
4–6	CL-SANDY CLAY, trace silt and fine gravel, soft, low plasticity,d ark brown, moist	6.00
6–14.2	SP-SAND, trace silt and fine gravel, compact, fine to coarse grained, poorly graded, light brown, moist - with fine gravel at 7.0ft BGS - trace fine gravel at 8.0ft BGS - with fine gravel, medium to coarse grained, wet at 8.7ft BGS - trace fine gravel at 11.0ft BGS - brownish gray at 12.0ft BGS	14.20
14.2–15	ML-SILT, with clay, trace fine sand, firm, non plastic, gray, moist	15.00
	END OF BOREHOLE @ 15.0ft BGS	

TEMP MONITORING WELL



WELL DETAILS
Screened interval:
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

SAMPLE

NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1DP	0–5	75		--
2DP	5–10	75		--
3DP	10–15	85		--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

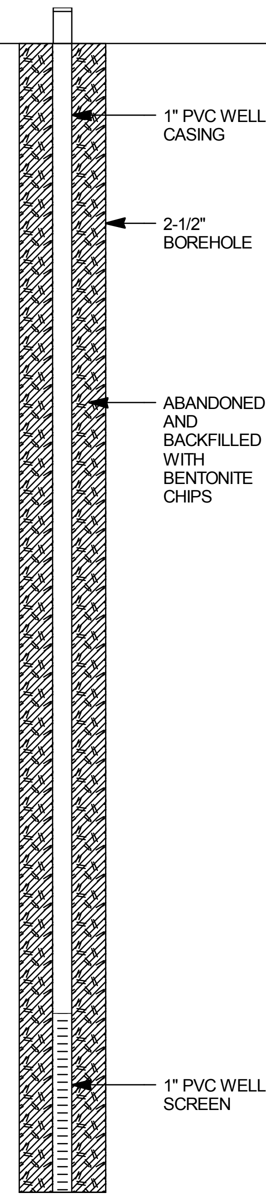
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: LOWERTOWN PROJECT
PROJECT NUMBER: 11114514
CLIENT: LOWERTOWN PROJECT, LLC
LOCATION: ANN ARBOR, MICHIGAN

HOLE DESIGNATION: MIP-9
DATE COMPLETED: February 10, 2016
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: D. RIVERS

STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
SM-SILTY SAND (FILL), compact, fine to coarse grained, poorly graded, light brown, moist	1.50
SP-SAND (FILL), trace silt, compact, fine to medium grained, poorly graded, light brown, moist - fine to coarse grained, trace fine gravel at 3.0ft BGS - no gravel, fine grained, orange brown at 6.0ft BGS	7.00
SP-SAND (native), trace silt, compact, fine grained, poorly graded, orange brown, moist - trace fine gravel, fine to coarse grained, brown at 9.0ft BGS - wet at 11.0ft BGS - no gravel, fine to medium grained at 15.0ft BGS - with fine gravel, fine to coarse grained at 17.5ft BGS - trace fine gravel, fine to medium grained at 27.0ft BGS - with fine gravel, fine to coarse grained at 27.8ft BGS	29.50
CL-SILTY CLAY, firm, low plasticity, gray, moist	32.00
END OF BOREHOLE @ 32.0ft BGS	

TEMP MONITORING WELL



WELL DETAILS
Screened interval:
27.00 to 32.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC

SAMPLE

NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
1DP		75		--
2DP		75		--
3DP		70		--
4DP		70		--
5DP		65		--
6DP		65		--
7DP		90		--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

Attachment C
Waste Manifest

US ecology

LAND DISPOSAL RESTRICTION AND CERTIFICATION FORM

Generator: ~~LOWER TOWN DEVELOPMENT GROUP~~, LLC Lower Town Project, LLC U.S. EPA ID No.: MIK842813745
1120 BROADWAY , ANN ARBOR, MI 48105

Manifest: 015171618 JJK

Page - Line
1 - 01 Approval: C162014WDI NWW

Waste Code(s): F002

Hazardous Constituents: NONE

Subcategory(s):

Certification: THIS RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT TREATMENT

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

I hereby certify that all information submitted on this and all associated documents, is complete and accurate to the best of my knowledge and information.

Generator Signature: [signature] Title: as Agent for Lower Town Project, LLC

Printed Name: David Cantrell Date: 3/25/16

For questions regarding this form, please call Customer Service at (800) 592-5489.

015171618JJK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK 642 813 745
2. Page 1 of: 1
3. Emergency Response Phone: (313) 347-1300
4. Manifest Tracking Number: 015171618 JJK

5. Generator's Name and Mailing Address: ~~LOWER TOWN DEVELOPMENT GRO~~ Lower Town Project, LLC
~~1427 WEST SAGINAW~~ 7715 Wilson Ave.
~~SUITE 200~~
~~EAST LANSING, MI 48823~~ Bethesda, MD 20815
Generator's Phone: ~~(517) 664-4741~~ 301-674-2010

Generator's Site Address (if different than mailing address): 1120 BROADWAY, ANN ARBOR, MI 48105

6. Transporter 1 Company Name: EQ INDUSTRIAL SERVICES — U.S. EPA ID Number: MIK 435 642 742

7. Transporter 2 Company Name: EQ Industrial Services — U.S. EPA ID Number: MIK435642742

8. Designated Facility Name and Site Address: WAYNE DISPOSAL, INC. SITE #2 LANDFI, 49350 N I-94 SERVICE DRIVE, BELLEVILLE, MI 48111 — U.S. EPA ID Number: MID 048 090 633
Facility's Phone: (800) 592-5489

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste, solid, n.o.s. (F002), 9, PGIII, ERG #171	01	DM	200	P	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. C162014WDI / HAZARDOUS SOIL F002

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: David Canfield As Agent for Lower Town Project, LLC — Signature: [signature] — Month 03 Day 25 Year 16

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Raymond Root — Signature: [signature] — Month 03 Day 25 Year 16
Transporter 2 Printed/Typed Name: Tonya Stewart — Signature: [signature] — Month 03 Day 25 Year 16

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dan Shaw — Signature: [signature] — Month 3 Day 31 Year 16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Attachment D
Laboratory Analytical Reports

ANALYTICAL SERVICES REPORT

Prepared for:
Rawa Fleisher
GHD - Plymouth, Michigan
14496 Sheldon Road, Suite #200
Plymouth, MI 48170

Project:
Lower Town - SSOW 11114514-002

Work Order:
1602325

Prepared by:
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE
Grand Rapids, MI 49512-5503

Report Date:
February 19, 2016

	2/19/2016
Gary L. Wood, Project Chemist woodgl@trimatrixlabs.com	Approval Date

CASE NARRATIVE

GHD - Plymouth, Michigan
Lower Town - SSOW 11114514-002

SDG Executive Summary

This case narrative applies to samples received on February 17, 2016. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between GHD - Plymouth, Michigan and TriMatrix Laboratories, Inc..

Project Technical Issues/Problems

Project-related data qualification designations, narrations, and reporting conventions are included in Attachment 1 - *Project Technical Narrative(s)*.

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG/workorder(s) are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

This report relates only to the samples(s) as received. Estimates of analytical uncertainties for the test results contained within this report are available upon request. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC) and one or more of the following certification programs:

ANAB DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003329); Kentucky DEP (AL123065/#0021); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/53116); North Carolina DNRE (#659); Virginia DCLS (#460153/7952); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-14-00305).

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this report are intended to comply with the documents referenced in the introductory section of this narrative. If requested, the EDD will be issued separately from this hardcopy report.

Sample Receipt and Login -- Work Order: 1602325

TriMatrix Laboratories received the cooler(s) for this work order on February 17, 2016, at 08:20. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix Sample Receiving / Log-In Checklist. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding field COC form, the TriMatrix bidform and/or oral and written correspondance between the client and TriMatrix Laboratories, Inc.. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date & Time Sampled
TB-11114514-020516	1602325-01	Water	02/05/16, 00:00
GW-11114514-020516-DR-001	1602325-02	Water	02/05/16, 12:30
GW-11114514-020516-DR-002	1602325-03	Water	02/05/16, 13:00
GW-11114514-020516-DR-003	1602325-04	Water	02/05/16, 13:30

Attachment 1
Project Technical Narrative(s)

Sample Result Reporting Convention

Sample results are reported as RL "U" (e.g. 0.001 U) if the target analyte was not detected above the MDL.

If a sample for an organic analyte is reanalyzed and also reported, the second analysis includes the suffix "RE*n*" where *n* = the first, second, etc. reanalysis.

Percent Solids and Metals Data Reporting

Unless otherwise noted, all soil samples requiring metals analysis are dried at 50° to 60° C to a constant weight prior to acid digestion. In order to report results on a dry weight basis, correction for percent solids is not applicable.

Data Qualifier Designation

If applicable, sample results are qualified with:

- a "J" flag if the analyte was detected, but the concentration is greater than the MDL and less than the RL;
- a "B" flag if the analyte was also detected at or above the RL in the associated method blank, and the sample concentration was less than five times the method blank result;
- an "E" flag if the analyte exceeded the instrument calibration range;
- an asterisk (*) if a report-generated statement of qualification applies; qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven-digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven-digit number that associates all samples analyzed as a set under one analytical run.

Attachment 1
Project Technical Narrative(s)

No Project Narrative is associated with this report.

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B

Qualification: The analyte concentration in the associated MB was greater than the MDL but less than the RL. The positive sample result, which was less than 5 times the MB value, is considered estimated.

Analysis: USEPA-8260B
Matrix: Water

Sample/Analyte:	1602325-01	TB-11114514-020516	Methylene Chloride
	1602325-02	GW-11114514-020516-DR-001	Methylene Chloride
	1602325-03	GW-11114514-020516-DR-002	Methylene Chloride

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**TB-11114514-020516**	Sampled:	02/05/16 00:00		
Lab Sample ID:	**1602325-01**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/18/16 20:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 00:31	By:	BAG
QC Batch:	1601601	Analytical Batch:	6B19033		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5.0U	5.0	2.4
71-43-2	Benzene	1.0U	1.0	0.27
75-27-4	Bromodichloromethane	1.0U	1.0	0.26
75-25-2	Bromoform	1.0U	1.0	0.14
74-83-9	Bromomethane	1.0U	1.0	0.18
75-15-0	Carbon Disulfide	5.0U	5.0	0.14
56-23-5	Carbon Tetrachloride	1.0U	1.0	0.30
108-90-7	Chlorobenzene	1.0U	1.0	0.24
75-00-3	Chloroethane	1.0U	1.0	0.22
67-66-3	Chloroform	1.0U	1.0	0.21
74-87-3	Chloromethane	1.0U	1.0	0.18
110-82-7	Cyclohexane	5.0U	5.0	0.29
96-12-8	1,2-Dibromo-3-chloropropane	1.0U	1.0	0.22
124-48-1	Dibromochloromethane	1.0U	1.0	0.29
106-93-4	1,2-Dibromoethane	1.0U	1.0	0.14
95-50-1	1,2-Dichlorobenzene	1.0U	1.0	0.22
541-73-1	1,3-Dichlorobenzene	1.0U	1.0	0.13
106-46-7	1,4-Dichlorobenzene	1.0U	1.0	0.21
75-71-8	Dichlorodifluoromethane	1.0U	1.0	0.29
75-34-3	1,1-Dichloroethane	1.0U	1.0	0.27
107-06-2	1,2-Dichloroethane	1.0U	1.0	0.18
75-35-4	1,1-Dichloroethene	1.0U	1.0	0.24
156-59-2	cis-1,2-Dichloroethene	1.0U	1.0	0.21
156-60-5	trans-1,2-Dichloroethene	1.0U	1.0	0.16
78-87-5	1,2-Dichloropropane	1.0U	1.0	0.26
10061-01-5	cis-1,3-Dichloropropene	1.0U	1.0	0.21
10061-02-6	trans-1,3-Dichloropropene	1.0U	1.0	0.22
100-41-4	Ethylbenzene	1.0U	1.0	0.065
591-78-6	2-Hexanone	5.0U	5.0	0.55
98-82-8	Isopropylbenzene	1.0U	1.0	0.11
79-20-9	Methyl Acetate	5.0U	5.0	0.24

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**TB-11114514-020516**	Sampled:	02/05/16 00:00		
Lab Sample ID:	**1602325-01**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/18/16 20:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 00:31	By:	BAG
QC Batch:	1601601	Analytical Batch:	6B19033		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	1.0U	1.0	0.25
108-87-2	Methylcyclohexane	5.0U	5.0	0.25
*75-09-2	Methylene Chloride	**0.83J**	1.0	0.23
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.96
108-10-1	4-Methyl-2-pentanone (MIBK)	5.0U	5.0	0.35
100-42-5	Styrene	1.0U	1.0	0.23
79-34-5	1,1,2,2-Tetrachloroethane	1.0U	1.0	0.26
127-18-4	Tetrachloroethene	1.0U	1.0	0.15
108-88-3	Toluene	1.0U	1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	1.0U	1.0	0.24
71-55-6	1,1,1-Trichloroethane	1.0U	1.0	0.19
79-00-5	1,1,2-Trichloroethane	1.0U	1.0	0.27
79-01-6	Trichloroethene	1.0U	1.0	0.23
75-69-4	Trichlorofluoromethane	1.0U	1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0U	1.0	0.25
75-01-4	Vinyl Chloride	1.0U	1.0	0.21
1330-20-7	Xylene (Total)	3.0U	3.0	0.36

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*103*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*96*	*82-110*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-020516-DR-001**	Sampled:	02/05/16 12:30		
Lab Sample ID:	**1602325-02**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/18/16 20:00	By:	BAG
Dilution Factor:	200	Analyzed:	02/19/16 03:51	By:	BAG
QC Batch:	1601601	Analytical Batch:	6B19033		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1000U	1000	480
71-43-2	Benzene	200U	200	54
75-27-4	Bromodichloromethane	200U	200	52
75-25-2	Bromoform	200U	200	28
74-83-9	Bromomethane	200U	200	36
75-15-0	Carbon Disulfide	1000U	1000	28
56-23-5	Carbon Tetrachloride	200U	200	60
108-90-7	Chlorobenzene	200U	200	48
75-00-3	Chloroethane	200U	200	44
67-66-3	Chloroform	200U	200	42
74-87-3	Chloromethane	200U	200	36
110-82-7	Cyclohexane	1000U	1000	58
96-12-8	1,2-Dibromo-3-chloropropane	200U	200	44
124-48-1	Dibromochloromethane	200U	200	58
106-93-4	1,2-Dibromoethane	200U	200	28
95-50-1	1,2-Dichlorobenzene	200U	200	44
541-73-1	1,3-Dichlorobenzene	200U	200	26
106-46-7	1,4-Dichlorobenzene	200U	200	42
75-71-8	Dichlorodifluoromethane	200U	200	58
75-34-3	1,1-Dichloroethane	200U	200	54
107-06-2	1,2-Dichloroethane	200U	200	36
75-35-4	1,1-Dichloroethene	200U	200	48
156-59-2	cis-1,2-Dichloroethene	200U	200	42
156-60-5	trans-1,2-Dichloroethene	200U	200	32
78-87-5	1,2-Dichloropropane	200U	200	52
10061-01-5	cis-1,3-Dichloropropene	200U	200	42
10061-02-6	trans-1,3-Dichloropropene	200U	200	44
100-41-4	Ethylbenzene	200U	200	13
591-78-6	2-Hexanone	1000U	1000	110
98-82-8	Isopropylbenzene	200U	200	22
79-20-9	Methyl Acetate	1000U	1000	48

Continued on next page

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ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-020516-DR-001**	Sampled:	02/05/16 12:30
Lab Sample ID:	**1602325-02**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/18/16 20:00 By: BAG
Dilution Factor:	200	Analyzed:	02/19/16 03:51 By: BAG
QC Batch:	1601601	Analytical Batch:	6B19033

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	200U	200	50
108-87-2	Methylcyclohexane	1000U	1000	50
*75-09-2	Methylene Chloride	**180J**	200	46
78-93-3	2-Butanone (MEK)	1000U	1000	190
108-10-1	4-Methyl-2-pentanone (MIBK)	1000U	1000	70
100-42-5	Styrene	200U	200	46
79-34-5	1,1,2,2-Tetrachloroethane	200U	200	52
127-18-4	Tetrachloroethene	**15000**	200	30
108-88-3	Toluene	200U	200	58
120-82-1	1,2,4-Trichlorobenzene	200U	200	48
71-55-6	1,1,1-Trichloroethane	200U	200	38
79-00-5	1,1,2-Trichloroethane	200U	200	54
79-01-6	Trichloroethene	**110J**	200	46
75-69-4	Trichlorofluoromethane	200U	200	46
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	200U	200	50
75-01-4	Vinyl Chloride	200U	200	42
1330-20-7	Xylene (Total)	600U	600	72

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*94*	*85-118*
1,2-Dichloroethane-d4	*106*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*98*	*82-110*

*See Statement of Data Qualifications

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-020516-DR-002**	Sampled:	02/05/16 13:00		
Lab Sample ID:	**1602325-03**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/18/16 20:00	By:	BAG
Dilution Factor:	200	Analyzed:	02/19/16 04:17	By:	BAG
QC Batch:	1601601	Analytical Batch:	6B19033		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1000U	1000	480
71-43-2	Benzene	200U	200	54
75-27-4	Bromodichloromethane	200U	200	52
75-25-2	Bromoform	200U	200	28
74-83-9	Bromomethane	200U	200	36
75-15-0	Carbon Disulfide	1000U	1000	28
56-23-5	Carbon Tetrachloride	200U	200	60
108-90-7	Chlorobenzene	200U	200	48
75-00-3	Chloroethane	200U	200	44
67-66-3	Chloroform	200U	200	42
74-87-3	Chloromethane	200U	200	36
110-82-7	Cyclohexane	1000U	1000	58
96-12-8	1,2-Dibromo-3-chloropropane	200U	200	44
124-48-1	Dibromochloromethane	200U	200	58
106-93-4	1,2-Dibromoethane	200U	200	28
95-50-1	1,2-Dichlorobenzene	200U	200	44
541-73-1	1,3-Dichlorobenzene	200U	200	26
106-46-7	1,4-Dichlorobenzene	200U	200	42
75-71-8	Dichlorodifluoromethane	200U	200	58
75-34-3	1,1-Dichloroethane	200U	200	54
107-06-2	1,2-Dichloroethane	200U	200	36
75-35-4	1,1-Dichloroethene	200U	200	48
156-59-2	cis-1,2-Dichloroethene	200U	200	42
156-60-5	trans-1,2-Dichloroethene	200U	200	32
78-87-5	1,2-Dichloropropane	200U	200	52
10061-01-5	cis-1,3-Dichloropropene	200U	200	42
10061-02-6	trans-1,3-Dichloropropene	200U	200	44
100-41-4	Ethylbenzene	200U	200	13
591-78-6	2-Hexanone	1000U	1000	110
98-82-8	Isopropylbenzene	200U	200	22
79-20-9	Methyl Acetate	1000U	1000	48

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-020516-DR-002**	Sampled:	02/05/16 13:00		
Lab Sample ID:	**1602325-03**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/18/16 20:00	By:	BAG
Dilution Factor:	200	Analyzed:	02/19/16 04:17	By:	BAG
QC Batch:	1601601	Analytical Batch:	6B19033		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	200U	200	50
108-87-2	Methylcyclohexane	1000U	1000	50
*75-09-2	Methylene Chloride	**170J**	200	46
78-93-3	2-Butanone (MEK)	1000U	1000	190
108-10-1	4-Methyl-2-pentanone (MIBK)	1000U	1000	70
100-42-5	Styrene	200U	200	46
79-34-5	1,1,2,2-Tetrachloroethane	200U	200	52
127-18-4	Tetrachloroethene	**17000**	200	30
108-88-3	Toluene	200U	200	58
120-82-1	1,2,4-Trichlorobenzene	200U	200	48
71-55-6	1,1,1-Trichloroethane	200U	200	38
79-00-5	1,1,2-Trichloroethane	200U	200	54
79-01-6	Trichloroethene	**54J**	200	46
75-69-4	Trichlorofluoromethane	200U	200	46
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	200U	200	50
75-01-4	Vinyl Chloride	200U	200	42
1330-20-7	Xylene (Total)	600U	600	72

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*102*	*87-122*
Toluene-d8	*99*	*85-113*
4-Bromofluorobenzene	*97*	*82-110*

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-020516-DR-003**	Sampled:	02/05/16 13:30
Lab Sample ID:	**1602325-04**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/18/16 20:00 By: BAG
Dilution Factor:	1	Analyzed:	02/19/16 04:42 By: BAG
QC Batch:	1601601	Analytical Batch:	6B19033

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5.0U	5.0	2.4
71-43-2	Benzene	1.0U	1.0	0.27
75-27-4	Bromodichloromethane	1.0U	1.0	0.26
75-25-2	Bromoform	1.0U	1.0	0.14
74-83-9	Bromomethane	1.0U	1.0	0.18
75-15-0	Carbon Disulfide	5.0U	5.0	0.14
56-23-5	Carbon Tetrachloride	1.0U	1.0	0.30
108-90-7	Chlorobenzene	1.0U	1.0	0.24
75-00-3	Chloroethane	1.0U	1.0	0.22
67-66-3	Chloroform	1.0U	1.0	0.21
74-87-3	Chloromethane	1.0U	1.0	0.18
110-82-7	Cyclohexane	5.0U	5.0	0.29
96-12-8	1,2-Dibromo-3-chloropropane	1.0U	1.0	0.22
124-48-1	Dibromochloromethane	1.0U	1.0	0.29
106-93-4	1,2-Dibromoethane	1.0U	1.0	0.14
95-50-1	1,2-Dichlorobenzene	1.0U	1.0	0.22
541-73-1	1,3-Dichlorobenzene	1.0U	1.0	0.13
106-46-7	1,4-Dichlorobenzene	1.0U	1.0	0.21
75-71-8	Dichlorodifluoromethane	1.0U	1.0	0.29
75-34-3	1,1-Dichloroethane	1.0U	1.0	0.27
107-06-2	1,2-Dichloroethane	1.0U	1.0	0.18
75-35-4	1,1-Dichloroethene	1.0U	1.0	0.24
156-59-2	cis-1,2-Dichloroethene	**9.8**	1.0	0.21
156-60-5	trans-1,2-Dichloroethene	**0.85J**	1.0	0.16
78-87-5	1,2-Dichloropropane	1.0U	1.0	0.26
10061-01-5	cis-1,3-Dichloropropene	1.0U	1.0	0.21
10061-02-6	trans-1,3-Dichloropropene	1.0U	1.0	0.22
100-41-4	Ethylbenzene	**0.080J**	1.0	0.065
591-78-6	2-Hexanone	5.0U	5.0	0.55
98-82-8	Isopropylbenzene	1.0U	1.0	0.11
79-20-9	Methyl Acetate	5.0U	5.0	0.24

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602325**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-020516-DR-003**	Sampled:	02/05/16 13:30		
Lab Sample ID:	**1602325-04**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/18/16 20:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 04:42	By:	BAG
QC Batch:	1601601	Analytical Batch:	6B19033		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	**15**	1.0	0.25
108-87-2	Methylcyclohexane	5.0U	5.0	0.25
75-09-2	Methylene Chloride	1.0U	1.0	0.23
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.96
108-10-1	4-Methyl-2-pentanone (MIBK)	5.0U	5.0	0.35
100-42-5	Styrene	1.0U	1.0	0.23
79-34-5	1,1,2,2-Tetrachloroethane	1.0U	1.0	0.26
127-18-4	Tetrachloroethene	**11**	1.0	0.15
108-88-3	Toluene	**0.34J**	1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	1.0U	1.0	0.24
71-55-6	1,1,1-Trichloroethane	1.0U	1.0	0.19
79-00-5	1,1,2-Trichloroethane	1.0U	1.0	0.27
79-01-6	Trichloroethene	1.0U	1.0	0.23
75-69-4	Trichlorofluoromethane	1.0U	1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0U	1.0	0.25
75-01-4	Vinyl Chloride	1.0U	1.0	0.21
1330-20-7	Xylene (Total)	3.0U	3.0	0.36

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*96*	*85-118*
1,2-Dichloroethane-d4	*102*	*87-122*
Toluene-d8	*97*	*85-113*
4-Bromofluorobenzene	*96*	*82-110*

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B

QC Batch: 1601601 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank Analyzed: 02/18/2016 By: BAG
Unit: ug/L Analytical Batch: 6B19033

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone			5.0 U					5.0	2.4
Benzene			1.0 U					1.0	0.27
Bromodichloromethane			1.0 U					1.0	0.26
Bromoform			1.0 U					1.0	0.14
Bromomethane			1.0 U					1.0	0.18
Carbon Disulfide			**0.15 J**			--		5.0	0.14
Carbon Tetrachloride			1.0 U					1.0	0.30
Chlorobenzene			1.0 U					1.0	0.24
Chloroethane			1.0 U					1.0	0.22
Chloroform			1.0 U					1.0	0.21
Chloromethane			1.0 U					1.0	0.18
Cyclohexane			5.0 U					5.0	0.29
1,2-Dibromo-3-chloropropane			1.0 U					1.0	0.22
Dibromochloromethane			1.0 U					1.0	0.29
1,2-Dibromoethane			1.0 U					1.0	0.14
1,2-Dichlorobenzene			1.0 U					1.0	0.22
1,3-Dichlorobenzene			1.0 U					1.0	0.13
1,4-Dichlorobenzene			1.0 U			--		1.0	0.21
Dichlorodifluoromethane			1.0 U					1.0	0.29
1,1-Dichloroethane			1.0 U					1.0	0.27
1,2-Dichloroethane			1.0 U					1.0	0.18
1,1-Dichloroethene			1.0 U					1.0	0.24
cis-1,2-Dichloroethene			1.0 U					1.0	0.21
trans-1,2-Dichloroethene			1.0 U					1.0	0.16
1,2-Dichloropropane			1.0 U					1.0	0.26
cis-1,3-Dichloropropene			1.0 U					1.0	0.21
trans-1,3-Dichloropropene			1.0 U					1.0	0.22
Ethylbenzene			1.0 U					1.0	0.065
2-Hexanone			5.0 U					5.0	0.55
Isopropylbenzene			1.0 U					1.0	0.11
Methyl Acetate			5.0 U					5.0	0.24
Methyl tert-Butyl Ether			1.0 U					1.0	0.25
Methylcyclohexane			5.0 U					5.0	0.25
Methylene Chloride			**0.65 J**			--		1.0	0.23
2-Butanone (MEK)			5.0 U					5.0	0.96
4-Methyl-2-pentanone (MIBK)			5.0 U					5.0	0.35

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601601 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank (Continued)

Unit: ug/L

Analyzed: 02/18/2016 By: BAG
Analytical Batch: 6B19033

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Styrene			1.0 U					1.0	0.23
1,1,2,2-Tetrachloroethane			1.0 U					1.0	0.26
Tetrachloroethene			1.0 U					1.0	0.15
Toluene			1.0 U			--		1.0	0.29
1,2,4-Trichlorobenzene			1.0 U			--		1.0	0.24
1,1,1-Trichloroethane			1.0 U					1.0	0.19
1,1,2-Trichloroethane			1.0 U					1.0	0.27
Trichloroethene			1.0 U					1.0	0.23
Trichlorofluoromethane			1.0 U					1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane			1.0 U					1.0	0.25
Vinyl Chloride			1.0 U					1.0	0.21
Xylene (Total)			3.0 U					3.0	0.36
Surrogates:									
Dibromofluoromethane				*94*	*85-118*				
1,2-Dichloroethane-d4				*101*	*87-122*				
Toluene-d8				*99*	*85-113*				
4-Bromofluorobenzene				*97*	*82-110*				

Laboratory Control Sample

Unit: ug/L

Analyzed: 02/18/2016 By: BAG
Analytical Batch: 6B19033

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone		40.0	**38.4**	96	53-138	--		5.0	2.4
Benzene		40.0	**40.0**	100	84-119	--		1.0	0.27
Bromodichloromethane		40.0	**42.2**	106	82-124	--		1.0	0.26
Bromoform		40.0	**40.6**	101	65-123	--		1.0	0.14
Bromomethane		40.0	**37.3**	93	55-142	--		1.0	0.18
Carbon Disulfide		40.0	**41.4**	103	70-131	--		5.0	0.14
Carbon Tetrachloride		40.0	**42.6**	106	79-127	--		1.0	0.30
Chlorobenzene		40.0	**40.1**	100	84-118	--		1.0	0.24
Chloroethane		40.0	**38.6**	96	76-124	--		1.0	0.22
Chloroform		40.0	**41.0**	102	82-119	--		1.0	0.21
Chloromethane		40.0	**43.2**	108	73-125	--		1.0	0.18
Cyclohexane		40.0	**39.5**	99	77-130	--		5.0	0.29
1,2-Dibromo-3-chloropropane		40.0	**37.9**	95	58-130	--		1.0	0.22

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601601 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued) Analyzed: 02/18/2016 By: BAG
Unit: ug/L Analytical Batch: 6B19033

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Dibromochloromethane		40.0	**38.7**	97	74-121	--		1.0	0.29
1,2-Dibromoethane		40.0	**42.4**	106	84-125	--		1.0	0.14
1,2-Dichlorobenzene		40.0	**39.2**	98	81-124	--		1.0	0.22
1,3-Dichlorobenzene		40.0	**39.0**	97	81-124	--		1.0	0.13
1,4-Dichlorobenzene		40.0	**38.9**	97	79-122	--		1.0	0.21
Dichlorodifluoromethane		40.0	**34.9**	87	68-130	--		1.0	0.29
1,1-Dichloroethane		40.0	**39.9**	100	80-118	--		1.0	0.27
1,2-Dichloroethane		40.0	**41.3**	103	81-122	--		1.0	0.18
1,1-Dichloroethene		40.0	**39.7**	99	77-123	--		1.0	0.24
cis-1,2-Dichloroethene		40.0	**39.7**	99	84-119	--		1.0	0.21
trans-1,2-Dichloroethene		40.0	**40.1**	100	76-126	--		1.0	0.16
1,2-Dichloropropane		40.0	**40.1**	100	82-122	--		1.0	0.26
cis-1,3-Dichloropropene		40.0	**41.6**	104	77-120	--		1.0	0.21
trans-1,3-Dichloropropene		40.0	**36.9**	92	73-116	--		1.0	0.22
Ethylbenzene		40.0	**40.6**	102	87-119	--		1.0	0.065
2-Hexanone		40.0	**45.1**	113	55-141	--		5.0	0.55
Isopropylbenzene		40.0	**39.7**	99	76-126	--		1.0	0.11
Methyl Acetate		40.0	**40.0**	100	67-129	--		5.0	0.24
Methyl tert-Butyl Ether		40.0	**40.0**	100	72-128	--		1.0	0.25
Methylcyclohexane		40.0	**39.8**	100	78-126	--		5.0	0.25
Methylene Chloride		40.0	**41.6**	104	75-129	--		1.0	0.23
2-Butanone (MEK)		40.0	**42.8**	107	52-142	--		5.0	0.96
4-Methyl-2-pentanone (MIBK)		40.0	**43.1**	108	60-142	--		5.0	0.35
Styrene		40.0	**41.8**	104	84-120	--		1.0	0.23
1,1,2,2-Tetrachloroethane		40.0	**42.5**	106	70-137	--		1.0	0.26
Tetrachloroethene		40.0	**39.4**	99	81-117	--		1.0	0.15
Toluene		40.0	**40.0**	100	85-118	--		1.0	0.29
1,2,4-Trichlorobenzene		40.0	**40.3**	101	75-125	--		1.0	0.24
1,1,1-Trichloroethane		40.0	**41.3**	103	81-122	--		1.0	0.19
1,1,2-Trichloroethane		40.0	**41.6**	104	83-121	--		1.0	0.27
Trichloroethene		40.0	**39.5**	99	82-119	--		1.0	0.23
Trichlorofluoromethane		40.0	**39.4**	99	76-128	--		1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane		40.0	**40.1**	100	76-126	--		1.0	0.25
Vinyl Chloride		40.0	**39.3**	98	77-123	--		1.0	0.21
Xylene (Total)		120	**121**	101	86-119	--		3.0	0.36

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

QC Batch: 1601601 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued) Analyzed: 02/18/2016 By: BAG
Unit: ug/L Analytical Batch: 6B19033

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Surrogates:									
Dibromofluoromethane				*103*	*85-118*				
1,2-Dichloroethane-d4				*100*	*87-122*				
Toluene-d8				*100*	*85-113*				
4-Bromofluorobenzene				*102*	*82-110*				

TRIMATRIX LABORATORIES

PRETREATMENT SUMMARY PAGE

Client:
Project:

Pretreatment	Lab Sample ID	Batch	By	Date & Time Prepared

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

1.6/1.1

Chain of Custody Record

Rack #66 White

104912

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

29-5
550W

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	
Company Name:	GHD
Address:	14496 Sheldon Rd Suite 200
City/State/Zip:	Plymouth, MI 48170
Phone:	(734) 453-5123
Fax:	
Project Name:	LOWERTOWN PROJECT
Site:	Ann Arbor, MI
P O #	WO# 1602325

Project Manager: T. Kinney
Tel/Fax:
Site Contact: R. Fleisher
Lab Contact: D. Heckle
Date: 2-5-16
Carrier: FED EX
COC No: 11114514-001
1 of 1 COCs
Sampler: D. Rivers
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TCL VOCs	Scheduled	Sample Specific Notes
01	TB-1114514-020516	2/5/16	—	—	WQ	1			X	03	
02	GW-1114514-020516-DR-001	↓	1230	G	WG	3			X	01	
03	↓ -002	↓	1300	↓	↓	3			X	↓	
04	↓ -003	↓	1330	↓	↓	3			X	↓	

DR

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____ 1/2

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ Therm ID No.: ____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
David Rivers	GHD	2/5/16 1900	[signature]	TA	2-6-16 930
Rick R.	TestAm - 2-16-16	1650	Lyn Romeyn	Trimatrix	2/17/16 0820
			Received in Laboratory by:		

SAMPLE RECEIVING / LOG-IN CHECKLIST

TRIMATRIX LABORATORIES

Client: Test America MI GHD

Receipt Record Page/Line #: 29-5

New / Add To

Work Order #: 1602325

Project Chemist:

Sample #s: 01-04

Recorded by (initials/date): [initials] 2/17/14

☒ Cooler ☐ Box ☐ Other

Qty Received: 1

Thermometer Used: ☒ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#______)

☐ See Additional Cooler Information Form

Cooler # TA-D 024L, Time 0942	Cooler #, Time	Cooler #, Time	Cooler #, Time
Custody Seals: ☒ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact
Coolant Type: ☒ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None
Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom
Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No
If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative

Cooler 1:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank			
Sample 1	2.6	–	2.6
Sample 2	3.4	–	3.4
Sample 3	3.6	-	3.6

3 Sample Average °C: 3.3

☐ Cooler ID on COC? ☒ VOC Trip Blank received?

Coolers 2–4 (each):

	Observed °C	Correction Factor °C	Actual °C
Temp Blank			
Sample 1			
Sample 2			
Sample 3			

3 Sample Average °C:

☐ Cooler ID on COC? ☐ VOC Trip Blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received

Yes	No	
☒	☐	Chain of Custody record(s)? If No, Initiated By ______
☒		Received for Lab Signed/Date/Time?
☒	☐	Shipping document?
☐	☒	Other ______

COC Information

☐ TriMatrix COC ☒ Other ______

COC ID Numbers:

Check Sample Preservation

N/A	Yes	No	
	☐	☒	Temperature Blank OR average sample temperature, ≥6° C?
☒	☐	☐	If either is ≥6° C, was thermal preservation required?
☒	☐		If "Yes", Project Chemist Approval Initials: ______
☒	☐		If "Yes" Completed Non Con Cooler - Cont Inventory Form?
☒	☐		Completed Sample Preservation Verification Form?
☒	☐	☐	Samples chemically preserved correctly?
☒	☐		If "No", added orange tag?
	☐	☒	Received pre-preserved VOC soils? ☐ MeOH ☐ Na_2SO_4

Check COC for Accuracy

Yes	No	
☒	☐	Analysis Requested?
☒	☐	Sample ID matches COC?
☒	☐	Sample Date and Time matches COC?
☒		Container type completed on COC?
☒	☐	All container types indicated are received?

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☐ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged containers
☐ Yellow/White-tagged 1 L ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☒ RECEIVED, COCs TO LAB(S)

Sample Condition Summary

N/A	Yes	No	
	☐	☒	Broken containers/lids?
	☐	☒	Missing or incomplete labels?
	☐	☒	Illegible information on labels?
	☐	☒	Low volume received?
	☐	☒	Inappropriate or non-TriMatrix containers received?
☐	☐	☒	VOC vials / TOX containers have headspace?
☐	☐	☒	Extra sample locations / containers not listed on COC?

Notes

☐ Trip Blank received ☐ Trip Blank not listed on COC

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
2/17/14 0820	2/17/14 1005	Yes / No (No circled)

ANALYTICAL SERVICES REPORT

Prepared for:

Rawa Fleisher
GHD - Plymouth, Michigan
14496 Sheldon Road, Suite #200
Plymouth, MI 48170

Project:

Lower Town - SSOW 11114514-002

Work Order:

1602326

Prepared by:

TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE
Grand Rapids, MI 49512-5503

Report Date:

February 25, 2016

	2/25/2016
Gary L. Wood, Project Chemist woodgl@trimatrixlabs.com	Approval Date

CASE NARRATIVE

GHD - Plymouth, Michigan
Lower Town - SSOW 11114514-002

SDG Executive Summary

This case narrative applies to samples received on February 17, 2016. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between GHD - Plymouth, Michigan and TriMatrix Laboratories, Inc..

Project Technical Issues/Problems

Project-related data qualification designations, narrations, and reporting conventions are included in Attachment 1 - *Project Technical Narrative(s)*.

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG/workorder(s) are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

This report relates only to the samples(s) as received. Estimates of analytical uncertainties for the test results contained within this report are available upon request. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC) and one or more of the following certification programs:

ANAB DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003329); Kentucky DEP (AL123065/#0021); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/53116); North Carolina DNRE (#659); Virginia DCLS (#460153/7952); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-14-00305).

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this report are intended to comply with the documents referenced in the introductory section of this narrative. If requested, the EDD will be issued separately from this hardcopy report.

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Sample Receipt and Login -- Work Order: 1602326

TriMatrix Laboratories received the cooler(s) for this work order on February 17, 2016, at 08:20. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix Sample Receiving / Log-In Checklist. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding field COC form, the TriMatrix bidform and/or oral and written correspondance between the client and TriMatrix Laboratories, Inc.. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date & Time Sampled
TB-11114514-021116	1602326-01	Water	02/11/16, 00:00
GW-11114514-021116-DR-004	1602326-02	Water	02/11/16, 08:45
GW-11114514-021116-DR-005	1602326-03	Water	02/11/16, 08:50
GW-11114514-021116-DR-006	1602326-04	Water	02/11/16, 09:20
GW-11114514-021116-DR-007	1602326-05	Water	02/11/16, 09:45
GW-11114514-021116-DR-008	1602326-06	Water	02/11/16, 10:15
GW-11114514-021116-DR-009	1602326-07	Water	02/11/16, 10:45
GW-11114514-021116-DR-010	1602326-08	Water	02/11/16, 11:15

Attachment 1
Project Technical Narrative(s)

Sample Result Reporting Convention

Sample results are reported as RL "U" (e.g. 0.001 U) if the target analyte was not detected above the MDL.

If a sample for an organic analyte is reanalyzed and also reported, the second analysis includes the suffix "RE*n*" where *n* = the first, second, etc. reanalysis.

Percent Solids and Metals Data Reporting

Unless otherwise noted, all soil samples requiring metals analysis are dried at 50° to 60° C to a constant weight prior to acid digestion. In order to report results on a dry weight basis, correction for percent solids is not applicable.

Data Qualifier Designation

If applicable, sample results are qualified with:

- a "J" flag if the analyte was detected, but the concentration is greater than the MDL and less than the RL;
- a "B" flag if the analyte was also detected at or above the RL in the associated method blank, and the sample concentration was less than five times the method blank result;
- an "E" flag if the analyte exceeded the instrument calibration range;
- an asterisk (*) if a report-generated statement of qualification applies; qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven-digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven-digit number that associates all samples analyzed as a set under one analytical run.

Attachment 1
Project Technical Narrative(s)

No Project Narrative is associated with this report.

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TRIMATRIX LABORATORIES

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B

Qualification: The analyte concentration in the associated MB was greater than the MDL but less than the RL. The positive sample result, which was less than 5 times the MB value, is considered estimated.

Analysis: USEPA-8260B
Matrix: Water

Sample/Analyte:	1602326-04	GW-11114514-021116-DR-006	Acetone

Qualification: The MS and/or MSD recovery was outside the laboratory or method control limit.

Analysis: USEPA-8260B
Matrix: Water

Sample/Analyte:	1602326-08	GW-11114514-021116-DR-010	Tetrachloroethene

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**TB-11114514-021116**	Sampled:	02/11/16 00:00		
Lab Sample ID:	**1602326-01**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 18:54	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5.0U	5.0	2.4
71-43-2	Benzene	1.0U	1.0	0.27
75-27-4	Bromodichloromethane	1.0U	1.0	0.26
75-25-2	Bromoform	1.0U	1.0	0.14
74-83-9	Bromomethane	1.0U	1.0	0.18
75-15-0	Carbon Disulfide	5.0U	5.0	0.14
56-23-5	Carbon Tetrachloride	1.0U	1.0	0.30
108-90-7	Chlorobenzene	1.0U	1.0	0.24
75-00-3	Chloroethane	1.0U	1.0	0.22
67-66-3	Chloroform	1.0U	1.0	0.21
74-87-3	Chloromethane	1.0U	1.0	0.18
110-82-7	Cyclohexane	5.0U	5.0	0.29
96-12-8	1,2-Dibromo-3-chloropropane	1.0U	1.0	0.22
124-48-1	Dibromochloromethane	1.0U	1.0	0.29
106-93-4	1,2-Dibromoethane	1.0U	1.0	0.14
95-50-1	1,2-Dichlorobenzene	1.0U	1.0	0.22
541-73-1	1,3-Dichlorobenzene	1.0U	1.0	0.13
106-46-7	1,4-Dichlorobenzene	1.0U	1.0	0.21
75-71-8	Dichlorodifluoromethane	1.0U	1.0	0.29
75-34-3	1,1-Dichloroethane	1.0U	1.0	0.27
107-06-2	1,2-Dichloroethane	1.0U	1.0	0.18
75-35-4	1,1-Dichloroethene	1.0U	1.0	0.24
156-59-2	cis-1,2-Dichloroethene	1.0U	1.0	0.21
156-60-5	trans-1,2-Dichloroethene	1.0U	1.0	0.16
78-87-5	1,2-Dichloropropane	1.0U	1.0	0.26
10061-01-5	cis-1,3-Dichloropropene	1.0U	1.0	0.21
10061-02-6	trans-1,3-Dichloropropene	1.0U	1.0	0.22
100-41-4	Ethylbenzene	1.0U	1.0	0.065
591-78-6	2-Hexanone	5.0U	5.0	0.55
98-82-8	Isopropylbenzene	1.0U	1.0	0.11
79-20-9	Methyl Acetate	5.0U	5.0	0.24

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**TB-11114514-021116**	Sampled:	02/11/16 00:00		
Lab Sample ID:	**1602326-01**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 18:54	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	1.0U	1.0	0.25
108-87-2	Methylcyclohexane	5.0U	5.0	0.25
75-09-2	Methylene Chloride	**1.4**	1.0	0.23
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.96
108-10-1	4-Methyl-2-pentanone (MIBK)	5.0U	5.0	0.35
100-42-5	Styrene	1.0U	1.0	0.23
79-34-5	1,1,2,2-Tetrachloroethane	1.0U	1.0	0.26
127-18-4	Tetrachloroethene	1.0U	1.0	0.15
108-88-3	Toluene	1.0U	1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	1.0U	1.0	0.24
71-55-6	1,1,1-Trichloroethane	1.0U	1.0	0.19
79-00-5	1,1,2-Trichloroethane	1.0U	1.0	0.27
79-01-6	Trichloroethene	1.0U	1.0	0.23
75-69-4	Trichlorofluoromethane	1.0U	1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0U	1.0	0.25
75-01-4	Vinyl Chloride	1.0U	1.0	0.21
1330-20-7	Xylene (Total)	3.0U	3.0	0.36

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*104*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*96*	*82-110*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-004**	Sampled:	02/11/16 08:45		
Lab Sample ID:	**1602326-02**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1000	Analyzed:	02/19/16 20:33	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5000U	5000	2400
71-43-2	Benzene	1000U	1000	270
75-27-4	Bromodichloromethane	1000U	1000	260
75-25-2	Bromoform	1000U	1000	140
74-83-9	Bromomethane	1000U	1000	180
75-15-0	Carbon Disulfide	5000U	5000	140
56-23-5	Carbon Tetrachloride	1000U	1000	300
108-90-7	Chlorobenzene	1000U	1000	240
75-00-3	Chloroethane	1000U	1000	220
67-66-3	Chloroform	1000U	1000	210
74-87-3	Chloromethane	1000U	1000	180
110-82-7	Cyclohexane	5000U	5000	290
96-12-8	1,2-Dibromo-3-chloropropane	1000U	1000	220
124-48-1	Dibromochloromethane	1000U	1000	290
106-93-4	1,2-Dibromoethane	1000U	1000	140
95-50-1	1,2-Dichlorobenzene	1000U	1000	220
541-73-1	1,3-Dichlorobenzene	1000U	1000	130
106-46-7	1,4-Dichlorobenzene	1000U	1000	210
75-71-8	Dichlorodifluoromethane	1000U	1000	290
75-34-3	1,1-Dichloroethane	1000U	1000	270
107-06-2	1,2-Dichloroethane	1000U	1000	180
75-35-4	1,1-Dichloroethene	1000U	1000	240
156-59-2	cis-1,2-Dichloroethene	1000U	1000	210
156-60-5	trans-1,2-Dichloroethene	1000U	1000	160
78-87-5	1,2-Dichloropropane	1000U	1000	260
10061-01-5	cis-1,3-Dichloropropene	1000U	1000	210
10061-02-6	trans-1,3-Dichloropropene	1000U	1000	220
100-41-4	Ethylbenzene	1000U	1000	65
591-78-6	2-Hexanone	5000U	5000	550
98-82-8	Isopropylbenzene	1000U	1000	110
79-20-9	Methyl Acetate	5000U	5000	240

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-004**	Sampled:	02/11/16 08:45		
Lab Sample ID:	**1602326-02**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1000	Analyzed:	02/19/16 20:33	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	1000U	1000	250
108-87-2	Methylcyclohexane	5000U	5000	250
75-09-2	Methylene Chloride	**410J**	1000	230
78-93-3	2-Butanone (MEK)	5000U	5000	960
108-10-1	4-Methyl-2-pentanone (MIBK)	5000U	5000	350
100-42-5	Styrene	1000U	1000	230
79-34-5	1,1,2,2-Tetrachloroethane	1000U	1000	260
127-18-4	Tetrachloroethene	**70000**	1000	150
108-88-3	Toluene	1000U	1000	290
120-82-1	1,2,4-Trichlorobenzene	1000U	1000	240
71-55-6	1,1,1-Trichloroethane	1000U	1000	190
79-00-5	1,1,2-Trichloroethane	1000U	1000	270
79-01-6	Trichloroethene	1000U	1000	230
75-69-4	Trichlorofluoromethane	1000U	1000	230
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000U	1000	250
75-01-4	Vinyl Chloride	1000U	1000	210
1330-20-7	Xylene (Total)	3000U	3000	360

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*102*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*96*	*82-110*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-005**	Sampled:	02/11/16 08:50		
Lab Sample ID:	**1602326-03**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1000	Analyzed:	02/19/16 20:59	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5000U	5000	2400
71-43-2	Benzene	1000U	1000	270
75-27-4	Bromodichloromethane	1000U	1000	260
75-25-2	Bromoform	1000U	1000	140
74-83-9	Bromomethane	1000U	1000	180
75-15-0	Carbon Disulfide	5000U	5000	140
56-23-5	Carbon Tetrachloride	1000U	1000	300
108-90-7	Chlorobenzene	1000U	1000	240
75-00-3	Chloroethane	1000U	1000	220
67-66-3	Chloroform	1000U	1000	210
74-87-3	Chloromethane	**190J**	1000	180
110-82-7	Cyclohexane	5000U	5000	290
96-12-8	1,2-Dibromo-3-chloropropane	1000U	1000	220
124-48-1	Dibromochloromethane	1000U	1000	290
106-93-4	1,2-Dibromoethane	1000U	1000	140
95-50-1	1,2-Dichlorobenzene	1000U	1000	220
541-73-1	1,3-Dichlorobenzene	1000U	1000	130
106-46-7	1,4-Dichlorobenzene	1000U	1000	210
75-71-8	Dichlorodifluoromethane	1000U	1000	290
75-34-3	1,1-Dichloroethane	1000U	1000	270
107-06-2	1,2-Dichloroethane	1000U	1000	180
75-35-4	1,1-Dichloroethene	1000U	1000	240
156-59-2	cis-1,2-Dichloroethene	1000U	1000	210
156-60-5	trans-1,2-Dichloroethene	1000U	1000	160
78-87-5	1,2-Dichloropropane	1000U	1000	260
10061-01-5	cis-1,3-Dichloropropene	1000U	1000	210
10061-02-6	trans-1,3-Dichloropropene	1000U	1000	220
100-41-4	Ethylbenzene	1000U	1000	65
591-78-6	2-Hexanone	5000U	5000	550
98-82-8	Isopropylbenzene	1000U	1000	110
79-20-9	Methyl Acetate	5000U	5000	240

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-005**	Sampled:	02/11/16 08:50		
Lab Sample ID:	**1602326-03**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1000	Analyzed:	02/19/16 20:59	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	1000U	1000	250
108-87-2	Methylcyclohexane	5000U	5000	250
75-09-2	Methylene Chloride	**340J**	1000	230
78-93-3	2-Butanone (MEK)	5000U	5000	960
108-10-1	4-Methyl-2-pentanone (MIBK)	5000U	5000	350
100-42-5	Styrene	1000U	1000	230
79-34-5	1,1,2,2-Tetrachloroethane	1000U	1000	260
127-18-4	Tetrachloroethene	**69000**	1000	150
108-88-3	Toluene	1000U	1000	290
120-82-1	1,2,4-Trichlorobenzene	1000U	1000	240
71-55-6	1,1,1-Trichloroethane	1000U	1000	190
79-00-5	1,1,2-Trichloroethane	1000U	1000	270
79-01-6	Trichloroethene	1000U	1000	230
75-69-4	Trichlorofluoromethane	1000U	1000	230
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000U	1000	250
75-01-4	Vinyl Chloride	1000U	1000	210
1330-20-7	Xylene (Total)	3000U	3000	360

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*94*	*85-118*
1,2-Dichloroethane-d4	*101*	*87-122*
Toluene-d8	*99*	*85-113*
4-Bromofluorobenzene	*97*	*82-110*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-021116-DR-006**	Sampled:	02/11/16 09:20
Lab Sample ID:	**1602326-04**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	50	Analyzed:	02/23/16 10:59 By: BAG
QC Batch:	1601707	Analytical Batch:	6B23020

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
*67-64-1	Acetone	**160J**	250	120
71-43-2	Benzene	50U	50	14
75-27-4	Bromodichloromethane	50U	50	13
75-25-2	Bromoform	50U	50	7.0
74-83-9	Bromomethane	50U	50	9.0
75-15-0	Carbon Disulfide	250U	250	7.0
56-23-5	Carbon Tetrachloride	50U	50	15
108-90-7	Chlorobenzene	50U	50	12
75-00-3	Chloroethane	50U	50	11
67-66-3	Chloroform	50U	50	10
74-87-3	Chloromethane	50U	50	9.0
110-82-7	Cyclohexane	250U	250	14
96-12-8	1,2-Dibromo-3-chloropropane	50U	50	11
124-48-1	Dibromochloromethane	50U	50	14
106-93-4	1,2-Dibromoethane	50U	50	7.0
95-50-1	1,2-Dichlorobenzene	50U	50	11
541-73-1	1,3-Dichlorobenzene	50U	50	6.5
106-46-7	1,4-Dichlorobenzene	50U	50	10
75-71-8	Dichlorodifluoromethane	50U	50	14
75-34-3	1,1-Dichloroethane	50U	50	14
107-06-2	1,2-Dichloroethane	50U	50	9.0
75-35-4	1,1-Dichloroethene	50U	50	12
156-59-2	cis-1,2-Dichloroethene	**1500**	50	10
156-60-5	trans-1,2-Dichloroethene	**12J**	50	8.0
78-87-5	1,2-Dichloropropane	50U	50	13
10061-01-5	cis-1,3-Dichloropropene	50U	50	10
10061-02-6	trans-1,3-Dichloropropene	50U	50	11
100-41-4	Ethylbenzene	50U	50	3.2
591-78-6	2-Hexanone	250U	250	28
98-82-8	Isopropylbenzene	50U	50	5.5
79-20-9	Methyl Acetate	250U	250	12

Continued on next page

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-021116-DR-006**	Sampled:	02/11/16 09:20
Lab Sample ID:	**1602326-04**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	50	Analyzed:	02/23/16 10:59 By: BAG
QC Batch:	1601707	Analytical Batch:	6B23020

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	50U	50	12
108-87-2	Methylcyclohexane	250U	250	12
75-09-2	Methylene Chloride	**26J**	50	12
78-93-3	2-Butanone (MEK)	250U	250	48
108-10-1	4-Methyl-2-pentanone (MIBK)	250U	250	18
100-42-5	Styrene	50U	50	12
79-34-5	1,1,2,2-Tetrachloroethane	50U	50	13
127-18-4	Tetrachloroethene	**7100**	50	7.5
108-88-3	Toluene	**160**	50	14
120-82-1	1,2,4-Trichlorobenzene	50U	50	12
71-55-6	1,1,1-Trichloroethane	50U	50	9.5
79-00-5	1,1,2-Trichloroethane	50U	50	14
79-01-6	Trichloroethene	**1400**	50	12
75-69-4	Trichlorofluoromethane	50U	50	12
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	50U	50	12
75-01-4	Vinyl Chloride	50U	50	10
1330-20-7	Xylene (Total)	150U	150	18

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*97*	*85-118*
1,2-Dichloroethane-d4	*106*	*87-122*
Toluene-d8	*97*	*85-113*
4-Bromofluorobenzene	*97*	*82-110*

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-021116-DR-007**	Sampled:	02/11/16 09:45
Lab Sample ID:	**1602326-05**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/19/16 14:00 By: BAG
Dilution Factor:	1	Analyzed:	02/19/16 20:09 By: BAG
QC Batch:	1601656	Analytical Batch:	6B22015

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5.0U	5.0	2.4
71-43-2	Benzene	1.0U	1.0	0.27
75-27-4	Bromodichloromethane	1.0U	1.0	0.26
75-25-2	Bromoform	1.0U	1.0	0.14
74-83-9	Bromomethane	1.0U	1.0	0.18
75-15-0	Carbon Disulfide	5.0U	5.0	0.14
56-23-5	Carbon Tetrachloride	1.0U	1.0	0.30
108-90-7	Chlorobenzene	1.0U	1.0	0.24
75-00-3	Chloroethane	1.0U	1.0	0.22
67-66-3	Chloroform	1.0U	1.0	0.21
74-87-3	Chloromethane	1.0U	1.0	0.18
110-82-7	Cyclohexane	5.0U	5.0	0.29
96-12-8	1,2-Dibromo-3-chloropropane	1.0U	1.0	0.22
124-48-1	Dibromochloromethane	1.0U	1.0	0.29
106-93-4	1,2-Dibromoethane	1.0U	1.0	0.14
95-50-1	1,2-Dichlorobenzene	1.0U	1.0	0.22
541-73-1	1,3-Dichlorobenzene	1.0U	1.0	0.13
106-46-7	1,4-Dichlorobenzene	1.0U	1.0	0.21
75-71-8	Dichlorodifluoromethane	1.0U	1.0	0.29
75-34-3	1,1-Dichloroethane	1.0U	1.0	0.27
107-06-2	1,2-Dichloroethane	1.0U	1.0	0.18
75-35-4	1,1-Dichloroethene	1.0U	1.0	0.24
156-59-2	cis-1,2-Dichloroethene	1.0U	1.0	0.21
156-60-5	trans-1,2-Dichloroethene	1.0U	1.0	0.16
78-87-5	1,2-Dichloropropane	1.0U	1.0	0.26
10061-01-5	cis-1,3-Dichloropropene	1.0U	1.0	0.21
10061-02-6	trans-1,3-Dichloropropene	1.0U	1.0	0.22
100-41-4	Ethylbenzene	1.0U	1.0	0.065
591-78-6	2-Hexanone	5.0U	5.0	0.55
98-82-8	Isopropylbenzene	1.0U	1.0	0.11
79-20-9	Methyl Acetate	5.0U	5.0	0.24

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-007**	Sampled:	02/11/16 09:45		
Lab Sample ID:	**1602326-05**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 20:09	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	1.0U	1.0	0.25
108-87-2	Methylcyclohexane	5.0U	5.0	0.25
75-09-2	Methylene Chloride	1.0U	1.0	0.23
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.96
108-10-1	4-Methyl-2-pentanone (MIBK)	5.0U	5.0	0.35
100-42-5	Styrene	1.0U	1.0	0.23
79-34-5	1,1,2,2-Tetrachloroethane	1.0U	1.0	0.26
127-18-4	Tetrachloroethene	**0.82J**	1.0	0.15
108-88-3	Toluene	1.0U	1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	1.0U	1.0	0.24
71-55-6	1,1,1-Trichloroethane	1.0U	1.0	0.19
79-00-5	1,1,2-Trichloroethane	1.0U	1.0	0.27
79-01-6	Trichloroethene	1.0U	1.0	0.23
75-69-4	Trichlorofluoromethane	1.0U	1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0U	1.0	0.25
75-01-4	Vinyl Chloride	1.0U	1.0	0.21
1330-20-7	Xylene (Total)	3.0U	3.0	0.36

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*103*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*94*	*82-110*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**	
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services	
Client Sample ID:	**GW-11114514-021116-DR-008**	Sampled:	02/11/16 10:15	
Lab Sample ID:	**1602326-06**	Sampled By:	Client	
Matrix:	Water	Received:	02/17/16 08:20	
Unit:	ug/L	Prepared:	02/19/16 14:00	By: BAG
Dilution Factor:	1000	Analyzed:	02/19/16 21:49	By: BAG
QC Batch:	1601656	Analytical Batch:	6B22015	

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5000U	5000	2400
71-43-2	Benzene	1000U	1000	270
75-27-4	Bromodichloromethane	1000U	1000	260
75-25-2	Bromoform	1000U	1000	140
74-83-9	Bromomethane	1000U	1000	180
75-15-0	Carbon Disulfide	5000U	5000	140
56-23-5	Carbon Tetrachloride	1000U	1000	300
108-90-7	Chlorobenzene	1000U	1000	240
75-00-3	Chloroethane	1000U	1000	220
67-66-3	Chloroform	1000U	1000	210
74-87-3	Chloromethane	1000U	1000	180
110-82-7	Cyclohexane	5000U	5000	290
96-12-8	1,2-Dibromo-3-chloropropane	1000U	1000	220
124-48-1	Dibromochloromethane	1000U	1000	290
106-93-4	1,2-Dibromoethane	1000U	1000	140
95-50-1	1,2-Dichlorobenzene	1000U	1000	220
541-73-1	1,3-Dichlorobenzene	1000U	1000	130
106-46-7	1,4-Dichlorobenzene	1000U	1000	210
75-71-8	Dichlorodifluoromethane	1000U	1000	290
75-34-3	1,1-Dichloroethane	1000U	1000	270
107-06-2	1,2-Dichloroethane	1000U	1000	180
75-35-4	1,1-Dichloroethene	1000U	1000	240
156-59-2	cis-1,2-Dichloroethene	1000U	1000	210
156-60-5	trans-1,2-Dichloroethene	1000U	1000	160
78-87-5	1,2-Dichloropropane	1000U	1000	260
10061-01-5	cis-1,3-Dichloropropene	1000U	1000	210
10061-02-6	trans-1,3-Dichloropropene	1000U	1000	220
100-41-4	Ethylbenzene	1000U	1000	65
591-78-6	2-Hexanone	5000U	5000	550
98-82-8	Isopropylbenzene	1000U	1000	110
79-20-9	Methyl Acetate	5000U	5000	240

Continued on next page

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-021116-DR-008**	Sampled:	02/11/16 10:15
Lab Sample ID:	**1602326-06**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/19/16 14:00 By: BAG
Dilution Factor:	1000	Analyzed:	02/19/16 21:49 By: BAG
QC Batch:	1601656	Analytical Batch:	6B22015

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	1000U	1000	250
108-87-2	Methylcyclohexane	5000U	5000	250
75-09-2	Methylene Chloride	**280J**	1000	230
78-93-3	2-Butanone (MEK)	5000U	5000	960
108-10-1	4-Methyl-2-pentanone (MIBK)	5000U	5000	350
100-42-5	Styrene	1000U	1000	230
79-34-5	1,1,2,2-Tetrachloroethane	1000U	1000	260
127-18-4	Tetrachloroethene	**100000**	1000	150
108-88-3	Toluene	1000U	1000	290
120-82-1	1,2,4-Trichlorobenzene	1000U	1000	240
71-55-6	1,1,1-Trichloroethane	1000U	1000	190
79-00-5	1,1,2-Trichloroethane	1000U	1000	270
79-01-6	Trichloroethene	1000U	1000	230
75-69-4	Trichlorofluoromethane	1000U	1000	230
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1000U	1000	250
75-01-4	Vinyl Chloride	1000U	1000	210
1330-20-7	Xylene (Total)	3000U	3000	360

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*101*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*94*	*82-110*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-009**	Sampled:	02/11/16 10:45		
Lab Sample ID:	**1602326-07**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 19:44	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5.0U	5.0	2.4
71-43-2	Benzene	1.0U	1.0	0.27
75-27-4	Bromodichloromethane	1.0U	1.0	0.26
75-25-2	Bromoform	1.0U	1.0	0.14
74-83-9	Bromomethane	1.0U	1.0	0.18
75-15-0	Carbon Disulfide	5.0U	5.0	0.14
56-23-5	Carbon Tetrachloride	1.0U	1.0	0.30
108-90-7	Chlorobenzene	1.0U	1.0	0.24
75-00-3	Chloroethane	1.0U	1.0	0.22
67-66-3	Chloroform	1.0U	1.0	0.21
74-87-3	Chloromethane	1.0U	1.0	0.18
110-82-7	Cyclohexane	5.0U	5.0	0.29
96-12-8	1,2-Dibromo-3-chloropropane	1.0U	1.0	0.22
124-48-1	Dibromochloromethane	1.0U	1.0	0.29
106-93-4	1,2-Dibromoethane	1.0U	1.0	0.14
95-50-1	1,2-Dichlorobenzene	1.0U	1.0	0.22
541-73-1	1,3-Dichlorobenzene	1.0U	1.0	0.13
106-46-7	1,4-Dichlorobenzene	1.0U	1.0	0.21
75-71-8	Dichlorodifluoromethane	1.0U	1.0	0.29
75-34-3	1,1-Dichloroethane	1.0U	1.0	0.27
107-06-2	1,2-Dichloroethane	1.0U	1.0	0.18
75-35-4	1,1-Dichloroethene	1.0U	1.0	0.24
156-59-2	cis-1,2-Dichloroethene	1.0U	1.0	0.21
156-60-5	trans-1,2-Dichloroethene	1.0U	1.0	0.16
78-87-5	1,2-Dichloropropane	1.0U	1.0	0.26
10061-01-5	cis-1,3-Dichloropropene	1.0U	1.0	0.21
10061-02-6	trans-1,3-Dichloropropene	1.0U	1.0	0.22
100-41-4	Ethylbenzene	**0.10J**	1.0	0.065
591-78-6	2-Hexanone	5.0U	5.0	0.55
98-82-8	Isopropylbenzene	1.0U	1.0	0.11
79-20-9	Methyl Acetate	5.0U	5.0	0.24

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-021116-DR-009**	Sampled:	02/11/16 10:45
Lab Sample ID:	**1602326-07**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/19/16 14:00 By: BAG
Dilution Factor:	1	Analyzed:	02/19/16 19:44 By: BAG
QC Batch:	1601656	Analytical Batch:	6B22015

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	**30**	1.0	0.25
108-87-2	Methylcyclohexane	5.0U	5.0	0.25
75-09-2	Methylene Chloride	1.0U	1.0	0.23
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.96
108-10-1	4-Methyl-2-pentanone (MIBK)	5.0U	5.0	0.35
100-42-5	Styrene	1.0U	1.0	0.23
79-34-5	1,1,2,2-Tetrachloroethane	1.0U	1.0	0.26
127-18-4	Tetrachloroethene	**28**	1.0	0.15
108-88-3	Toluene	**0.30J**	1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	1.0U	1.0	0.24
71-55-6	1,1,1-Trichloroethane	1.0U	1.0	0.19
79-00-5	1,1,2-Trichloroethane	1.0U	1.0	0.27
79-01-6	Trichloroethene	**0.64J**	1.0	0.23
75-69-4	Trichlorofluoromethane	1.0U	1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0U	1.0	0.25
75-01-4	Vinyl Chloride	1.0U	1.0	0.21
1330-20-7	Xylene (Total)	3.0U	3.0	0.36

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*94*	*85-118*
1,2-Dichloroethane-d4	*103*	*87-122*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*96*	*82-110*

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**GW-11114514-021116-DR-010**	Sampled:	02/11/16 11:15
Lab Sample ID:	**1602326-08**	Sampled By:	Client
Matrix:	Water	Received:	02/17/16 08:20
Unit:	ug/L	Prepared:	02/19/16 14:00 By: BAG
Dilution Factor:	1	Analyzed:	02/19/16 19:19 By: BAG
QC Batch:	1601656	Analytical Batch:	6B22015

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	5.0U	5.0	2.4
71-43-2	Benzene	1.0U	1.0	0.27
75-27-4	Bromodichloromethane	1.0U	1.0	0.26
75-25-2	Bromoform	1.0U	1.0	0.14
74-83-9	Bromomethane	1.0U	1.0	0.18
75-15-0	Carbon Disulfide	5.0U	5.0	0.14
56-23-5	Carbon Tetrachloride	1.0U	1.0	0.30
108-90-7	Chlorobenzene	1.0U	1.0	0.24
75-00-3	Chloroethane	1.0U	1.0	0.22
67-66-3	Chloroform	1.0U	1.0	0.21
74-87-3	Chloromethane	1.0U	1.0	0.18
110-82-7	Cyclohexane	5.0U	5.0	0.29
96-12-8	1,2-Dibromo-3-chloropropane	1.0U	1.0	0.22
124-48-1	Dibromochloromethane	1.0U	1.0	0.29
106-93-4	1,2-Dibromoethane	1.0U	1.0	0.14
95-50-1	1,2-Dichlorobenzene	1.0U	1.0	0.22
541-73-1	1,3-Dichlorobenzene	1.0U	1.0	0.13
106-46-7	1,4-Dichlorobenzene	1.0U	1.0	0.21
75-71-8	Dichlorodifluoromethane	1.0U	1.0	0.29
75-34-3	1,1-Dichloroethane	1.0U	1.0	0.27
107-06-2	1,2-Dichloroethane	1.0U	1.0	0.18
75-35-4	1,1-Dichloroethene	1.0U	1.0	0.24
156-59-2	cis-1,2-Dichloroethene	**0.27J**	1.0	0.21
156-60-5	trans-1,2-Dichloroethene	1.0U	1.0	0.16
78-87-5	1,2-Dichloropropane	1.0U	1.0	0.26
10061-01-5	cis-1,3-Dichloropropene	1.0U	1.0	0.21
10061-02-6	trans-1,3-Dichloropropene	1.0U	1.0	0.22
100-41-4	Ethylbenzene	1.0U	1.0	0.065
591-78-6	2-Hexanone	5.0U	5.0	0.55
98-82-8	Isopropylbenzene	1.0U	1.0	0.11
79-20-9	Methyl Acetate	5.0U	5.0	0.24

Continued on next page

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602326**		
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services		
Client Sample ID:	**GW-11114514-021116-DR-010**	Sampled:	02/11/16 11:15		
Lab Sample ID:	**1602326-08**	Sampled By:	Client		
Matrix:	Water	Received:	02/17/16 08:20		
Unit:	ug/L	Prepared:	02/19/16 14:00	By:	BAG
Dilution Factor:	1	Analyzed:	02/19/16 19:19	By:	BAG
QC Batch:	1601656	Analytical Batch:	6B22015		

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	**12**	1.0	0.25
108-87-2	Methylcyclohexane	5.0U	5.0	0.25
75-09-2	Methylene Chloride	1.0U	1.0	0.23
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.96
108-10-1	4-Methyl-2-pentanone (MIBK)	5.0U	5.0	0.35
100-42-5	Styrene	1.0U	1.0	0.23
79-34-5	1,1,2,2-Tetrachloroethane	1.0U	1.0	0.26
*127-18-4	Tetrachloroethene	**120**	1.0	0.15
108-88-3	Toluene	1.0U	1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	1.0U	1.0	0.24
71-55-6	1,1,1-Trichloroethane	1.0U	1.0	0.19
79-00-5	1,1,2-Trichloroethane	1.0U	1.0	0.27
79-01-6	Trichloroethene	**1.5**	1.0	0.23
75-69-4	Trichlorofluoromethane	1.0U	1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.0U	1.0	0.25
75-01-4	Vinyl Chloride	1.0U	1.0	0.21
1330-20-7	Xylene (Total)	3.0U	3.0	0.36

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*95*	*85-118*
1,2-Dichloroethane-d4	*102*	*87-122*
Toluene-d8	*99*	*85-113*
4-Bromofluorobenzene	*96*	*82-110*

*See Statement of Data Qualifications

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

QC Batch: 1601656 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank Analyzed: 02/19/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone			5.0 U					5.0	2.4
Benzene			1.0 U					1.0	0.27
Bromodichloromethane			1.0 U					1.0	0.26
Bromoform			1.0 U					1.0	0.14
Bromomethane			1.0 U					1.0	0.18
Carbon Disulfide			5.0 U					5.0	0.14
Carbon Tetrachloride			1.0 U					1.0	0.30
Chlorobenzene			1.0 U					1.0	0.24
Chloroethane			1.0 U					1.0	0.22
Chloroform			1.0 U					1.0	0.21
Chloromethane			1.0 U					1.0	0.18
Cyclohexane			5.0 U					5.0	0.29
1,2-Dibromo-3-chloropropane			1.0 U					1.0	0.22
Dibromochloromethane			1.0 U					1.0	0.29
1,2-Dibromoethane			1.0 U					1.0	0.14
1,2-Dichlorobenzene			1.0 U					1.0	0.22
1,3-Dichlorobenzene			1.0 U					1.0	0.13
1,4-Dichlorobenzene			1.0 U					1.0	0.21
Dichlorodifluoromethane			1.0 U					1.0	0.29
1,1-Dichloroethane			1.0 U					1.0	0.27
1,2-Dichloroethane			1.0 U					1.0	0.18
1,1-Dichloroethene			1.0 U					1.0	0.24
cis-1,2-Dichloroethene			1.0 U					1.0	0.21
trans-1,2-Dichloroethene			1.0 U					1.0	0.16
1,2-Dichloropropane			1.0 U					1.0	0.26
cis-1,3-Dichloropropene			1.0 U					1.0	0.21
trans-1,3-Dichloropropene			1.0 U					1.0	0.22
Ethylbenzene			1.0 U					1.0	0.065
2-Hexanone			5.0 U					5.0	0.55
Isopropylbenzene			1.0 U					1.0	0.11
Methyl Acetate			5.0 U					5.0	0.24
Methyl tert-Butyl Ether			1.0 U					1.0	0.25
Methylcyclohexane			5.0 U					5.0	0.25
Methylene Chloride			1.0 U					1.0	0.23
2-Butanone (MEK)			5.0 U					5.0	0.96
4-Methyl-2-pentanone (MIBK)			5.0 U					5.0	0.35

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QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

QC Batch: 1601656 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank (Continued) Analyzed: 02/19/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Styrene			1.0 U					1.0	0.23
1,1,2,2-Tetrachloroethane			1.0 U					1.0	0.26
Tetrachloroethene			1.0 U					1.0	0.15
Toluene			1.0 U					1.0	0.29
1,2,4-Trichlorobenzene			1.0 U					1.0	0.24
1,1,1-Trichloroethane			1.0 U					1.0	0.19
1,1,2-Trichloroethane			1.0 U					1.0	0.27
Trichloroethene			1.0 U					1.0	0.23
Trichlorofluoromethane			1.0 U					1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane			1.0 U					1.0	0.25
Vinyl Chloride			1.0 U					1.0	0.21
Xylene (Total)			3.0 U					3.0	0.36
Surrogates:									
Dibromofluoromethane				*96*	*85-118*				
1,2-Dichloroethane-d4				*102*	*87-122*				
Toluene-d8				*100*	*85-113*				
4-Bromofluorobenzene				*95*	*82-110*				

Laboratory Control Sample Analyzed: 02/19/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone		40.0	**31.2**	78	53-138	--		5.0	2.4
Benzene		40.0	**38.7**	97	84-119	--		1.0	0.27
Bromodichloromethane		40.0	**39.8**	100	82-124	--		1.0	0.26
Bromoform		40.0	**37.0**	92	65-123	--		1.0	0.14
Bromomethane		40.0	**43.3**	108	55-142	--		1.0	0.18
Carbon Disulfide		40.0	**38.9**	97	70-131	--		5.0	0.14
Carbon Tetrachloride		40.0	**40.4**	101	79-127	--		1.0	0.30
Chlorobenzene		40.0	**38.0**	95	84-118	--		1.0	0.24
Chloroethane		40.0	**39.0**	97	76-124	--		1.0	0.22
Chloroform		40.0	**39.9**	100	82-119	--		1.0	0.21
Chloromethane		40.0	**39.2**	98	73-125	--		1.0	0.18
Cyclohexane		40.0	**37.6**	94	77-130	--		5.0	0.29
1,2-Dibromo-3-chloropropane		40.0	**32.6**	81	58-130	--		1.0	0.22

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601656 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued)
Unit: ug/L

Analyzed: 02/19/2016 By: BAG
Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Dibromochloromethane		40.0	**36.0**	90	74-121	--		1.0	0.29
1,2-Dibromoethane		40.0	**39.0**	98	84-125	--		1.0	0.14
1,2-Dichlorobenzene		40.0	**37.0**	93	81-124	--		1.0	0.22
1,3-Dichlorobenzene		40.0	**37.5**	94	81-124	--		1.0	0.13
1,4-Dichlorobenzene		40.0	**36.8**	92	79-122	--		1.0	0.21
Dichlorodifluoromethane		40.0	**34.3**	86	68-130	--		1.0	0.29
1,1-Dichloroethane		40.0	**39.0**	97	80-118	--		1.0	0.27
1,2-Dichloroethane		40.0	**39.8**	100	81-122	--		1.0	0.18
1,1-Dichloroethene		40.0	**38.8**	97	77-123	--		1.0	0.24
cis-1,2-Dichloroethene		40.0	**38.5**	96	84-119	--		1.0	0.21
trans-1,2-Dichloroethene		40.0	**38.6**	97	76-126	--		1.0	0.16
1,2-Dichloropropane		40.0	**38.5**	96	82-122	--		1.0	0.26
cis-1,3-Dichloropropene		40.0	**41.0**	102	77-120	--		1.0	0.21
trans-1,3-Dichloropropene		40.0	**34.9**	87	73-116	--		1.0	0.22
Ethylbenzene		40.0	**38.6**	96	87-119	--		1.0	0.065
2-Hexanone		40.0	**37.7**	94	55-141	--		5.0	0.55
Isopropylbenzene		40.0	**38.0**	95	76-126	--		1.0	0.11
Methyl Acetate		40.0	**36.3**	91	67-129	--		5.0	0.24
Methyl tert-Butyl Ether		40.0	**37.2**	93	72-128	--		1.0	0.25
Methylcyclohexane		40.0	**38.4**	96	78-126	--		5.0	0.25
Methylene Chloride		40.0	**40.3**	101	75-129	--		1.0	0.23
2-Butanone (MEK)		40.0	**36.0**	90	52-142	--		5.0	0.96
4-Methyl-2-pentanone (MIBK)		40.0	**37.4**	94	60-142	--		5.0	0.35
Styrene		40.0	**39.2**	98	84-120	--		1.0	0.23
1,1,2,2-Tetrachloroethane		40.0	**43.6**	109	70-137	--		1.0	0.26
Tetrachloroethene		40.0	**37.2**	93	81-117	--		1.0	0.15
Toluene		40.0	**38.7**	97	85-118	--		1.0	0.29
1,2,4-Trichlorobenzene		40.0	**37.8**	95	75-125	--		1.0	0.24
1,1,1-Trichloroethane		40.0	**39.0**	98	81-122	--		1.0	0.19
1,1,2-Trichloroethane		40.0	**40.5**	101	83-121	--		1.0	0.27
Trichloroethene		40.0	**35.1**	88	82-119	--		1.0	0.23
Trichlorofluoromethane		40.0	**38.5**	96	76-128	--		1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane		40.0	**38.6**	96	76-126	--		1.0	0.25
Vinyl Chloride		40.0	**37.8**	95	77-123	--		1.0	0.21
Xylene (Total)		120	**115**	96	86-119	--		3.0	0.36

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QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

QC Batch: 1601656 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued) Analyzed: 02/19/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Surrogates:									
Dibromofluoromethane				*103*	*85-118*				
1,2-Dichloroethane-d4				*103*	*87-122*				
Toluene-d8				*100*	*85-113*				
4-Bromofluorobenzene				*100*	*82-110*				

Matrix Spike 1602326-08 GW-11114514-021116-DR-010 Analyzed: 02/20/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone	5.0 U	40.0	**43.3**	108	46-145	--		5.0	2.4
Benzene	1.0 U	40.0	**39.2**	98	80-129	--		1.0	0.27
Bromodichloromethane	1.0 U	40.0	**40.0**	100	81-130	--		1.0	0.26
Bromoform	1.0 U	40.0	**38.3**	96	60-122	--		1.0	0.14
Bromomethane	1.0 U	40.0	**42.5**	106	44-140	--		1.0	0.18
Carbon Disulfide	5.0 U	40.0	**37.4**	93	69-144	--		5.0	0.14
Carbon Tetrachloride	1.0 U	40.0	**39.6**	99	78-137	--		1.0	0.30
Chlorobenzene	1.0 U	40.0	**38.0**	95	80-121	--		1.0	0.24
Chloroethane	1.0 U	40.0	**39.4**	99	72-137	--		1.0	0.22
Chloroform	1.0 U	40.0	**40.5**	101	79-128	--		1.0	0.21
Chloromethane	1.0 U	40.0	**41.2**	103	72-134	--		1.0	0.18
Cyclohexane	5.0 U	40.0	**35.9**	90	73-138	--		5.0	0.29
1,2-Dibromo-3-chloropropane	1.0 U	40.0	**37.1**	93	55-126	--		1.0	0.22
Dibromochloromethane	1.0 U	40.0	**36.1**	90	70-126	--		1.0	0.29
1,2-Dibromoethane	1.0 U	40.0	**40.9**	102	78-125	--		1.0	0.14
1,2-Dichlorobenzene	1.0 U	40.0	**36.8**	92	76-124	--		1.0	0.22
1,3-Dichlorobenzene	1.0 U	40.0	**36.5**	91	76-123	--		1.0	0.13
1,4-Dichlorobenzene	1.0 U	40.0	**36.1**	90	75-121	--		1.0	0.21
Dichlorodifluoromethane	1.0 U	40.0	**32.9**	82	64-138	--		1.0	0.29
1,1-Dichloroethane	1.0 U	40.0	**39.3**	98	76-129	--		1.0	0.27
1,2-Dichloroethane	1.0 U	40.0	**40.8**	102	74-131	--		1.0	0.18
1,1-Dichloroethene	1.0 U	40.0	**39.7**	99	74-134	--		1.0	0.24
cis-1,2-Dichloroethene	0.270 J	40.0	**39.1**	97	76-129	--		1.0	0.21
trans-1,2-Dichloroethene	1.0 U	40.0	**38.8**	97	71-137	--		1.0	0.16
1,2-Dichloropropane	1.0 U	40.0	**38.6**	97	79-128	--		1.0	0.26
cis-1,3-Dichloropropene	1.0 U	40.0	**36.6**	91	68-122	--		1.0	0.21

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601656 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Matrix Spike (Continued) 1602326-08 GW-11114514-021116-DR-010 — Analyzed: 02/20/2016 By: BAG
Unit: ug/L — Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
trans-1,3-Dichloropropene	1.0 U	40.0	**32.5**	81	66-117	--		1.0	0.22
Ethylbenzene	1.0 U	40.0	**38.7**	97	82-127	--		1.0	0.065
2-Hexanone	5.0 U	40.0	**47.0**	118	53-134	--		5.0	0.55
Isopropylbenzene	1.0 U	40.0	**36.7**	92	73-131	--		1.0	0.11
Methyl Acetate	5.0 U	40.0	**39.4**	98	40-133	--		5.0	0.24
Methyl tert-Butyl Ether	12.0	40.0	**51.0**	98	65-131	--		1.0	0.25
Methylcyclohexane	5.0 U	40.0	**35.0**	88	70-137	--		5.0	0.25
Methylene Chloride	1.0 U	40.0	**41.8**	105	75-133	--		1.0	0.23
2-Butanone (MEK)	5.0 U	40.0	**44.1**	110	52-134	--		5.0	0.96
4-Methyl-2-pentanone (MIBK)	5.0 U	40.0	**44.3**	111	55-139	--		5.0	0.35
Styrene	1.0 U	40.0	**39.5**	99	75-129	--		1.0	0.23
1,1,2,2-Tetrachloroethane	1.0 U	40.0	**48.6**	121	71-129	--		1.0	0.26
Tetrachloroethene	116	40.0	**143**	**68**	75-126	--		1.0	0.15
Toluene	1.0 U	40.0	**51.4**	129	79-129	--		1.0	0.29
1,2,4-Trichlorobenzene	1.0 U	40.0	**35.7**	89	66-131	--		1.0	0.24
1,1,1-Trichloroethane	1.0 U	40.0	**38.2**	95	79-131	--		1.0	0.19
1,1,2-Trichloroethane	1.0 U	40.0	**41.1**	103	76-127	--		1.0	0.27
Trichloroethene	1.48	40.0	**35.7**	85	75-127	--		1.0	0.23
Trichlorofluoromethane	1.0 U	40.0	**37.3**	93	70-141	--		1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	40.0	**36.9**	92	67-135	--		1.0	0.25
Vinyl Chloride	1.0 U	40.0	**39.3**	98	73-136	--		1.0	0.21
Xylene (Total)	3.0 U	120	**115**	96	78-130	--		3.0	0.36
Surrogates:									
Dibromofluoromethane				*103*	*85-118*				
1,2-Dichloroethane-d4				*103*	*87-122*				
Toluene-d8				*101*	*85-113*				
4-Bromofluorobenzene				*99*	*82-110*				

Matrix Spike Duplicate 1602326-08 GW-11114514-021116-DR-010 — Analyzed: 02/20/2016 By: BAG
Unit: ug/L — Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone	5.0 U	40.0	**42.9**	107	46-145	0.7	17	5.0	2.4
Benzene	1.0 U	40.0	**39.2**	98	80-129	0	9	1.0	0.27
Bromodichloromethane	1.0 U	40.0	**40.6**	102	81-130	2	10	1.0	0.26

Continued on next page

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601656 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Matrix Spike Duplicate (Continued) 1602326-08 GW-11114514-021116-DR-010 Analyzed: 02/20/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Bromoform	1.0 U	40.0	**38.5**	96	60-122	0.4	12	1.0	0.14
Bromomethane	1.0 U	40.0	**41.2**	103	44-140	3	35	1.0	0.18
Carbon Disulfide	5.0 U	40.0	**38.4**	96	69-144	3	15	5.0	0.14
Carbon Tetrachloride	1.0 U	40.0	**39.7**	99	78-137	0.2	11	1.0	0.30
Chlorobenzene	1.0 U	40.0	**38.2**	96	80-121	0.7	8	1.0	0.24
Chloroethane	1.0 U	40.0	**38.3**	96	72-137	3	14	1.0	0.22
Chloroform	1.0 U	40.0	**40.2**	100	79-128	0.9	9	1.0	0.21
Chloromethane	1.0 U	40.0	**40.8**	102	72-134	1	11	1.0	0.18
Cyclohexane	5.0 U	40.0	**36.4**	91	73-138	1	12	5.0	0.29
1,2-Dibromo-3-chloropropane	1.0 U	40.0	**38.0**	95	55-126	3	16	1.0	0.22
Dibromochloromethane	1.0 U	40.0	**36.8**	92	70-126	2	10	1.0	0.29
1,2-Dibromoethane	1.0 U	40.0	**41.4**	103	78-125	1	9	1.0	0.14
1,2-Dichlorobenzene	1.0 U	40.0	**37.8**	94	76-124	3	10	1.0	0.22
1,3-Dichlorobenzene	1.0 U	40.0	**37.2**	93	76-123	2	10	1.0	0.13
1,4-Dichlorobenzene	1.0 U	40.0	**36.8**	92	75-121	2	10	1.0	0.21
Dichlorodifluoromethane	1.0 U	40.0	**32.9**	82	64-138	0.2	13	1.0	0.29
1,1-Dichloroethane	1.0 U	40.0	**39.0**	97	76-129	0.9	13	1.0	0.27
1,2-Dichloroethane	1.0 U	40.0	**40.4**	101	74-131	1	9	1.0	0.18
1,1-Dichloroethene	1.0 U	40.0	**38.9**	97	74-134	2	13	1.0	0.24
cis-1,2-Dichloroethene	0.270 J	40.0	**39.5**	98	76-129	0.8	12	1.0	0.21
trans-1,2-Dichloroethene	1.0 U	40.0	**38.7**	97	71-137	0.2	15	1.0	0.16
1,2-Dichloropropane	1.0 U	40.0	**39.4**	98	79-128	2	9	1.0	0.26
cis-1,3-Dichloropropene	1.0 U	40.0	**37.4**	94	68-122	2	11	1.0	0.21
trans-1,3-Dichloropropene	1.0 U	40.0	**32.6**	82	66-117	0.3	12	1.0	0.22
Ethylbenzene	1.0 U	40.0	**38.1**	95	82-127	1	10	1.0	0.065
2-Hexanone	5.0 U	40.0	**47.0**	118	53-134	0.02	15	5.0	0.55
Isopropylbenzene	1.0 U	40.0	**37.0**	92	73-131	0.8	12	1.0	0.11
Methyl Acetate	5.0 U	40.0	**38.2**	95	40-133	3	16	5.0	0.24
Methyl tert-Butyl Ether	12.0	40.0	**51.3**	98	65-131	0.5	15	1.0	0.25
Methylcyclohexane	5.0 U	40.0	**34.6**	87	70-137	1	14	5.0	0.25
Methylene Chloride	1.0 U	40.0	**40.3**	101	75-133	4	10	1.0	0.23
2-Butanone (MEK)	5.0 U	40.0	**43.5**	109	52-134	1	17	5.0	0.96
4-Methyl-2-pentanone (MIBK)	5.0 U	40.0	**44.4**	111	55-139	0.3	15	5.0	0.35
Styrene	1.0 U	40.0	**38.9**	97	75-129	1	10	1.0	0.23
1,1,2,2-Tetrachloroethane	1.0 U	40.0	**48.6**	121	71-129	0.04	10	1.0	0.26
Tetrachloroethene	116	40.0	**143**	**66**	75-126	0.5	10	1.0	0.15

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

QC Batch: 1601656 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Matrix Spike Duplicate (Continued) 1602326-08 GW-11114514-021116-DR-010 Analyzed: 02/20/2016 By: BAG
Unit: ug/L Analytical Batch: 6B22015

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Toluene	1.0 U	40.0	**51.0**	128	79-129	0.8	9	1.0	0.29
1,2,4-Trichlorobenzene	1.0 U	40.0	**37.3**	93	66-131	4	15	1.0	0.24
1,1,1-Trichloroethane	1.0 U	40.0	**38.7**	97	79-131	1	10	1.0	0.19
1,1,2-Trichloroethane	1.0 U	40.0	**40.6**	101	76-127	1	10	1.0	0.27
Trichloroethene	1.48	40.0	**35.5**	85	75-127	0.5	10	1.0	0.23
Trichlorofluoromethane	1.0 U	40.0	**37.2**	93	70-141	0.2	11	1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	40.0	**36.7**	92	67-135	0.5	14	1.0	0.25
Vinyl Chloride	1.0 U	40.0	**38.6**	97	73-136	2	12	1.0	0.21
Xylene (Total)	3.0 U	120	**115**	96	78-130	0	9	3.0	0.36
Surrogates:									
Dibromofluoromethane				*102*	*85-118*				
1,2-Dichloroethane-d4				*101*	*87-122*				
Toluene-d8				*101*	*85-113*				
4-Bromofluorobenzene				*99*	*82-110*				

QC Batch: 1601707 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank Analyzed: 02/23/2016 By: BAG
Unit: ug/L Analytical Batch: 6B23020

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone			**3.4 J**			--		5.0	2.4
Benzene			1.0 U					1.0	0.27
Bromodichloromethane			1.0 U					1.0	0.26
Bromoform			1.0 U					1.0	0.14
Bromomethane			1.0 U					1.0	0.18
Carbon Disulfide			5.0 U			--		5.0	0.14
Carbon Tetrachloride			1.0 U					1.0	0.30
Chlorobenzene			1.0 U					1.0	0.24
Chloroethane			1.0 U					1.0	0.22
Chloroform			1.0 U					1.0	0.21
Chloromethane			1.0 U					1.0	0.18
Cyclohexane			5.0 U					5.0	0.29
1,2-Dibromo-3-chloropropane			1.0 U					1.0	0.22
Dibromochloromethane			1.0 U					1.0	0.29
1,2-Dibromoethane			1.0 U					1.0	0.14

Continued on next page

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601707 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank (Continued) Analyzed: 02/23/2016 By: BAG

Unit: ug/L Analytical Batch: 6B23020

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
1,2-Dichlorobenzene			1.0 U					1.0	0.22
1,3-Dichlorobenzene			1.0 U			--		1.0	0.13
1,4-Dichlorobenzene			1.0 U			--		1.0	0.21
Dichlorodifluoromethane			1.0 U					1.0	0.29
1,1-Dichloroethane			1.0 U					1.0	0.27
1,2-Dichloroethane			1.0 U					1.0	0.18
1,1-Dichloroethene			1.0 U					1.0	0.24
cis-1,2-Dichloroethene			1.0 U					1.0	0.21
trans-1,2-Dichloroethene			1.0 U					1.0	0.16
1,2-Dichloropropane			1.0 U					1.0	0.26
cis-1,3-Dichloropropene			1.0 U					1.0	0.21
trans-1,3-Dichloropropene			1.0 U					1.0	0.22
Ethylbenzene			1.0 U					1.0	0.065
2-Hexanone			5.0 U					5.0	0.55
Isopropylbenzene			1.0 U					1.0	0.11
Methyl Acetate			5.0 U					5.0	0.24
Methyl tert-Butyl Ether			1.0 U					1.0	0.25
Methylcyclohexane			5.0 U					5.0	0.25
Methylene Chloride			1.0 U					1.0	0.23
2-Butanone (MEK)			5.0 U					5.0	0.96
4-Methyl-2-pentanone (MIBK)			5.0 U					5.0	0.35
Styrene			1.0 U					1.0	0.23
1,1,2,2-Tetrachloroethane			1.0 U					1.0	0.26
Tetrachloroethene			1.0 U					1.0	0.15
Toluene			1.0 U					1.0	0.29
1,2,4-Trichlorobenzene			1.0 U			--		1.0	0.24
1,1,1-Trichloroethane			1.0 U					1.0	0.19
1,1,2-Trichloroethane			1.0 U					1.0	0.27
Trichloroethene			1.0 U					1.0	0.23
Trichlorofluoromethane			1.0 U					1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane			1.0 U					1.0	0.25
Vinyl Chloride			1.0 U					1.0	0.21
Xylene (Total)			3.0 U					3.0	0.36

Continued on next page

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601707 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank (Continued) Analyzed: 02/23/2016 By: BAG
Unit: ug/L Analytical Batch: 6B23020

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Surrogates:									
Dibromofluoromethane				*97*	*85-118*				
1,2-Dichloroethane-d4				*106*	*87-122*				
Toluene-d8				*97*	*85-113*				
4-Bromofluorobenzene				*98*	*82-110*				

Laboratory Control Sample Analyzed: 02/23/2016 By: BAG
Unit: ug/L Analytical Batch: 6B23020

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone		40.0	**44.9**	112	53-138	--		5.0	2.4
Benzene		40.0	**38.7**	97	84-119	--		1.0	0.27
Bromodichloromethane		40.0	**40.4**	101	82-124	--		1.0	0.26
Bromoform		40.0	**36.4**	91	65-123	--		1.0	0.14
Bromomethane		40.0	**33.3**	83	55-142	--		1.0	0.18
Carbon Disulfide		40.0	**36.8**	92	70-131	--		5.0	0.14
Carbon Tetrachloride		40.0	**38.0**	95	79-127	--		1.0	0.30
Chlorobenzene		40.0	**39.7**	99	84-118	--		1.0	0.24
Chloroethane		40.0	**37.9**	95	76-124	--		1.0	0.22
Chloroform		40.0	**38.5**	96	82-119	--		1.0	0.21
Chloromethane		40.0	**38.7**	97	73-125	--		1.0	0.18
Cyclohexane		40.0	**39.4**	98	77-130	--		5.0	0.29
1,2-Dibromo-3-chloropropane		40.0	**39.0**	98	58-130	--		1.0	0.22
Dibromochloromethane		40.0	**36.4**	91	74-121	--		1.0	0.29
1,2-Dibromoethane		40.0	**43.5**	109	84-125	--		1.0	0.14
1,2-Dichlorobenzene		40.0	**40.0**	100	81-124	--		1.0	0.22
1,3-Dichlorobenzene		40.0	**40.6**	101	81-124	--		1.0	0.13
1,4-Dichlorobenzene		40.0	**40.0**	100	79-122	--		1.0	0.21
Dichlorodifluoromethane		40.0	**35.0**	87	68-130	--		1.0	0.29
1,1-Dichloroethane		40.0	**39.0**	98	80-118	--		1.0	0.27
1,2-Dichloroethane		40.0	**39.3**	98	81-122	--		1.0	0.18
1,1-Dichloroethene		40.0	**38.2**	95	77-123	--		1.0	0.24
cis-1,2-Dichloroethene		40.0	**40.0**	100	84-119	--		1.0	0.21
trans-1,2-Dichloroethene		40.0	**39.6**	99	76-126	--		1.0	0.16
1,2-Dichloropropane		40.0	**40.2**	100	82-122	--		1.0	0.26
cis-1,3-Dichloropropene		40.0	**37.8**	95	77-120	--		1.0	0.21
trans-1,3-Dichloropropene		40.0	**37.2**	93	73-116	--		1.0	0.22
Ethylbenzene		40.0	**39.3**	98	87-119	--		1.0	0.065

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

QC Batch: 1601707 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued) Analyzed: 02/23/2016 By: BAG
Unit: ug/L Analytical Batch: 6B23020

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
2-Hexanone		40.0	**42.7**	107	55-141	--		5.0	0.55
Isopropylbenzene		40.0	**40.2**	100	76-126	--		1.0	0.11
Methyl Acetate		40.0	**44.1**	110	67-129	--		5.0	0.24
Methyl tert-Butyl Ether		40.0	**43.1**	108	72-128	--		1.0	0.25
Methylcyclohexane		40.0	**40.4**	101	78-126	--		5.0	0.25
Methylene Chloride		40.0	**38.5**	96	75-129	--		1.0	0.23
2-Butanone (MEK)		40.0	**45.3**	113	52-142	--		5.0	0.96
4-Methyl-2-pentanone (MIBK)		40.0	**44.8**	112	60-142	--		5.0	0.35
Styrene		40.0	**41.8**	105	84-120	--		1.0	0.23
1,1,2,2-Tetrachloroethane		40.0	**46.0**	115	70-137	--		1.0	0.26
Tetrachloroethene		40.0	**38.6**	96	81-117	--		1.0	0.15
Toluene		40.0	**38.9**	97	85-118	--		1.0	0.29
1,2,4-Trichlorobenzene		40.0	**40.6**	102	75-125	--		1.0	0.24
1,1,1-Trichloroethane		40.0	**37.2**	93	81-122	--		1.0	0.19
1,1,2-Trichloroethane		40.0	**41.4**	103	83-121	--		1.0	0.27
Trichloroethene		40.0	**37.1**	93	82-119	--		1.0	0.23
Trichlorofluoromethane		40.0	**36.6**	91	76-128	--		1.0	0.23
1,1,2-Trichloro-1,2,2-trifluoroethane		40.0	**37.5**	94	76-126	--		1.0	0.25
Vinyl Chloride		40.0	**38.2**	95	77-123	--		1.0	0.21
Xylene (Total)		120	**120**	100	86-119	--		3.0	0.36
Surrogates:									
Dibromofluoromethane				*100*	*85-118*				
1,2-Dichloroethane-d4				*104*	*87-122*				
Toluene-d8				*99*	*85-113*				
4-Bromofluorobenzene				*99*	*82-110*				

TRIMATRIX LABORATORIES

PRETREATMENT SUMMARY PAGE

Client:
Project:

Pretreatment	Lab Sample ID	Batch	By	Date & Time Prepared

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

1.8/C1.3
Rack #4, 718 White CANTON

Chain of Custody Record

122887

29.8

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
5500
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: T. Kinney	Site Contact: R. Fleisher	Date: 2-11-16
Company Name: GHD Services	Tel/Fax: (734) 453-5123	Lab Contact: D. Heckler	Carrier: FED EX
Address: 14496 Sheldon Rd	**Analysis Turnaround Time**		COC No: 1114514-001
City/State/Zip: Plymouth, MI, 48170	☐ CALENDAR DAYS ☐ WORKING DAYS		1 of 1 COCs
Phone: (734) 453-5123	TAT if different from Below		Sampler: D. Rivers
Fax:	☒ 2 weeks		**For Lab Use Only:**
Project Name: Lower Town Project	☐ 1 week		Walk-in Client:
Site: Ann Arbor, MI	☐ 2 days		Lab Sampling:
PO#	☐ 1 day		Job / SDG No.: 1114514
WO# 1602326			

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	TCL VOCs	Sheldon	Sample Specific Notes:
01	TB-1114514-021116	2/11/16	—	—	WQ	1			X	01	
02	GW-1114514-021116-DR-004	↓	845	G	WG	3			X	01	
03	-005	↓	850	↓	↓	3			X	↓	
04	-006	↓	920	↓	↓	3			X	↓	
05	-007	↓	945	↓	↓	3			X	↓	
06	-008	↓	1015	↓	↓	3			X	↓	
07	-009	↓	1045	↓	↓	3			X	↓	
08	-010	↓	1115	↓	↓	9		X	X	02	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______ 2

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ______ Corr'd: ______		Therm ID No.:
Relinquished by: D. Rivers	Company: GHD 2/11/16	Date/Time: 1600	Received by:	Company: 4A	Date/Time: 2-12-16 945
Relinquished by: Rick R.	Company: TestAm 2-16-16	Date/Time: 1650	Received by:	Company: Trimatrix	Date/Time: 2/17/16 0820
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

SAMPLE RECEIVING / LOG-IN CHECKLIST

TRIMATRIX LABORATORIES

Client: Test America MI	New / Add To	Work Order #: 1602326
Receipt Record Page/Line #: 29-8	Project Chemist	Sample #s: 01-08

Recorded by (initials/date): Ln 2/17/16

☑ Cooler ☐ Box ☐ Other

Qty Received: 1

Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#____)

☐ See Additional Cooler Information Form

	Cooler 1	Cooler 2	Cooler 3	Cooler 4
Cooler #	TA-D-024L			
Time	0942			
Custody Seals: None	☑	☐	☐	☐
Present / Intact	☐	☐	☐	☐
Present / Not Intact	☐	☐	☐	☐
Coolant Type: Loose Ice	☑	☐	☐	☐
Bagged Ice	☐	☐	☐	☐
Blue Ice	☐	☐	☐	☐
None	☐	☐	☐	☐
Coolant Location: Dispersed / Top / Middle / Bottom	Dispersed (circled)			
Temp Blank Present: ☐ Yes ☐ No				
If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative				

Cooler 1 temperatures:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank			
Sample 1	2.6	–	2.6
Sample 2	3.4	–	3.4
Sample 3	3.8	–	3.8

3 Sample Average °C: 3.3 (Cooler 1); blank for Coolers 2–4.

Cooler 1: ☐ Cooler ID on COC? ☑ VOC Trip Blank received?

Coolers 2–4: ☐ Cooler ID on COC? ☐ VOC Trip Blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received

Yes	No	
☑	☐	Chain of Custody record(s)? If No, Initiated By ____
☑		Received for Lab Signed/Date/Time?
☑	☐	Shipping document?
☐	☑	Other ____

COC Information

☐ TriMatrix COC ☑ Other ____

COC ID Numbers:

Check Sample Preservation

N/A	Yes	No	
	☐	☑	Temperature Blank OR average sample temperature, ≥6° C?
☑	☐	☐	If either is ≥6° C, was thermal preservation required?
☑	☐		If "Yes", Project Chemist Approval Initials: ____
☑	☐		If "Yes" Completed Non Con Cooler - Cont Inventory Form?
☑	☐		Completed Sample Preservation Verification Form?
☑	☐	☐	Samples chemically preserved correctly?
☑	☐		If "No", added orange tag?
	☐	☑	Received pre-preserved VOC soils? ☐ MeOH ☐ Na_2SO_4

Check COC for Accuracy

Yes	No	
☑	☐	Analysis Requested?
☑	☐	Sample ID matches COC?
☑	☐	Sample Date and Time matches COC?
☑		Container type completed on COC?
☑	☐	All container types indicated are received?

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☐ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged containers
☐ Yellow/White-tagged 1 L ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Sample Condition Summary

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate or non-TriMatrix containers received?
☐	☐	☑	VOC vials / TOX containers have headspace?
☐	☐	☑	Extra sample locations / containers not listed on COC?

Notes

☐ Trip Blank received ☐ Trip Blank not listed on COC

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
2/17/16 0820	2/17/16 1005	Yes / No (No circled)

ANALYTICAL SERVICES REPORT

Prepared for:
Rawa Fleisher
GHD - Plymouth, Michigan
14496 Sheldon Road, Suite #200
Plymouth, MI 48170

Project:
Lower Town - SSOW 11114514-002

Work Order:
1602353

Prepared by:
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE
Grand Rapids, MI 49512-5503

Report Date:
February 25, 2016

	2/25/2016
Gary L. Wood, Project Chemist woodgl@trimatrixlabs.com	Approval Date

CASE NARRATIVE

GHD - Plymouth, Michigan
Lower Town - SSOW 11114514-002

SDG Executive Summary

This case narrative applies to samples received on February 17, 2016. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between GHD - Plymouth, Michigan and TriMatrix Laboratories, Inc..

Project Technical Issues/Problems

Project-related data qualification designations, narrations, and reporting conventions are included in Attachment 1 - *Project Technical Narrative(s)*.

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG/workorder(s) are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

This report relates only to the samples(s) as received. Estimates of analytical uncertainties for the test results contained within this report are available upon request. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC) and one or more of the following certification programs:

ANAB DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003329); Kentucky DEP (AL123065/#0021); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/53116); North Carolina DNRE (#659); Virginia DCLS (#460153/7952); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-14-00305).

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this report are intended to comply with the documents referenced in the introductory section of this narrative. If requested, the EDD will be issued separately from this hardcopy report.

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Sample Receipt and Login -- Work Order: 1602353

TriMatrix Laboratories received the cooler(s) for this work order on February 17, 2016, at 08:20. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix Sample Receiving / Log-In Checklist. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding field COC form, the TriMatrix bidform and/or oral and written correspondance between the client and TriMatrix Laboratories, Inc.. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date & Time Sampled
SO-11114514-021116-DR-011	1602353-01	Soil	02/11/16, 11:45
TB-11114514-021116-SO	1602353-02	Methanol	02/11/16, 00:00

Attachment 1
Project Technical Narrative(s)

Sample Result Reporting Convention

Sample results are reported as RL "U" (e.g. 0.001 U) if the target analyte was not detected above the MDL.

If a sample for an organic analyte is reanalyzed and also reported, the second analysis includes the suffix "RE*n*" where *n* = the first, second, etc. reanalysis.

Percent Solids and Metals Data Reporting

Unless otherwise noted, all soil samples requiring metals analysis are dried at 50° to 60° C to a constant weight prior to acid digestion. In order to report results on a dry weight basis, correction for percent solids is not applicable.

Data Qualifier Designation

If applicable, sample results are qualified with:

- a "J" flag if the analyte was detected, but the concentration is greater than the MDL and less than the RL;
- a "B" flag if the analyte was also detected at or above the RL in the associated method blank, and the sample concentration was less than five times the method blank result;
- an "E" flag if the analyte exceeded the instrument calibration range;
- an asterisk (*) if a report-generated statement of qualification applies; qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven-digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven-digit number that associates all samples analyzed as a set under one analytical run.

Attachment 1
Project Technical Narrative(s)

No Project Narrative is associated with this report.

TRIMATRIX LABORATORIES

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B (5035A High Level)

Qualification: The analyte concentration in the associated MB was greater than the MDL but less than the RL. The positive sample result, which was less than 5 times the MB value, is considered estimated.

Analysis: USEPA-8260B

Matrix: Soil

Sample/Analyte:	1602353-01	SO-11114514-021116-DR-011	Acetone
	1602353-02	TB-11114514-021116-SO	Acetone

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602353**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**SO-11114514-021116-DR-011**	Sampled:	02/11/16 11:45
Lab Sample ID:	**1602353-01**	Sampled By:	D. Rivers
Matrix:	Soil	Received:	02/17/16 08:20
Unit:	ug/kg dry	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	1	Analyzed:	02/23/16 11:57 By: BAG
QC Batch:	1601711	Analytical Batch:	6B23023
Percent Solids:	91		

Volatile Organic Compounds by EPA Method 8260B (5035A High Level)

CAS Number	Analyte	Analytical Result	RL	MDL
*67-64-1	Acetone	**220J**	820	110
71-43-2	Benzene	55U	55	11
75-27-4	Bromodichloromethane	55U	55	6.3
75-25-2	Bromoform	55U	55	5.6
74-83-9	Bromomethane	55U	55	25
75-15-0	Carbon Disulfide	270U	270	5.8
56-23-5	Carbon Tetrachloride	55U	55	9.7
108-90-7	Chlorobenzene	55U	55	11
75-00-3	Chloroethane	55U	55	29
67-66-3	Chloroform	55U	55	7.8
74-87-3	Chloromethane	55U	55	13
110-82-7	Cyclohexane	270U	270	11
96-12-8	1,2-Dibromo-3-chloropropane	270U	270	9.4
124-48-1	Dibromochloromethane	55U	55	5.4
106-93-4	1,2-Dibromoethane	55U	55	6.6
95-50-1	1,2-Dichlorobenzene	55U	55	3.8
541-73-1	1,3-Dichlorobenzene	55U	55	5.8
106-46-7	1,4-Dichlorobenzene	55U	55	6.7
75-71-8	Dichlorodifluoromethane	55U	55	12
75-34-3	1,1-Dichloroethane	55U	55	14
107-06-2	1,2-Dichloroethane	55U	55	6.8
75-35-4	1,1-Dichloroethene	55U	55	13
156-59-2	cis-1,2-Dichloroethene	55U	55	7.2
156-60-5	trans-1,2-Dichloroethene	55U	55	12
78-87-5	1,2-Dichloropropane	55U	55	5.6
10061-01-5	cis-1,3-Dichloropropene	55U	55	6.6
10061-02-6	trans-1,3-Dichloropropene	55U	55	5.7
100-41-4	Ethylbenzene	55U	55	4.7
591-78-6	2-Hexanone	2700U	2700	58
98-82-8	Isopropylbenzene	55U	55	6.5
79-20-9	Methyl Acetate	270U	270	15

Continued on next page

*See Statement of Data Qualifications

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602353**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**SO-11114514-021116-DR-011**	Sampled:	02/11/16 11:45
Lab Sample ID:	**1602353-01**	Sampled By:	D. Rivers
Matrix:	Soil	Received:	02/17/16 08:20
Unit:	ug/kg dry	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	1	Analyzed:	02/23/16 11:57 By: BAG
QC Batch:	1601711	Analytical Batch:	6B23023
Percent Solids:	91		

Volatile Organic Compounds by EPA Method 8260B (5035A High Level) (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	55U	55	7.7
108-87-2	Methylcyclohexane	270U	270	12
75-09-2	Methylene Chloride	**34J**	270	14
78-93-3	2-Butanone (MEK)	2700U	2700	35
108-10-1	4-Methyl-2-pentanone (MIBK)	2700U	2700	12
100-42-5	Styrene	55U	55	5.8
79-34-5	1,1,2,2-Tetrachloroethane	55U	55	6.8
127-18-4	Tetrachloroethene	**2800**	55	6.6
108-88-3	Toluene	**43J**	55	3.6
120-82-1	1,2,4-Trichlorobenzene	55U	55	13
71-55-6	1,1,1-Trichloroethane	55U	55	8.3
79-00-5	1,1,2-Trichloroethane	55U	55	11
79-01-6	Trichloroethene	**32J**	55	11
75-69-4	Trichlorofluoromethane	55U	55	10
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	55U	55	9.9
75-01-4	Vinyl Chloride	55U	55	13
1330-20-7	Xylene (Total)	160U	160	16

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*90*	*75-123*
1,2-Dichloroethane-d4	*106*	*83-116*
Toluene-d8	*97*	*85-113*
4-Bromofluorobenzene	*96*	*81-117*

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602353**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**SO-11114514-021116-DR-011**	Sampled:	02/11/16 11:45
Lab Sample ID:	**1602353-01**	Sampled By:	D. Rivers
Matrix:	Soil	Received:	02/17/16 08:20

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	**91**	0.1	0.1	%	1	USEPA-3550C	02/21/16 09:46	HLB	1601629

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602353**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**SO-11114514-021116-DR-011**	Sampled:	02/11/16 11:45
Lab Sample ID:	**1602353-01**	Sampled By:	D. Rivers
Matrix:	Soil	Received:	02/17/16 08:20
Unit:	mg/L	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	100	Analyzed:	02/23/16 11:28 By: BAG
QC Batch:	1601708	Analytical Batch:	6B23021
Percent Solids:	91		

TCLP Volatile Organics by EPA Method 1311/8260B

CAS Number	Analyte	Analytical Result	RL	MDL
71-43-2	Benzene	0.10U	0.10	0.027
56-23-5	Carbon Tetrachloride	0.10U	0.10	0.030
108-90-7	Chlorobenzene	0.10U	0.10	0.024
67-66-3	Chloroform	0.10U	0.10	0.021
107-06-2	1,2-Dichloroethane	0.10U	0.10	0.018
75-35-4	1,1-Dichloroethene	0.10U	0.10	0.024
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.096
127-18-4	Tetrachloroethene	0.10U	0.10	0.015
79-01-6	Trichloroethene	0.10U	0.10	0.023
75-01-4	Vinyl Chloride	0.10U	0.10	0.021

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*98*	*79-124*
1,2-Dichloroethane-d4	*108*	*75-128*
Toluene-d8	*97*	*87-113*
4-Bromofluorobenzene	*98*	*70-121*

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602353**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**TB-11114514-021116-SO**	Sampled:	02/11/16 00:00
Lab Sample ID:	**1602353-02**	Sampled By:	D. Rivers
Matrix:	Methanol	Received:	02/17/16 08:20
Unit:	ug/kg wet	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	1	Analyzed:	02/23/16 12:25 By: BAG
QC Batch:	1601711	Analytical Batch:	6B23023

Volatile Organic Compounds by EPA Method 8260B (5035A High Level)

CAS Number	Analyte	Analytical Result	RL	MDL
*67-64-1	Acetone	**180J**	750	100
71-43-2	Benzene	50U	50	10
75-27-4	Bromodichloromethane	50U	50	5.8
75-25-2	Bromoform	50U	50	5.1
74-83-9	Bromomethane	50U	50	23
75-15-0	Carbon Disulfide	250U	250	5.3
56-23-5	Carbon Tetrachloride	50U	50	8.9
108-90-7	Chlorobenzene	50U	50	10
75-00-3	Chloroethane	50U	50	26
67-66-3	Chloroform	50U	50	7.1
74-87-3	Chloromethane	50U	50	12
110-82-7	Cyclohexane	250U	250	10
96-12-8	1,2-Dibromo-3-chloropropane	250U	250	8.6
124-48-1	Dibromochloromethane	50U	50	4.9
106-93-4	1,2-Dibromoethane	50U	50	6.0
95-50-1	1,2-Dichlorobenzene	50U	50	3.5
541-73-1	1,3-Dichlorobenzene	50U	50	5.3
106-46-7	1,4-Dichlorobenzene	50U	50	6.1
75-71-8	Dichlorodifluoromethane	50U	50	11
75-34-3	1,1-Dichloroethane	50U	50	13
107-06-2	1,2-Dichloroethane	50U	50	6.2
75-35-4	1,1-Dichloroethene	50U	50	12
156-59-2	cis-1,2-Dichloroethene	50U	50	6.6
156-60-5	trans-1,2-Dichloroethene	50U	50	11
78-87-5	1,2-Dichloropropane	50U	50	5.1
10061-01-5	cis-1,3-Dichloropropene	50U	50	6.0
10061-02-6	trans-1,3-Dichloropropene	50U	50	5.2
100-41-4	Ethylbenzene	50U	50	4.3
591-78-6	2-Hexanone	2500U	2500	53
98-82-8	Isopropylbenzene	50U	50	5.9
79-20-9	Methyl Acetate	250U	250	14

Continued on next page

*See Statement of Data Qualifications

TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**GHD - Plymouth, Michigan**	Work Order:	**1602353**
Project:	Lower Town - SSOW 11114514-002	Description:	Laboratory Services
Client Sample ID:	**TB-11114514-021116-SO**	Sampled:	02/11/16 00:00
Lab Sample ID:	**1602353-02**	Sampled By:	D. Rivers
Matrix:	Methanol	Received:	02/17/16 08:20
Unit:	ug/kg wet	Prepared:	02/23/16 08:00 By: BAG
Dilution Factor:	1	Analyzed:	02/23/16 12:25 By: BAG
QC Batch:	1601711	Analytical Batch:	6B23023

Volatile Organic Compounds by EPA Method 8260B (5035A High Level) (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
1634-04-4	Methyl tert-Butyl Ether	50U	50	7.0
108-87-2	Methylcyclohexane	250U	250	11
75-09-2	Methylene Chloride	**28J**	250	13
78-93-3	2-Butanone (MEK)	2500U	2500	32
108-10-1	4-Methyl-2-pentanone (MIBK)	2500U	2500	11
100-42-5	Styrene	50U	50	5.3
79-34-5	1,1,2,2-Tetrachloroethane	50U	50	6.2
127-18-4	Tetrachloroethene	50U	50	6.0
108-88-3	Toluene	**60**	50	3.3
120-82-1	1,2,4-Trichlorobenzene	50U	50	12
71-55-6	1,1,1-Trichloroethane	50U	50	7.6
79-00-5	1,1,2-Trichloroethane	50U	50	10
79-01-6	Trichloroethene	50U	50	9.9
75-69-4	Trichlorofluoromethane	50U	50	9.2
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	50U	50	9.0
75-01-4	Vinyl Chloride	50U	50	12
1330-20-7	Xylene (Total)	150U	150	14

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	*85*	*75-123*
1,2-Dichloroethane-d4	*105*	*83-116*
Toluene-d8	*97*	*85-113*
4-Bromofluorobenzene	*95*	*81-117*

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (5035A High Level)

QC Batch: 1601711 5030B Aqueous Purge & Trap/USEPA-8260B

Method Blank Analyzed: 02/23/2016 By: BAG

Unit: ug/kg wet Analytical Batch: 6B23023

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acetone			**170 J**			--		750	100
Benzene			50 U					50	10
Bromodichloromethane			50 U					50	5.8
Bromoform			50 U					50	5.1
Bromomethane			50 U					50	23
Carbon Disulfide			250 U			--		250	5.3
Carbon Tetrachloride			50 U					50	8.9
Chlorobenzene			50 U					50	10
Chloroethane			50 U					50	26
Chloroform			50 U					50	7.1
Chloromethane			50 U					50	12
Cyclohexane			250 U					250	10
1,2-Dibromo-3-chloropropane			250 U					250	8.6
Dibromochloromethane			50 U					50	4.9
1,2-Dibromoethane			50 U					50	6.0
1,2-Dichlorobenzene			50 U					50	3.5
1,3-Dichlorobenzene			50 U			--		50	5.3
1,4-Dichlorobenzene			**7.0 J**			--		50	6.1
Dichlorodifluoromethane			50 U					50	11
1,1-Dichloroethane			50 U					50	13
1,2-Dichloroethane			50 U					50	6.2
1,1-Dichloroethene			50 U					50	12
cis-1,2-Dichloroethene			50 U					50	6.6
trans-1,2-Dichloroethene			50 U					50	11
1,2-Dichloropropane			50 U					50	5.1
cis-1,3-Dichloropropene			50 U					50	6.0
trans-1,3-Dichloropropene			50 U					50	5.2
Ethylbenzene			50 U					50	4.3
2-Hexanone			2500 U					2500	53
Isopropylbenzene			50 U					50	5.9
Methyl Acetate			250 U					250	14
Methyl tert-Butyl Ether			50 U					50	7.0
Methylcyclohexane			250 U					250	11
Methylene Chloride			250 U					250	13
2-Butanone (MEK)			2500 U					2500	32
4-Methyl-2-pentanone (MIBK)			2500 U					2500	11

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QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (5035A High Level) (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1601711 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B									
Method Blank (Continued)					Analyzed:		02/23/2016	By: BAG	
Unit: ug/kg wet					Analytical Batch:		6B23023		
Styrene			50 U					50	5.3
1,1,2,2-Tetrachloroethane			50 U					50	6.2
Tetrachloroethene			50 U					50	6.0
Toluene			50 U					50	3.3
1,2,4-Trichlorobenzene			50 U			--		50	12
1,1,1-Trichloroethane			50 U					50	7.6
1,1,2-Trichloroethane			50 U					50	10
Trichloroethene			50 U					50	9.9
Trichlorofluoromethane			50 U					50	9.2
1,1,2-Trichloro-1,2,2-trifluoroethane			50 U					50	9.0
Vinyl Chloride			50 U					50	12
Xylene (Total)			150 U					150	14
Method Blank					Analyzed:		02/23/2016	By: BAG	
Unit: ug/L					Analytical Batch:		6B23023		
Surrogates:									
Dibromofluoromethane				*97*	*75-123*				
1,2-Dichloroethane-d4				*106*	*83-116*				
Toluene-d8				*97*	*85-113*				
4-Bromofluorobenzene				*98*	*81-117*				
Laboratory Control Sample					Analyzed:		02/23/2016	By: BAG	
Unit: ug/kg wet					Analytical Batch:		6B23023		
Acetone		2000	**2250**	112	64-130	--		750	100
Benzene		2000	**1930**	97	85-118	--		50	10
Bromodichloromethane		2000	**2020**	101	80-123	--		50	5.8
Bromoform		2000	**1820**	91	58-128	--		50	5.1
Bromomethane		2000	**1660**	83	57-139	--		50	23
Carbon Disulfide		2000	**1840**	92	65-138	--		250	5.3
Carbon Tetrachloride		2000	**1900**	95	76-125	--		50	8.9
Chlorobenzene		2000	**1980**	99	86-114	--		50	10
Chloroethane		2000	**1890**	95	76-123	--		50	26
Chloroform		2000	**1930**	96	86-118	--		50	7.1
Chloromethane		2000	**1940**	97	73-123	--		50	12

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (5035A High Level) (Continued)

QC Batch: 1601711 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued)
Unit: ug/kg wet

Analyzed: 02/23/2016 By: BAG
Analytical Batch: 6B23023

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Cyclohexane		2000	**1970**	98	79-122	--		250	10
1,2-Dibromo-3-chloropropane		2000	**1950**	98	51-132	--		250	8.6
Dibromochloromethane		2000	**1820**	91	72-119	--		50	4.9
1,2-Dibromoethane		2000	**2170**	109	81-118	--		50	6.0
1,2-Dichlorobenzene		2000	**2000**	100	82-124	--		50	3.5
1,3-Dichlorobenzene		2000	**2030**	101	85-119	--		50	5.3
1,4-Dichlorobenzene		2000	**2000**	100	85-119	--		50	6.1
Dichlorodifluoromethane		2000	**1750**	87	68-135	--		50	11
1,1-Dichloroethane		2000	**1950**	98	81-121	--		50	13
1,2-Dichloroethane		2000	**1970**	98	82-119	--		50	6.2
1,1-Dichloroethene		2000	**1910**	95	80-121	--		50	12
cis-1,2-Dichloroethene		2000	**2000**	100	85-118	--		50	6.6
trans-1,2-Dichloroethene		2000	**1980**	99	85-117	--		50	11
1,2-Dichloropropane		2000	**2010**	100	80-122	--		50	5.1
cis-1,3-Dichloropropene		2000	**1890**	95	79-121	--		50	6.0
trans-1,3-Dichloropropene		2000	**1860**	93	73-125	--		50	5.2
Ethylbenzene		2000	**1960**	98	84-116	--		50	4.3
2-Hexanone		2000	**2140 J**	107	63-131	--		2500	53
Isopropylbenzene		2000	**2010**	100	82-125	--		50	5.9
Methyl Acetate		2000	**2210**	110	75-123	--		250	14
Methyl tert-Butyl Ether		2000	**2150**	108	81-119	--		50	7.0
Methylcyclohexane		2000	**2020**	101	77-125	--		250	11
Methylene Chloride		2000	**1920**	96	78-123	--		250	13
2-Butanone (MEK)		2000	**2260 J**	113	68-130	--		2500	32
4-Methyl-2-pentanone (MIBK)		2000	**2240 J**	112	68-133	--		2500	11
Styrene		2000	**2090**	105	79-115	--		50	5.3
1,1,2,2-Tetrachloroethane		2000	**2300**	115	75-125	--		50	6.2
Tetrachloroethene		2000	**1930**	96	85-116	--		50	6.0
Toluene		2000	**1940**	97	86-120	--		50	3.3
1,2,4-Trichlorobenzene		2000	**2030**	102	66-133	--		50	12
1,1,1-Trichloroethane		2000	**1860**	93	84-121	--		50	7.6
1,1,2-Trichloroethane		2000	**2070**	103	85-120	--		50	10
Trichloroethene		2000	**1860**	93	83-125	--		50	9.9
Trichlorofluoromethane		2000	**1830**	91	82-123	--		50	9.2
1,1,2-Trichloro-1,2,2-trifluoroethane		2000	**1880**	94	81-122	--		50	9.0
Vinyl Chloride		2000	**1910**	95	77-124	--		50	12

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (5035A High Level) (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1601711 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B									
Laboratory Control Sample (Continued) Unit: ug/kg wet — Analyzed: 02/23/2016 By: BAG; Analytical Batch: 6B23023									
Xylene (Total)		6000	**6020**	100	84-117	--		150	14
Laboratory Control Sample Unit: ug/L — Analyzed: 02/23/2016 By: BAG; Analytical Batch: 6B23023									
Surrogates:									
Dibromofluoromethane				*100*	*75-123*				
1,2-Dichloroethane-d4				*104*	*83-116*				
Toluene-d8				*99*	*85-113*				
4-Bromofluorobenzene				*99*	*81-117*				

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

TCLP Volatile Organics by EPA Method 1311/8260B

QC Batch: 1601708 5030B Aqueous Purge & Trap/USEPA-8260B

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Method Blank Unit: mg/L — Analyzed: 02/23/2016 By: BAG; Analytical Batch: 6B23021									
Benzene			0.10 U					0.10	0.027
Carbon Tetrachloride			0.10 U					0.10	0.030
Chlorobenzene			0.10 U					0.10	0.024
Chloroform			0.10 U					0.10	0.021
1,2-Dichloroethane			0.10 U					0.10	0.018
1,1-Dichloroethene			0.10 U					0.10	0.024
2-Butanone (MEK)			5.0 U					5.0	0.096
Tetrachloroethene			0.10 U					0.10	0.015
Trichloroethene			0.10 U					0.10	0.023
Vinyl Chloride			0.10 U					0.10	0.021
Method Blank Unit: ug/L — Analyzed: 02/23/2016 By: BAG; Analytical Batch: 6B23021									
Surrogates:									
Dibromofluoromethane				*97*	*79-124*				
1,2-Dichloroethane-d4				*106*	*75-128*				
Toluene-d8				*97*	*87-113*				
4-Bromofluorobenzene				*98*	*70-121*				
Laboratory Control Sample Unit: mg/L — Analyzed: 02/23/2016 By: BAG; Analytical Batch: 6B23021									
Benzene		4.00	**3.87**	97	77-122	--		0.10	0.027
Carbon Tetrachloride		4.00	**3.80**	95	77-132	--		0.10	0.030
Chlorobenzene		4.00	**3.97**	99	76-128	--		0.10	0.024
Chloroform		4.00	**3.85**	96	78-127	--		0.10	0.021
1,2-Dichloroethane		4.00	**3.93**	98	78-125	--		0.10	0.018
1,1-Dichloroethene		4.00	**3.82**	95	71-129	--		0.10	0.024
2-Butanone (MEK)		4.00	**4.53 J**	113	32-178	--		5.0	0.096
Tetrachloroethene		4.00	**3.86**	96	78-131	--		0.10	0.015
Trichloroethene		4.00	**3.71**	93	72-129	--		0.10	0.023
Vinyl Chloride		4.00	**3.82**	95	66-139	--		0.10	0.021
Laboratory Control Sample Unit: ug/L — Analyzed: 02/23/2016 By: BAG; Analytical Batch: 6B23021									

Continued on next page

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

TCLP Volatile Organics by EPA Method 1311/8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

QC Batch: 1601708 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

Laboratory Control Sample (Continued) Analyzed: 02/23/2016 By: BAG
Unit: ug/L Analytical Batch: 6B23021

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Surrogates:									
Dibromofluoromethane				*100*	*79-124*				
1,2-Dichloroethane-d4				*104*	*75-128*				
Toluene-d8				*99*	*87-113*				
4-Bromofluorobenzene				*99*	*70-121*				

TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL

Analyte: **Percent Solids**/USEPA-3550C

QC Batch: 1601629 (Method Specific Preparation) Analyzed: 02/21/2016 By: HLB

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Method Blank			0.1 U	%					0.1	0.1

TRIMATRIX LABORATORIES

PRETREATMENT SUMMARY PAGE

Client: **GHD - Plymouth, Michigan**
Project: **Lower Town - SSOW 11114514-002**

Pretreatment	Lab Sample ID	Batch	By	Date & Time Prepared
USEPA-1311 ZHE Extraction (Volatiles)	1602353-01	1601674	ARB	02/22/16 16:00

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

1.8/C1.3

VOC waste frig

Chain of Custody Record

Rack #525 Red

122888

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

29-07

Client Contact	
Company Name:	GHD Services
Address:	14496 Sheldon Rd
City/State/Zip:	Plymouth, MI, 48170
Phone:	(734) 453-5123
Fax:	
Project Name:	Lower Town Project
Site:	Ann Arbor, MI
P O #	

Project Manager: T. Kinney
Tel/Fax: (734) 453 5123

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Site Contact: R. Flessing
Lab Contact: D. Heckler
Date: 2/11/16
Carrier: FEDEX

COC No: 1111451 4-cvi
1 of 1 COCs
Sampler: D. Rowen
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.: 1111 4514

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCLP VOCs	Total VOCs	WO# Sample Specific Notes:
01	SO-1111 4514-021116-DR-011	2/11/16	1145	~~SO~~ C	SO	3			X	X	1602353
02	TB-1111 4514-021116-SO	↓	—	~~SO~~	SQ	1				X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temp. (°C): Obs'd: Corr'd: Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
D. Rowen	GHD	2/11/16 1600	[signature]	TA	2-12-16 945
RICK R.	TestAm	2-16-16 1656			
			Received in Laboratory by: [signature]	Trimatrix	2/17/16 0820

2/18/16 0835

SAMPLE RECEIVING / LOG-IN CHECKLIST

TRIMATRIX LABORATORIES

Client: Test America MI	Work Order #: 1602353	New / Add To
Receipt Record Page/Line #: 29-7	Project Chemist	Sample #s: 01-02

Recorded by (initials/date): Ln 2/17/16

☒ Cooler ☐ Box ☐ Other

Qty Received: 1

Thermometer Used: ☒ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#____)

☐ See Additional Cooler Information Form

	Cooler 1	Cooler 2	Cooler 3	Cooler 4
Cooler #	TA D-0246	5877		
Time	0942	0859		
Custody Seals	☒ None ☐ Present / Intact ☐ Present / Not Intact	☒ None ☐ Present / Intact ☐ Present / Not Intact	☐ None ☐ Present / Intact ☐ Present / Not Intact	☐ None ☐ Present / Intact ☐ Present / Not Intact
Coolant Type	☒ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	☒ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None
Coolant Location	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom
Temp Blank Present	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
If Present, Temperature Blank Location is	☐ Representative ☐ Not Representative	☐ Representative ☐ Not Representative	☐ Representative ☐ Not Representative	☐ Representative ☐ Not Representative

Cooler TA D-0246:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank			
Sample 1	2.6	-	2.6
Sample 2	3.4	-	3.4
Sample 3	3.8	-	3.8

3 Sample Average °C: 3.3

☐ Cooler ID on COC? ☒ VOC Trip Blank received?

Cooler 5877:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank			
Sample 1	3.4	-	3.4
Sample 2	4.1	-	4.1
Sample 3			

3 Sample Average °C: 3.7

☐ Cooler ID on COC? ☐ VOC Trip Blank received?

Cooler 3 and Cooler 4:

	Observed °C	Correction Factor °C	Actual °C
Temp Blank			
Sample 1			
Sample 2			
Sample 3			

3 Sample Average °C:

☐ Cooler ID on COC? ☐ VOC Trip Blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received

Yes	No	
☒	☐	Chain of Custody record(s)? If No, Initiated By ____
☒		Received for Lab Signed/Date/Time?
☒	☐	Shipping document?
☐	☒	Other ____

COC Information

☐ TriMatrix COC ☒ Other____

COC ID Numbers:

Check Sample Preservation

N/A	Yes	No	
	☐	☒	Temperature Blank OR average sample temperature, ≥6° C?
☒	☐	☐	If either is ≥6° C, was thermal preservation required?
☒	☐		If "Yes", Project Chemist Approval Initials: ____
☒	☐		If "Yes" Completed Non Con Cooler - Cont Inventory Form?
☒	☐		Completed Sample Preservation Verification Form?
☒	☐	☐	Samples chemically preserved correctly?
☒	☐		If "No", added orange tag?
	☐	☒	Received pre-preserved VOC soils? ☐ MeOH ☐ Na_2SO_4

Check COC for Accuracy

Yes	No	
☒	☐	Analysis Requested?
☒	☐	Sample ID matches COC?
☒	☐	Sample Date and Time matches COC?
☒		Container type completed on COC?
☒	☐	All container types indicated are received?

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☐ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged containers
☐ Yellow/White-tagged 1 L ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☒ RECEIVED, COCs TO LAB(S)

Sample Condition Summary

N/A	Yes	No	
	☐	☒	Broken containers/lids?
	☐	☒	Missing or incomplete labels?
	☐	☒	Illegible information on labels?
	☐	☒	Low volume received?
	☐	☒	Inappropriate or non-TriMatrix containers received?
☐	☐	☒	VOC vials / TOX containers have headspace?
☐	☐	☒	Extra sample locations / containers not listed on COC?

Notes

Cooler #5877 arrived on 2/18/16 with additional Samples.

☐ Trip Blank received ☐ Trip Blank not listed on COC

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
2/17/16 0820	2/17/16 1005	Yes / No

APPENDIX E
QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

AGNES R. TAYLOR

STAFF GEOLOGIST

(248) 308-6290 taylor@sme-usa.com

- Environmental Site Assessments (ESAs)
- Subsurface Environmental Investigations
- Brownfield Redevelopment
- Tax incentive consulting

BACKGROUND

Agnes conducts environmental investigations and site assessments on developed and undeveloped sites to identify and address potential environmental hazards prior to demolition, new construction and rehabilitation projects. She performs due diligence work such as Phase I and Phase II Environmental Site Assessments and Baseline Environmental Assessments. Additionally, Agnes is involved with our tax consulting services and focuses on brownfield tax incentive, obsolete property and commercial rehabilitation tax abatements, and industrial facility tax vouchers. Her skillset includes soil, groundwater, drinking water, and soil gas sampling; analyzing and interpreting environmental data; and technical report writing. Agnes joined SME in 2015 after the completion of her Master of Science degree in Earth and Climate Sciences.

RELATED PROJECT EXPERIENCE

Conducts Phase I and Phase II Environmental Site Assessments for clients to identify and assess potential environmental liabilities associated with their properties. Projects range in size and complexity from vacant land to active industrial sites.

Assists with the planning and writing of documents associated with the redevelopment of Brownfield sites and Brownfield TIF projects.

Helps clients obtain tax incentives for projects involving functionally obsolete and blighted buildings within the City of Detroit. Her experience with tax incentives includes Obsolete Property Rehabilitation Act, Commercial Rehabilitation Act tax exemptions, and Industrial Facilities tax vouchers.

Prior to joining SME, Agnes served as research assistant at the University of Maine while completing her Master of Science. She served as manager of the Geochemical Laboratory while designing the scope of her thesis and implementing the associated field, laboratory, and data analysis work. Additionally, she was involved in the data organization and implementation of the EarthKin geochemical database with professors at the University of Maine, Pennsylvania State University, and Columbia University.

EDUCATION

M.S., Geochemistry, University of Maine
B.S., Earth and Environmental Sciences, Miami University

CERTIFICATIONS

OSHA 40-Hour HAZWOPER Course
A-1i Storm Water Management- Industrial Site
Geo-Seal Installation Inspector

JEFFREY R. LANIER, PE

SENIOR CONSULTANT

(586) 405-3521 lanier@sme-usa.com

- Environmental Compliance Services
- Emergency Response and Mitigation
- Brownfield Redevelopment and Remediation
- Project Manager

BACKGROUND

Jeff has 20 years of experience and provides project management and engineering expertise in the areas of industrial and storm water compliance, spill prevention and response, and engineering control design to mitigate human health concerns. He helps clients understand the regulatory requirements for storm water permits, wastewater discharge, pollution prevention, emergency spill preparedness and underground/ aboveground storage tank compliance. He specializes in developing facility-specific recommendations and preparing documents such as Storm Water Pollution Prevention Plans (SWPPP), Soil Erosion and Sedimentation Control (SESC) plans and applications, Spill Prevention Control and Countermeasures (SPCC) Plans, and Pollution Incident Prevention (PIP) Plans.

RELATED PROJECT EXPERIENCE

Audited numerous industrial and manufacturing facilities for compliance with state and federal storm water discharge regulations. Audit services involved reviewing existing National Pollutant Discharge Elimination System (NPDES) Permits; identifying noncompliance issues with existing SWPPPs; providing recommendations for employee training, visual assessments and best management practices; and negotiating NPDES Permit requirements with local and federal agencies.

Prepared, reviewed and PE-certified dozens of SPCC and PIP Plans for industrial and manufacturing facilities, liquid waste treatment plants, shipping facilities, concrete batch plants and air cargo facilities. Compliance services typically involved: conducting comprehensive site inspections; providing secondary containment structure design recommendations; notifying regulatory and local agencies; review of chemical compatibility of hazardous materials; preparing or modifying SPCC plans; and recommending spill control and response employee procedures.

Project Manager and Storm Water Consultant for development and implementation of Storm Water Management Plans for numerous school district clients. Projects typically involve working closely with school districts to help them understand requirements of their NPDES Permit and applicable Total Maximum Daily Loads (TMDLs) for biota, e-coli, and dissolved oxygen. Other services included: identifying potential storm water polluting sources; surveying drainage and outfall locations; providing public awareness, education, implementing public outreach programs; preparing MDEQ progress reports; and training facility maintenance staff about pollution prevention and spill response practices.

RELATED PROJECT EXPERIENCE CONT.

Technical Consultant for the industrial compliance evaluation of a concrete batch plant in Michigan. Conducted a comprehensive inspection of the facility's chemical storage and use, plant operations, and storm water drainage. Obtained MDEQ approval to perform dye testing of an interior plant floor drain, which proved the drain was not connected to the storm sewer system. Also prepared an Integrated SWPPP/SPCC/PIP Plan for the facility.

Project Manager for storm water permit compliance services at various Michigan Department of Corrections (MDOC) prison sites. Provided the following consulting services: comprehensive inspections, MDEQ reporting, dry weather inspections, public outreach, staff training, total suspended solids (TSS) calculations, and development of maintenance SWPPPs.

Project Manager and Technical Consultant for the emergency response and mitigation of several natural gas pipeline leak sites in Michigan. Project tasks included rush mobilization of a drill rig to evaluate subsurface gas conditions, coordination with multiple gas company field crews and managers, field monitoring of methane levels and barometric pressure changes, and communication of gas conditions and necessary response measures. Designed and coordinated rush mobilization of a gas extraction system consisting of a SVE trailer, treatment vessel, gas extraction wells and piping, and a 24-hour backup generator system emergency extraction system was able to reduce trapped methane gas under an existing retail store from 80% methane gas by volume to 0% in two days.

Project Engineer and Technical Consultant responsible for design of a sub-slab vapor intrusion barrier and gas depressurization system. Project sites included commercial, retail, church and industrial-type buildings ranging in size from 1,800 to 100,000 SF. Developed work plans to delineate sub-slab contamination (e.g. BTEX, chlorinated solvents, methane gas) and evaluate remedial and mitigation strategies. Subsurface data was used to design appropriate gas/vapor mitigation controls, active and passive depressurization systems, and gas monitoring alarm systems. Projects involved coordinating with contractors, tenants and MDEQ personnel; calculating allowable vapor concentrations, evaluating data and reporting.

Engineer for the investigation and remediation of an existing dry cleaner space located in a commercial strip center. The $150,000 project involved delineating the extent of tetrachloroethene contamination beneath the building, designing and bidding soil remediation activities, providing health and safety monitoring, coordinating with multiple contractors and disposal facilities, final building restoration, and project documentation.

EDUCATION

B.S., Civil and Environmental Engineering – Michigan State University
Fundamentals of Professional Practice – Geoprofessional Business Association (GBA)
Fellow, Larson Center for Leadership

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer – Michigan
OSHA 8-Hour Hazardous Waste Operations and Emergency Response Course
OSHA 8-Hour Confined Space Entry Course
Certified Storm Water Operator (CSWO) – Industrial and Construction
Certified Soil Erosion Sedimentation Control (SESC) Inspector
Certified Underground Storage Tank (UST) Professional – MDEQ

JAMES M. HARLESS, PhD, CHMM

VICE PRESIDENT

(734) 260-1130 harless@sme-usa.com

- Environmental Regulatory Compliance
- Regulatory Compliance Programs
- Environmental Liability Management
- Brownfield Redevelopment and Financing

BACKGROUND

James serves as Project Officer and Principal Consultant for SME with 40 years of experience. He is recognized as an expert in the field of environmental regulatory compliance and compliance programs, liability management, and brownfield redevelopment and financing. James provides senior technical and project management services in the areas of compliance auditing, compliance program development, site investigation and remediation, waste management, and litigation support. He has extensive experience in hazardous materials and hazardous waste management, right-to-know- programs, and assessment, remediation and redevelopment of environmentally contaminated sites. He was a member of the American Chemical Society's Laboratory Environmental, Health and Safety Task Force for 30 years and is a Fellow of the Institute for Hazardous Materials Management. Since joining SME in 2003, James has held positions of increasing responsibility leading to his appointment as Vice President and Principal.

RELATED PROJECT EXPERIENCE

Provided regulatory compliance services to industrial clients in the steel, plastics molding, plating and parts manufacturing sectors for a variety of environmental issues, including compliance audits, hazardous waste and hazardous chemicals management, industrial effluent analysis and management, hazard communication, spill prevention, spill decontamination and remediation, and waste characterization and disposal.

Designed and managed annual independent compliance auditing programs at over 15 plant sites for Kelsey-Hayes Corporation. Developed responses to assist plant personnel attain full compliance status.

Assisted with design and negotiation of RCRA and Toxic Substances Control Act (TSCA) administrative orders on consent for a 200-acre, integrated iron and steel facility.

Designed and managed PCB cleanup programs for multiple large industrial sites under EPA-approved, Self-Implementing Plans.

Provided senior technical expertise to industrial clients in the areas of air pollution monitoring, hazardous materials control ventilation, quality assurance and quality control, and chemical analysis.

Designed and managed RCRA compliance programs, including the development of waste minimization and waste management procedures, closures of multiple permitted facilities, design and negotiation of facility and unit specific corrective action programs, and laboratory waste management and disposal projects.

RELATED PROJECT EXPERIENCE CONT.

Managed assessment, remediation and closure of over 15 leaking UST sites including gasoline service stations, steam generating facilities and manufacturing plants

Designed and managed many contaminated site investigation and remediation projects including Hi-Mill Manufacturing Superfund site and multiple RCRA-permitted facility closures.

EDUCATION

B.A. Cum Laude, Chemistry, Rice University
PhD, Organic Chemistry, University of Texas at Austin

CERTIFICATIONS AND PROFESSIONAL TRAINING

Certified Hazardous Materials Manager (CHMM)
40-Hour HAZWOPER Course
HAZWOPER Site Supervisor
8-Hour HAZWOPER Annual Refresher

AFFILIATIONS

Alliance of Hazardous Materials Professionals (AHMP), Past-President
Washtenaw County Brownfield Redevelopment Authority, Secretary, Past-Chair
Michigan Association of Hazardous Materials Professionals (AHMP), Michigan Chapter
American Chemical Society (ACS)
Geoprofessional Business Association (GBA), Environmental Committee Vice-Chair

AWARDS

Outstanding Environmental Professional of the Year, 2010 – Michigan Association of Environmental Professionals (MAEP)
Fellow of the Institute of Hazardous Materials Management (IHMM)

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ELIGIBLE ACTIVITIES AND REIMBURSEMENT TABLES

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TABLE 1A
ELIGIBLE ENVIRONMENTAL COSTS
1140 BROADWAY STREET REDEVELOPMENT
073987.02
2/10/2017

ENVIRONMENTAL (MDEQ) ACTIVITIES								
TASK/ACTIVITY	COST ITEM	UNIT COST	UNITS	QUANTITY	COST	TOTAL COST	TIF SOURCES	
							State	Local
BEA Activities								
Phase I ESA[(2)]	Lookback- Phase I ESA for Lowertown properties	$4,500	ea.	2	$9,000	$9,000	$ -	$ 9,000
Phase II ESA/BEA[(2)]	Lookback- Phase II ESA- exploratory test pits	$15,000	ea.	1	$15,000	$15,000	$ -	$ 15,000
	Lookback- BEA report	$5,000	ea.	1	$5,000	$5,000	$ -	$ 5,000
					BEA Activities Subtotal:	**$29,000**	**$ -**	**$ 29,000**
Due Care Activities								
Due Care Response Activity Planning and Coordination	Lookback- design engineering and remediation plans for response activities.	$15,000	ea.	1	$15,000	$15,000	$ -	$ 15,000
	Design engineering and remediation plans for response activities.	$15,000	ea.	1	$15,000	$15,000	$ 5,718	$ 9,282
Due Care Investigation	Subsurface investigation for due care design and cost planning- Soil gas assessment, chlorinated soil contamination delineation, chlorinated plume delineation, delineation sampling, and subsurface assessment for PRB design.	$60,000	ea.	1	$60,000	$60,000	$ 22,872	$ 37,128
Documentation and Plans[(2)]	Lookback: Plan for Due Care Compliance - Construction	$10,000	ea.	1	$10,000	$10,000	$ -	$ 10,000
	Plan for Due Care Compliance - Future Use	$10,000	ea.	1	$10,000	$30,000	$ 11,436	$ 18,564
	Documentation of Due Care Compliance	$15,000	ea.	1	$15,000			
	Site Specific Health and Safety Plan	$5,000	ea.	1	$5,000			
Fence Repair	Repair existing perimeter fence for security and third-party protection, install warning signs	$10,000	ea.	1	$10,000	$10,000	$ 3,812	$ 6,188
Management and Disposal of Contaminated Soil	Disposal characterization	$500	ea.	10	$5,000	$2,456,500	$ 936,425	$ 1,520,075
	Transport and dispose contaminated soil at a licensed Type II landfill. (Material that cannot remain on site due to environmental or constructability issues)	$45	ton	25,000	$1,125,000			
	Transport and dispose contaminated soil at a licensed hazardous landfill. (Material PCE or other hazardous substances)	$190	ton	5,600	$1,064,000			
	Transport and dispose soils contaminated with concentrations greather than 10x the LDR for treatment at a licensed hazardous landfill.	$525	ton	500	$262,500			
Management of Dewatering Effluent	Rental of on-site frac storage tank	$300	day	30	$9,000	$138,000	$ 52,606	$ 85,394
	Disposal characterization	$500	ea.	3	$1,500			
	Dispose nonhaz water and liquids at a licensed disposal facility. (Includes liquids that cannot be appropriately managed onsite.)	$0.55	gal	50,000	$27,500			
	Dispose hazardous water and liquids at a licensed disposal facility. (Includes liquids that cannot be appropriately managed onsite.)	$2.00	gal	50,000	$100,000			
Install Vapor Mitigation Controls[(1)]	Design of VI Mitigstion System	$15,000	ea	1	$15,000	$470,725	$ 179,442	$ 291,283
	Install passive vapor mitigation system in enclosed building spaces within 50 feet of PCE contamination above VI Res Screening Values	$5	s.f.	68,145	$340,725			
	Daily monitoring and coordination of VI system installation	$1,500	day	30	$45,000			
	Install vent risers, building monitors, and wind turbines	$50,000	ea	1	$50,000			
	Post-installation monitoring and reporting	$5,000	ea.	4	$20,000			
Trackout and Dust Control	Disposal characterization	$600	ea.	1	$600	$38,825	$ 14,800	$ 24,025
	Dust suppression	$300	day	100	$30,000			
	Nonhazardous contaminated soil disposal - street sweeping	$45	ton	35	$1,575			
	Hazardous contaminated soil disposal - street sweeping	$190	ton	35	$6,650			
Prevent Exacerbation and Human Exposure - Utilities	Design of utility seals	$2,000	ea	1	$2,000	$83,600	$ 31,869	$ 51,731
	Install bentonite slurry plug in utility trenches, near property boundary. Assumes 12 utility trench locations for utiltiies such as water, sanitary, storm, etc.	$800	ea.	12	$9,600			
	Install pipe joint seals in areas of shallow contaminated groundwater to prevent infiltration into pipe. Assumes 300 feet of 5-foot section piping will require seals.	$1,200	ea.	60	$72,000			
Abandon Existing Monitoring Wells	Abandon existing MWs (approx. 12 wells).	$1,300	per well	12	$15,600	$15,600	$ 5,947	$ 9,653
Project Field Monitoring and Management	Perform daily on-site inspection and monitoring of due care during response/earthwork	$1,100	day	120	$132,000	$162,000	$ 61,755	$ 100,245
	Project coordination and management	$30,000	ea.	1	$30,000			
					Due Care Activities Subtotal:	**$3,505,250**	**$ 1,326,682**	**$ 2,178,568**
Additional Response Activities								
Install Permeable Reactive Barrier (PRB)	Install PRB near east site boundary. Based on DUNE/Geo-Clense specs of 160' long and 9.5' tall wall to a [PCE]=10ug/L.	$555,000	ea.	1	$555,000	$555,000	$ 211,568	$ 343,432
	Design assessments, design, and documnetation	$35,000	ea.	1	$35,000	$35,000	$ 13,342	$ 21,658
	Install new monitoring wells to evaluate post-wall groundwater conditions	$3,000	per well	12	$36,000	$36,000	$ 13,723	$ 22,277
					Additional Response Activities Subtotal:	**$626,000**	**$ 238,633**	**$ 387,367**
Brownfield Work Plan								
Preparation of Act 381 Work Plan[(2)]	Act 381 Work Plan - MDEQ	$15,000	ea.	1	$15,000	$15,000	$ 5,718	$ 9,282
					Brownfield Work Plan Subtotal:	**$15,000**	**$ 5,718**	**$ 9,282**
					Environmental Subtotal:	**$4,175,250**	**$ 1,571,033**	**$ 2,604,217**
	Contingency	$4,091,250	Percentage	15%	$613,688	$613,688	$ 233,940	$ 379,748
TOTAL ELIGIBLE ENVIRONMENTAL (MDEQ) COSTS:						**$4,788,938**	**$1,804,973**	**$2,983,965**

Notes:

(1) Square footage value includes entirety of buildings A and C and excludes the open air parking deck and all of building B.

(2) These costs are not included in the 15% contingency item.

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TABLE 1B
ELIGIBLE NON-ENVIRONMENTAL COSTS
1140 BROADWAY STREET REDEVELOPMENT
073987.02

NON-ENVIRONMENTAL (MSF) ACTIVITIES									
TASK/ACTIVITY	COST ITEM	UNIT COST[3]	UNITS	QUANTITY	COST	TOTAL COST	TIF SOURCES	
							State	Local
Demolition Activities								
Site removals	Remove and dispose remaining pavement/asphalt/slabs and abandoned utilities	$90,000	ea.	1	$90,000	$90,000	$ 34,308	$ 55,692
Sewer Disconnects	Construction bid item	$1,100,000	ea.	1	$1,100,000	$1,100,000	$ -	$ 1,100,000
					Demolition Activities Subtotal:	**$1,190,000**	**$ 34,308**	**$ 1,155,692**
Infrastructure Improvements (Broadway and Maiden Lane)								
ROW Streetscape Improvements	Including signage, landscaping, public access sidewalks, and Gateway Park	$365,000	ea.	1	$365,000	$365,000	$ 139,139	$ 225,861
Traffic Signals	Relocate old/install new traffic signals	$200,000	ea.	1	$200,000	$200,000	$ 76,241	$ 123,759
Turns lanes	Relocate and construct new turn lanes	$100,000	ea.	1	$100,000	$100,000	$ 38,120	$ 61,880
Bus Stop Improvements	Construct bus turnout lane	$40,000	ea.	1	$40,000	$55,000	$ 20,966	$ 34,034
	Install canopied bus stop	$15,000	ea.	1	$15,000			
					Infrastructure Improvements (Broadway and Maiden Lane) Subtotal:	**$720,000**	**$ 274,466**	**$ 445,534**
Site Preparation Activities								
Excavation of unsuitable soils	Excavation of unsuitable soils	$5	ton	9,000	$45,000	$45,000	$ 17,154	$ 27,846
Staking	Construction bid item	$30,000	ea.	1	$30,000	$30,000	$ 11,436	$ 18,564
Clearing & Grubbing	Construction bid item	$10,000	ea.	1	$10,000	$10,000	$ 3,812	$ 6,188
Temporary Facility	Construction bid item	$20,000	ea.	1	$20,000	$20,000	$ 7,624	$ 12,376
Temporary Construction Access and/or Roads	Construction bid item	$20,000	ea.	1	$20,000	$20,000	$ 7,624	$ 12,376
Temporary Traffic Control	Construction bid item	$30,000	ea.	1	$30,000	$30,000	$ 11,436	$ 18,564
Temporary Erosion Control	Construction bid item	$20,000	ea.	1	$20,000	$20,000	$ 7,624	$ 12,376
Land Balancing/Grading	Construction bid item	$300,000	ea.	1	$300,000	$300,000	$ 114,361	$ 185,639
Utility Relocation	Construction bid item	$275,000	ea.	1	$275,000	$275,000	$ 104,831	$ 170,169
Other	Geotechnical, site control, compaction, etc.	$30,000	ea.	1	$30,000	$30,000	$ 11,436	$ 18,564
					Site Preparation Activities Subtotal:	**$780,000**	**$ 297,338**	**$ 482,662**
Additional Activities								
Parking Garages [2]	Two, three-story, parking structures	$10,950,000	ea.	1	$10,950,000	$10,950,000	$ 4,174,172	$ 6,775,828
Urban Stormwater Systems	Subgrade detention structure	$1,300,000	ea.	1	$1,300,000	$1,300,000	$ 495,564	$ 804,436
Green Roof	Green roof on Building B	$200,000	ea.	1	$200,000	$200,000	$ 76,241	$ 123,759
					Additional Activities Subtotal:	**$12,450,000**	**$ 4,745,977**	**$ 7,704,023**
Eligible Soft Costs								
Architectural and Engineering Design	As related to the two parking decks	$185,000	ea.	1	$185,000	$185,000	$ 70,523	$ 114,477
Site Civil Engineering[2]	Civil engineering- planning, design, administrative, and management for site preparation.	$10,000	ea.	1	$10,000	$10,000	$ 3,812	$ 6,188
Site Construction Management[2]	Planning, design, administrative, and management - 5% of eligible non-environmental activities	$757,000	ea.	1	$757,000	$757,000	$ 288,571	$ 468,429
General Conditions[2]	Contractor's mobilization, demobilization, site management, labor, etc. - 11% of eligible non-environmental activities	$1,665,400	ea.	1	$1,665,400	$1,665,400	$ 634,855	$ 1,030,545
					Eligible Soft Costs Subtotal:	**$2,617,400**	**$ 997,761**	**$ 1,619,639**
Brownfield Work Plans								
Preparation and review of Brownfield Plan	Brownfield Plan	$20,000	ea.	1	$20,000	$20,000	$ 7,624	$ 12,376
Preparation and review of Act 381 Work Plan	Act 381 Work Plan	$15,000	ea.	1	$15,000	$15,000	$ 5,718	$ 9,282
					Brownfield Work Plans Subtotal:	**$35,000**	**$ 13,342**	**$ 21,658**
					Non-Environmental Subtotal:	**$17,792,400**	**$ 6,363,192**	**$ 11,429,208**
	Non-Environmental Contingency[1]	$17,562,400	Percentage	15%	$2,634,360	$2,634,360	$ 1,004,226	$ 1,630,134
TOTAL ELIGIBLE NON-ENVIRONMENTAL (MSF) COSTS:						**$20,426,760**	**$ 7,367,418**	**$ 13,059,342**

Notes:

1. The contingency amount is equal to 15% of the non-environmental costs. Brownfield work plan, Architectural and Engineering, and Site Civil Engineering costs are excluded from the contingency amount.
2. Costs were calculated as a percentage of the hard cost investment and then scaled based on the total eligible activities.
3. Unit Costs were estimated based on previously approved brownfield plans within the City of Ann Arbor. These will be updated with construction bids.

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TABLE 2
TAX CAPTURE + REIMBURSEMENT SCHEDULE
1140 BROADWAY STREET REDEVELOPMENT
073987.02
2/10/2017

		2017 (Y1)	2018 (Y2)	2019 (Y3)	2020 (Y4)	2021 (Y5)	2022 (Y6)	2023 (Y7)	2024 (Y8)	2025 (Y9)	2026 (Y10)	2027 (Y11)	2028 (Y12)	2029 (Y13)	2030 (Y14)	2031 (Y15)	2032 (Y16)	TOTALS
Initial Taxable Value	$1,107,322																	
Taxable Value after Improvements- Non PRE[1,2]		$ 3,303,361	$ 14,456,631	$ 25,550,427	$ 30,507,532	$ 38,744,894	$ 39,519,792	$ 40,310,187	$ 41,116,391	$ 41,938,719	$ 42,777,493	$ 43,633,043	$ 44,505,704	$ 45,395,818	$ 46,303,734	$ 47,229,809	$ 48,174,405	
Taxable Value after Improvements- PRE[1,3]		$ 936,247	$ 3,845,132	$ 9,434,918	$ 9,895,887	$ 9,895,887	$ 10,093,805	$ 10,295,681	$ 10,501,594	$ 10,711,626	$ 10,925,859	$ 11,144,376	$ 11,367,264	$ 11,594,609	$ 11,826,501	$ 12,063,031	$ 12,304,292	
Total Taxable Value after Improvements		$ 4,239,608	$ 18,301,763	$ 34,985,345	$ 40,403,419	$ 48,640,781	$ 49,613,596	$ 50,605,868	$ 51,617,986	$ 52,650,345	$ 53,703,352	$ 54,777,419	$ 55,872,968	$ 56,990,427	$ 58,130,236	$ 59,292,840	$ 60,478,697	
Total Capturable Taxable Value		**$ 3,132,286**	**$ 17,194,441**	**$ 33,878,023**	**$ 39,296,097**	**$ 47,533,459**	**$ 48,506,274**	**$ 49,498,546**	**$ 50,510,664**	**$ 51,543,023**	**$ 52,596,030**	**$ 53,670,097**	**$ 54,765,646**	**$ 55,883,105**	**$ 57,022,914**	**$ 58,185,518**	**$ 59,371,375**	
Total Capturable Taxable Value- Non PRE		**$ 2,196,039**	**$ 13,349,309**	**$ 24,443,105**	**$ 29,400,210**	**$ 37,637,572**	**$ 38,412,470**	**$ 39,202,865**	**$ 40,009,069**	**$ 40,831,397**	**$ 41,670,171**	**$ 42,525,721**	**$ 43,398,382**	**$ 44,288,496**	**$ 45,196,412**	**$ 46,122,487**	**$ 47,067,083**	
Total Capturable Taxable Value- PRE		**$ (171,075)**	**$ 2,737,810**	**$ 8,327,596**	**$ 8,788,565**	**$ 8,788,565**	**$ 8,986,483**	**$ 9,188,359**	**$ 9,394,272**	**$ 9,604,304**	**$ 9,818,537**	**$ 10,037,054**	**$ 10,259,942**	**$ 10,487,287**	**$ 10,719,179**	**$ 10,955,709**	**$ 11,196,970**	
Yearly Captured Tax																		
State Taxes - Millages																		
State Education Tax (SET)	6.0000	$ 18,794	$ 103,167	$ 203,268	$ 235,777	$ 285,201	$ 291,038	$ 296,991	$ 303,064	$ 309,258	$ 315,576	$ 322,021	$ 328,594	$ 335,299	$ 342,137	$ 349,113	$ 356,228	**$ 4,395,525**
School Operating	18.0000	$ 39,529	$ 240,288	$ 439,976	$ 529,204	$ 677,476	$ 691,424	$ 705,652	$ 720,163	$ 734,965	$ 750,063	$ 765,463	$ 781,171	$ 797,193	$ 813,535	$ 830,205	$ 847,208	**$ 10,363,514**
Total Captured State Taxes	**24.0000**	$ 58,322	$ 343,454	$ 643,244	$ 764,980	$ 962,677	$ 982,462	$ 1,002,643	$ 1,023,227	$ 1,044,223	$ 1,065,639	$ 1,087,484	$ 1,109,765	$ 1,132,492	$ 1,155,673	$ 1,179,318	$ 1,203,436	**$ 14,759,039**
	38.1%																	
Local Taxes - Millages (2016)																		
County Operating	4.5215	$ 14,163	$ 77,745	$ 153,179	$ 177,677	$ 214,923	$ 219,321	$ 223,808	$ 228,384	$ 233,052	$ 237,813	$ 242,669	$ 247,623	$ 252,675	$ 257,829	$ 263,086	$ 268,448	**$ 3,312,394**
Parks	0.7084	$ 2,219	$ 12,181	$ 23,999	$ 27,837	$ 33,673	$ 34,362	$ 35,065	$ 35,782	$ 36,513	$ 37,259	$ 38,020	$ 38,796	$ 39,588	$ 40,395	$ 41,219	$ 42,059	**$ 518,965**
EECS County	0.1987	$ 622	$ 3,417	$ 6,732	$ 7,808	$ 9,445	$ 9,638	$ 9,835	$ 10,036	$ 10,242	$ 10,451	$ 10,664	$ 10,882	$ 11,104	$ 11,330	$ 11,561	$ 11,797	**$ 145,565**
Economic Development	0.0920	$ 288	$ 1,582	$ 3,117	$ 3,615	$ 4,373	$ 4,463	$ 4,554	$ 4,647	$ 4,742	$ 4,839	$ 4,938	$ 5,038	$ 5,141	$ 5,246	$ 5,353	$ 5,462	**$ 67,398**
Vet Relief	0.1000	$ 313	$ 1,719	$ 3,388	$ 3,930	$ 4,753	$ 4,851	$ 4,950	$ 5,051	$ 5,154	$ 5,260	$ 5,367	$ 5,477	$ 5,588	$ 5,702	$ 5,819	$ 5,937	**$ 73,259**
Roads	0.5000	$ 1,566	$ 8,597	$ 16,939	$ 19,648	$ 23,767	$ 24,253	$ 24,749	$ 25,255	$ 25,772	$ 26,298	$ 26,835	$ 27,383	$ 27,942	$ 28,511	$ 29,093	$ 29,686	**$ 366,294**
HCMA	0.2146	$ 672	$ 3,690	$ 7,270	$ 8,433	$ 10,201	$ 10,409	$ 10,622	$ 10,840	$ 11,061	$ 11,287	$ 11,518	$ 11,753	$ 11,993	$ 12,237	$ 12,487	$ 12,741	**$ 157,213**
Community College Operating	3.4360	$ 10,763	$ 59,080	$ 116,405	$ 135,021	$ 163,325	$ 166,668	$ 170,077	$ 173,555	$ 177,102	$ 180,720	$ 184,410	$ 188,175	$ 192,014	$ 195,931	$ 199,925	$ 204,000	**$ 2,517,171**
ACT 88 AAATA County	0.6943	$ 2,175	$ 11,938	$ 23,522	$ 27,283	$ 33,002	$ 33,678	$ 34,367	$ 35,070	$ 35,786	$ 36,517	$ 37,263	$ 38,024	$ 38,800	$ 39,591	$ 40,398	$ 41,222	**$ 508,635**
City Opperating	6.1120	$ 19,145	$ 105,092	$ 207,062	$ 240,178	$ 290,524	$ 296,470	$ 302,535	$ 308,721	$ 315,031	$ 321,467	$ 328,032	$ 334,728	$ 341,558	$ 348,524	$ 355,630	$ 362,878	**$ 4,477,575**
Employee Benefits	2.0373	$ 6,381	$ 35,030	$ 69,020	$ 80,058	$ 96,840	$ 98,822	$ 100,843	$ 102,905	$ 105,009	$ 107,154	$ 109,342	$ 111,574	$ 113,851	$ 116,173	$ 118,541	$ 120,957	**$ 1,492,501**
AATA City	2.0373	$ 6,381	$ 35,030	$ 69,020	$ 80,058	$ 96,840	$ 98,822	$ 100,843	$ 102,905	$ 105,009	$ 107,154	$ 109,342	$ 111,574	$ 113,851	$ 116,173	$ 118,541	$ 120,957	**$ 1,492,501**
Refuse Collection	2.4445	$ 7,657	$ 42,032	$ 82,815	$ 96,059	$ 116,196	$ 118,574	$ 120,999	$ 123,473	$ 125,997	$ 128,571	$ 131,197	$ 133,875	$ 136,606	$ 139,393	$ 142,234	$ 145,133	**$ 1,790,810**
Street Repairs	2.1057	$ 6,596	$ 36,206	$ 71,337	$ 82,746	$ 100,091	$ 102,140	$ 104,229	$ 106,360	$ 108,534	$ 110,751	$ 113,013	$ 115,320	$ 117,673	$ 120,073	$ 122,521	$ 125,018	**$ 1,542,609**
Parks Maintance & Repairs	1.0900	$ 3,414	$ 18,742	$ 36,927	$ 42,833	$ 51,811	$ 52,872	$ 53,953	$ 55,057	$ 56,182	$ 57,330	$ 58,500	$ 59,695	$ 60,913	$ 62,155	$ 63,422	$ 64,715	**$ 798,520**
Parks Aquisition	0.4735	$ 1,483	$ 8,142	$ 16,041	$ 18,607	$ 22,507	$ 22,968	$ 23,438	$ 23,917	$ 24,406	$ 24,904	$ 25,413	$ 25,932	$ 26,461	$ 27,000	$ 27,551	$ 28,112	**$ 346,880**
Library	1.9000	$ 5,951	$ 32,669	$ 64,368	$ 74,663	$ 90,314	$ 92,162	$ 94,047	$ 95,970	$ 97,932	$ 99,932	$ 101,973	$ 104,055	$ 106,178	$ 108,344	$ 110,552	$ 112,806	**$ 1,391,916**
AAPS Sinking	0.4964	$ 1,555	$ 8,535	$ 16,817	$ 19,507	$ 23,596	$ 24,079	$ 24,571	$ 25,073	$ 25,586	$ 26,109	$ 26,642	$ 27,186	$ 27,740	$ 28,306	$ 28,883	$ 29,472	**$ 363,656**
AAPS Supplemental	4.3455	$ 13,611	$ 74,718	$ 147,217	$ 170,761	$ 206,557	$ 210,784	$ 215,096	$ 219,494	$ 223,980	$ 228,556	$ 233,223	$ 237,984	$ 242,840	$ 247,793	$ 252,845	$ 257,998	**$ 3,183,459**
Operating	0.0978	$ 306	$ 1,682	$ 3,313	$ 3,843	$ 4,649	$ 4,744	$ 4,841	$ 4,940	$ 5,041	$ 5,144	$ 5,249	$ 5,356	$ 5,465	$ 5,577	$ 5,691	$ 5,807	**$ 71,647**
Special Education	5.3531	$ 16,767	$ 92,044	$ 181,352	$ 210,356	$ 254,451	$ 259,659	$ 264,971	$ 270,389	$ 275,915	$ 281,552	$ 287,301	$ 293,166	$ 299,148	$ 305,249	$ 311,473	$ 317,821	**$ 3,921,614**
Total Captured Local Taxes	**38.9586**	$ 122,029	$ 669,871	$ 1,319,840	$ 1,530,921	$ 1,851,837	$ 1,889,737	$ 1,928,394	$ 1,967,825	$ 2,008,044	$ 2,049,068	$ 2,090,912	$ 2,133,593	$ 2,177,128	$ 2,221,533	$ 2,266,826	$ 2,313,026	**$ 28,540,584**
	61.9%																	
Total Annual Available Tax Capture		$ 180,351	$ 1,013,325	$ 1,963,084	$ 2,295,901	$ 2,814,514	$ 2,872,199	$ 2,931,037	$ 2,991,052	$ 3,052,267	$ 3,114,707	$ 3,178,396	$ 3,243,358	$ 3,309,620	$ 3,377,206	$ 3,446,144	$ 3,516,462	**$ 43,299,623**
County administrative[4]		$ 9,018	$ 50,666	$ 98,154	$ 114,795	$ 140,726	$ 143,610	$ 146,552	$ 149,553	$ 152,613	$ 155,735	$ 158,920	$ 162,168	$ 165,481	$ -	$ -	$ -	**$ 1,647,991**
State Revolving Fund (3 mills)		$ 9,397	$ 51,583	$ 101,634	$ 117,888	$ 142,600	$ 145,519	$ 148,496	$ 151,532	$ 154,629	$ 157,788	$ 161,010	$ 164,297	$ 167,649	$ 171,069	$ 174,557	$ 178,114	**$ 2,197,762**
Annual State Increment Available for Reimbursement		$ 48,925	$ 291,871	$ 541,610	$ 647,092	$ 820,077	$ 836,943	$ 854,147	$ 871,695	$ 889,594	$ 907,851	$ 926,474	$ 945,468	$ 964,843	$ 984,604	$ 1,004,761	$ 1,025,322	**$ 12,561,277**
Annual Local Increment Available for Reimbursement		$ 113,011	$ 619,205	$ 1,221,686	$ 1,416,126	$ 1,711,111	$ 1,746,127	$ 1,781,842	$ 1,818,272	$ 1,855,431	$ 1,893,333	$ 1,931,992	$ 1,971,425	$ 2,011,647	$ 2,221,533	$ 2,266,826	$ 2,313,026	**$ 26,892,593**
Total Annual Increment Available for Reimbursement		**$ 161,936**	**$ 911,076**	**$ 1,763,296**	**$ 2,063,218**	**$ 2,531,188**	**$ 2,583,070**	**$ 2,635,989**	**$ 2,689,967**	**$ 2,745,025**	**$ 2,801,184**	**$ 2,858,466**	**$ 2,916,893**	**$ 2,976,490**	**$ 3,206,137**	**$ 3,271,587**	**$ 3,338,348**	**$ 39,453,870**
MSF Non-Environmental Costs																		
State Tax Reimbursement	$7,367,418	$ -	$ -	$ -	$ -	$ 544,602	$ 836,943	$ 854,147	$ 871,695	$ 889,594	$ 907,851	$ 926,474	$ 945,468	**$ 590,644**	$ -	$ -	$ -	**$ 7,367,418**
Unreimbursed State		$ 7,367,418	$ 7,367,418	$ 7,367,418	$ 7,367,418	$ 6,822,816	$ 5,985,873	$ 5,131,726	$ 4,260,031	$ 3,370,437	$ 2,462,586	$ 1,536,112	$ 590,644	$ -	$ -	$ -	$ -	
Local Tax Reimbursement	$13,059,342	$ -	$ -	$ -	$ 386,063	$ 1,711,111	$ 1,746,127	$ 1,781,842	$ 1,818,272	$ 1,855,431	$ 1,893,333	**$ 1,867,163**	$ -	$ -	$ -	$ -	$ -	**$ 13,059,342**
Unremimbursred Local		$ 13,059,342	$ 13,059,342	$ 13,059,342	$ 12,673,279	$ 10,962,168	$ 9,216,041	$ 7,434,199	$ 5,615,927	$ 3,760,496	$ 1,867,163	$ -	$ -	$ -	$ -	$ -	$ -	
MDEQ Environmental Costs																		
State Tax Reimbursement	$1,804,973	$ 48,925	$ 291,871	$ 541,610	$ 647,092	**$ 275,475**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,804,973**
Unreimbursed State		$ 1,756,048	$ 1,464,177	$ 922,567	$ 275,475	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Local Tax Reimbursement	$2,983,965	$ 113,011	$ 619,205	$ 1,221,686	**$ 1,030,063**	**$ -**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 2,983,965**
Unremibursed Local		$ 2,870,954	$ 2,251,749	$ 1,030,063	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Annual Reimbursement to Developer		**$ 161,936**	**$ 911,076**	**$ 1,763,296**	**$ 2,063,218**	**$ 2,531,188**	**$ 2,583,070**	**$ 2,635,989**	**$ 2,689,967**	**$ 2,745,025**	**$ 2,801,184**	**$ 2,793,637**	**$ 945,468**	**$ 590,644**	**$ -**	**$ -**	**$ -**	**$ 25,215,698**
Local Site Remediation Revolving Fund		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,385,846**	**$ 3,206,137**	**$ 3,271,587**	**$ 3,338,348**	**$ 12,201,918**

[1] PRE- Principal Residence Exemption
[2] Represents taxable value of rental units only. Assumes construction of rental units is complete in 2021 with a 2% inflation rate for the years following.
[3] Represents taxable valye of for sale condo units only. Assumes construction of condo units is complete in 2020 with a 2% inflation rate for the years following.
[4] 5% of the total annual capture