MIP INVESTIGATION RESULTS
MW-16 AREA (AREA B)

FOR THE

LEICA, INC. SITE
CHEEKTOWAGA, NEW YORK

Prepared for:

LEICA, INC.

DANAHER, C/O VIDEO JET TECH
1500 MITTEL BOULEVARD
WOOD DALE, IL 60191

PREPARED BY

ENERGYSOLUTIONS

CONNECTICUT OFFICE

SEPTEMBER 2016

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1.0 INTRODUCTION AND OBJECTIVE

The objective of this report is to present the results for the Membrane Interface Probe (MIP) investigation of the overburden soils in the MW-16A and MW-16R Area (Area B), which was performed as described in the *MIP Investigation for MW-16 Area (Area B) Work Instruction*, dated January 2016. The Report provides the additional data needed to locate the most appropriate areas for the Enhanced Biological Remediation (EBR) as proposed in the *Supplemental Area B and C Investigation and Remediation Using 3-DME: 2015 Remedial Action Work Plan* submitted to the New York State Department of Environmental Conservation (NYSDEC) in August of 2015.

The field work for the MIP Investigation was executed during the week of April 18, 2016. The Membrane Interface Probe (MIP) continuously logged electrical conductivities and hydraulic pressures, and identified contaminants in the subsurface, using Electric Conductance (EC) equipment, a Hydraulic Profiling Tool (HPT), and three detectors (PID, FID, XSD) that were advanced into the subsurface using a GeoProbe® Direct Push Rig.

Relative concentrations of Volatile Organic Compounds (VOCs) in the soils adjacent to the probe were assessed through the collection and analysis of vapor samples through the MIP. Relative soil permeabilities were also assessed through the use of the Electrical Conductance (EC) equipment and the Hydraulic Profiling Tool (HPT). The GeoProbe was also used to collect seven (7) soil grab samples from the area. The HPT and EC information and soil sample analyses were used in conjunction with the detector data to create a more complete picture of the subsurface lithology and contaminant distribution.

The additional data collected was used to assess contaminant transport pathways and the concentrations of VOCs in the soils in the areas surrounding and downgradient of the MW-16 well pair, which assisted in determining the locations and depths for supplemental (3-DME and BDI Plus and/or other appropriate inoculums) injections in this area.

2.0 SITE LOCATION AND DESCRIPTION

The Leica Site is located on approximately 24 acres of land at the intersection of Eggert Road and Sugar Road in the Town of Cheektowaga, Erie County, New York, (See Figure 1, Appendix A). The western boundary of the Site abuts the eastern boundary of the City of Buffalo. The Site is located in a generally commercial/residential area and is bounded by open land and public housing to the west, Cemetery property to the north and east and residential property to the south. The wetland located immediately to the east of Area C is the only surface water body in the general vicinity of the Site. Storm water run-off from the building roof is collected by the municipal storm water system and conveyed to Scajaquada Creek approximately one mile south of the Site. Surface water from the southern portions of the site is transmitted overland directly to the wetland area adjacent to the southeast corner of the property. Groundwater is not used for a source of drinking water. Drinking water is supplied to the surrounding area by the Erie County Water Authority from the Niagara River.

The manufacturing facility was built on the Site in 1938 by the Spencer Lens Company for the manufacture of scientific instruments and high quality optical devices. The property has been owned and operated by various other firms manufacturing similar optical related products until it was used for product warehousing by the current operator, which started in the mid-1990s.

There are three permanent buildings on-site, including the approximate 360,000 square foot brick multi-story main building, the approximate 3,100 square foot single story metal storage building, and the approximate 325 square foot one-story brick fire protection system pump house. The Main Building was constructed in segments from 1938 to 1967. The remainder of the Site is either paved for parking use or landscaped, (See Figure 2, Appendix A). The buildings are all constructed with concrete slab on grade foundations except for a portion of the main building that has a basement area immediately to the south of the main loading docks in the northeast corner of the facility.

3.0 RECENT SITE HISTORY REVIEW OF VOC CONCENTRATIONS IN AREA B

Reduction of VOC concentrations in groundwater was achieved after the 2008 injection of a Hydrogen Release Compound solution (HRC) in the former dry well area (MW-16A and MW-16R – Area B). Total Trichloroethene (TCE) concentrations and its associated daughter products cis 1,2 Dichloroethene (cis 1,2 DCE) and vinyl chloride (TCE and its daughter products), which had been as high as 8,290 ug/l before the injection, remained below 15 ug/l in the area overburden well (MW-16R) for more than three years until they began to rise again in the spring of 2013. Total TCE and daughter product concentrations rose to more than 1,500 ug/l by September of 2013 and then following an extended period of groundwater recovery system "down time", reached concentrations of 7,500 ug/l in May of 2014. Although following system startup again in October of 2014, the November 2014 results yielded a reduction in total VOC concentrations to less than 1,400 ug/l, concentrations in June of 2015 rose again to levels in excess of 12,500 ug/l. Based on these fluctuations and general rising trends, it was determined that additional investigation and possible subsequent remedial action was appropriate for the soils and groundwater in the area.

Although significant reductions were realized in the MW-16R overburden well in response to the 2008 HRC injection, concentrations in the bedrock well (MW-16A) have not demonstrated similar reductions. Following the injection, the concentrations of TCE and its daughter products ranged from a high of 1,950 ug/l in July of 2008 shortly after the injection to a low of 633 ug/l in March of 2013. Concentrations of TCE and its daughter products were at a total of 1,500 ug/l in November of 2014. Based on the history of concentrations in the bedrock well in this area in response to the overburden injection in 2008, additional bedrock groundwater remediation was also deemed appropriate and will be addressed in subsequent work plans.

4.0 MIP INVESTIGATION OF AREA B

VOC concentrations in groundwater collected from MW-16 and MW-16A have fluctuated to a significant degree since late 2012. The MIP investigation of the soils in this area was performed in order to assess potential reasons for these fluctuations, i.e., are potential source areas still present in the soils.

The MIP Investigation boundary for the area was based on past investigation results including the soil gas sampling results collected in June of 2005, and the soil sampling results collected in December of 2005 and June of 2006, which are summarized on Figure 3, in Appendix A. These past investigations suggested that the highest areas of soil contamination were present in the soils beneath the basement and main entryway of the facility (located to the north of the MW-18 well pair), in the areas located to the west and southwest of the original drywell release location.

A review of groundwater gradients vs MW-16R data over time, also suggested that the areas requiring supplemental injection were most likely located to the west, south and southwest of the drywell release area. Although the groundwater in this area normally flows to the west, south and southwest from MW-16R toward MW-24 (west), MW-18 (south) and INT-12 (southwest), during certain time periods in the past, the bedrock recovery system has successfully reversed the flow gradient in the overburden groundwater and groundwater flowed back to the east, north and north east from beneath the basement and the main entryway to the MW-16R well area. This trend was particularly evident from the end of 2012 through the early part of 2014 when the groundwater gradients were reversed to a significant degree for four successive monitoring periods. These reversed gradients have been evidenced by the fact that the concentrations in MW-16R have historically been the highest when the groundwater elevations in MW-18 and MW-24 are higher than the elevations in MW-16R, indication that the groundwater is flowing to the north and east back to MW-16R.

Based on this information, the MIP study began with a series of sampling points centered near the highest concentrations in the main entryway room (as indicated on Figure 4 in Appendix A). The MIP equipment was operated by Zebra Technical Services of Schenectady, New York (Zebra Environmental) during the week of April 18, 2016. This MIP equipment was advanced into the subsurface using a GeoProbe® Direct Push Rig.

The MIP is a probe with a percussion tolerant Volatile Organic Compound (VOC) sensor that continuously logged volatile organics that diffuse through a semi-permeable membrane in the tool, which was used in the saturated and unsaturated zone and advanced to refusal. As the probe was advanced through the subsoil, the MIP probe heated the surrounding soil, the VOCs were brought to the surface using a carrier gas (i.e., nitrogen) through tubing. The tubing was connected to a laboratory grade Halogen Specific Detector (XSD), a photo ionization detector (PID) and a flame ionization detector (FID) for immediate analysis of the collected VOCs.

The MIP system was transported on a small 4x4 vehicle, which is completely self-contained (including a full set of Direct Push 1.5" probe rods pre-strung with the data trunk-line). The MIP system also included a direct sensing soil EC system for taking continuous measurements of soil conductivity as it is being driven through the subsurface. The sensing probe was linked to a control box where the signal was received by the field computer. The signal from the probe was matched with precise depth measurements and logged accordingly. Real time data showing changes in soil conductivity/resistivity was used to identify lithology, contaminant plumes, and any other subsurface conditions that display a change in conductivity/ resistivity.

The HPT was also installed in the push rod to create continuous, real-time profiles of soil hydraulic properties in both fine and coarse-grained material. The tool used a sensitive downhole transducer to measure the pressure response of the soil to the injection of water. Data from the HPT in conjunction with the EC Equipment was used to locate and define preferential migration pathways for contaminants to target zones (e.g., the silty-sand layer) for injection of the EBR solutions.

4.1 SITE CONTROL

Energy*Solutions* established horizontal and vertical control of Area B so accurate mapping could be created for the sampling locations. As sampling points were selected, State Plane Coordinates and a vertical elevation were determined for each point so the MIP data could be geospatially located on a map.

4.2 INITIATION OF MIP INVESTIGATION

As mentioned previously, the MIP Investigation began by collecting data from the overburden soil beneath the main entryway room and loading area floors, where some of the highest VOC concentrations were previously observed. Six (6) locations (2B, 3A, 3B, 3C, 3D, and 3E) were selected from within the main entryway room, the outside areas and the warehouse areas for this first stage of the investigation (see Figure 4). The MIP data was collected starting with the soil beneath the concrete floor (if present) and continued down through the overburden soil until refusal was encountered.

4.2.1 Probe Advancement

After the equipment and probes were calibrated and in position at each sample location, the probe was advanced at 1 foot intervals through the overburden soil until refusal was encountered. At each 1 foot interval, probe advancement stopped for several minutes so the XSD, FID, PID, HPT, and EC data could be collected. After the data was collected at that interval, the probes were advanced to the next foot interval and the appropriate data collected. The data was stored on the field computer which was viewed by the operator and EnergySolutions for adequacy. For each boring that was probed using the MIP technology, Zebra Environmental provided data graphs that demonstrated the following parameters as the probes were advanced downward:

EC – (Electrical Conductivity) - data is collected in milli-siemens per meter (ms/M). The conductivity of soils is different for each type of media. Finer grained sediments, such as silts or clays, will have a higher EC signal. While coarser grained sediments, sands and gravel, will have a lower EC signal. The coarser grained sediments will allow the migration of contaminants and the finer grained sediments will trap the contaminant.

XSD Max - (Halogen Specific Detector) converts compounds containing halogens to their oxidation products and free halogen atoms by oxidative pyrolysis. These halogen atoms are adsorbed onto the activated platinum surface of the detector probe assembly resulting in an increase thermionic emission. This emission current provides a corresponding voltage that is measured via an electrometer circuit in the detector controller. The XSD maximum data is collected and plotted in microvolts (uV).

PID Max - (Photo Ionization Detector) 10.2 eV Lamp - sample stream flows through the detector's reaction chamber where it is continuously irradiated with high energy ultraviolet light. When compounds are present that have a lower ionization potential than that of the irradiation energy (10.2 electron volts with standard lamp) they are ionized. The ions formed are collected in an electrical field, producing an ion current that is proportional to compound concentration. The ion current is amplified and output by the gas chromatograph's electrometer. The PID maximum

data is collected and plotted in microvolts (uV). The ionization potentials of TCE and its daughter products cis 1,2 DCE and vinyl chloride are 9.45 electron volts (eV), 9.65 eV, and 10.00 eV, respectively and were therefore expected to be detected using the 10.2 eV lamp.

FID Max - (Flame Ionization Detector) consists of a hydrogen / air flame and a collector plate. The effluent from the GC (trunkline) passes through the flame, which breaks down organic molecules and produces ions. The ions are collected on a biased electrode and produce an electric signal. The FID maximum data is collected and plotted in microvolts (uV).

HPT Press. Max – Hydraulic Profiling Tool Pressure Maximum data is collected in pounds per square inch (PSI). Pressure is an indication of hydraulic pressure applied to the subsurface by the HPT system with higher applied pressure indicating less permeable materials.

HPT Flow Max - Hydraulic Profiling Tool Flow Maximum data is collected in milliliters per minute (mL/min). Flow is an indication of the rate water that is pumped out of the membrane at the HPT probe.

Corr. HPT Press. – Corrected Hydraulic Profiling Tool Pressure data is collected in pounds per square inch (PSI). It is the pressure required to inject water into the formation at a given flow rate.

Est. K. - Estimated Hydraulic Conductivity (est. K) symbolically represented as K, is an in-situ property that describes the ease with which water can move through pore spaces or fractures. It is dependent on the intrinsic permeability of the material and on the degree of saturation. With respect to the HPT system, the estimated K values are only applicable to the saturated portion of the formation. The estimated K value is calculated using the HPT pressure and flow data. It is also necessary to collect HPT response test data before and after each boring. Additionally, it is necessary to conduct at least one pressure dissipation test during the logging operation, below the static water table level.

These MIP Data Graphs are provided in Appendix B.

4.2.2 Geospatial Mapping and Soil Samples Collected

Using the State Plane Coordinates and elevation measurements, the data was mapped geospatially.

The MIP Investigation indicated that contamination was not present in the borings until the probe reached the deeper portions of the clay layer or encountered the silty-sand layer beneath the clay layer. Since the MIP investigation was successful in determining that the contamination is isolated within the lower portion of the clay layer and the silty-sand layer, soil samples were selected from 4 of the 6 initial locations in an effort to assess the VOC concentrations in the silty-sand layer. Those 4 soil samples that were analyzed for VOCs (by a fixed lab) to determine the concentrations in the soil were as follows:

- 3B was collected at a depth of 11 feet below the concrete slab;
- 3C was collected at a depth of 10 feet below the concrete slab;
- 3D was collected at a depth of 8 feet below grade level; and
- 3E was collected at a depth of 8 feet below grade level.

The analytical data for these samples are presented in Appendix C in Table C-1 and summarized in Table 4-1 below and on Figure 4 in Appendix A. The laboratory reports are included in Appendix D.

Table 4-1

VOC Analyses Summary of Soil Samples

POINT ID	SURFACE ELEV (ft)	SAMPLE DEPTH (ft)	Total BTEX (ug/Kg)	Total PCE, TCE, DCE and VC (ug/Kg)	Total Chorinated Ethanes (ug/Kg)
3B	662.4	11	2,912,374	38,700	8,750
3C	662.4	10	U	478	96.8
3D	659.7	8	164	U	U
3E	659.7	8	U	251	U
4A	662.4	9	U	334	53
5A	662.4	10	U	676	U
6C	657.7	7.5	U	62	U

U – Not detected above the detection limits of any of the analytes

4.2.3 Data Review

As the data was generated, the area of elevated VOC concentrations and higher permeability was determined to be within the silty-sand layer near in the west side of the Entryway. Although predicted to be located more to the south and/or southwest of the MW-16 area, the highest VOC concentrations are located more west of the MW-16 area than originally anticipated. With the goal being to inject the 3-DME and BDI Plus solutions and/or other appropriate inoculums into these areas, this data/observation was important to the success of this investigation.

4.3 SUBSEQUENT LOCATIONS FOR MIP INVESTIGATION

After the initial 6 locations (3A, 3B, 3C, 3D, 3E, and 2B) were probed with the MIP system, the operator and Energy*Solutions* continued the MIP investigation to confirm the location of the elevated VOC concentrations. Data collection was continued radially outward from these six initial sampling locations. These additional sample locations (1A, 1B, 1C, 1D, 2A, 2C, 2D, 4A, 5A, 5B, 5C, 5E, 7A, 7C, and 7E) are depicted on Figure 4 as well. The same MIP data described in Section 4.2.1 were collected from these borings as well. The MIP Data Graphs for these additional probe locations are also included in Appendix B.

4.3.1 Basement Samples

Energy*Solutions* selected three (3) locations within the basement area for this Investigation. The coring, percussion, and MIP equipment was hand-carried to the basement level for use and the connecting tubes and sensor wires ran from the equipment through a basement window to the laboratory grade XSD, PID FID, and a control box outside the basement where the signal was received by a field computer. Except for the monitoring equipment not being in the same room with the boring locations and the additional tubing and wiring, the MIP operation for these locations was the same as the other locations. During the MIP investigation, the probe disconnected from the push rod when it was being extracted from boring 5C and could not be recovered. An additional location within the basement (6C) was selected to collect a soil sample in the silty-sand layer (without the MIP probes). The VOC concentrations for sample 6C at depth 7.5 feet confirmed the MIP data, which indicated that elevated VOC concentrations were not present in this area.

4.3.2 Additional Soil Sample Analyses

As the MIP investigation continued, Energy*Solutions* selected two (2) additional boring locations (4A and 5A) that are located southwest of the boring with the highest XSD concentrations (3B) for soil sample collection and analysis. Soil samples were collected from the bottom of these borings and analyzed for VOCs. The locations and depth intervals selected for VOC analyses are as follows:

- 4A was collected at a depth of 9 feet below the concrete slab; and
- 5A was collected at a depth of 10 feet below the concrete slab.

The analytical Data for all seven (7) soil samples collected are presented in Appendix C and summarized in Table 4-1 above and on Figure 4 in Appendix A. The laboratory reports are included in Appendix D.

4.4 DISCUSSION OF THE MIP DATA

XSD data

Halogen Specific Data (XSD) was collected from all 22 MIP sampling locations. XSD readings ranged from approximately 50,000 to 120,000 uV. Maximum XSD readings from each MIP sampling location are shown on Figures 5A and 5B with the approximate depth of the reading included.

In some cases these highest readings were recorded at the very bottom of the probe hole where a spike was observed. These readings are thought to be partially reflective of the sampling process and also partially reflective of the actual soil conditions.

The sampling process contributed to the elevated XSD readings in the following way. The XSD permeable membrane was located on the sampling probe approximately 10-12 inches above the bottom of the probe drive point. In these locations where spikes were observed, we suspect that the drive point was driven to the top of the bedrock and was therefore prevented from further penetration. Not knowing immediately that the probe was sitting directly on the bedrock, the probe operator would continue to drive the probe and collect data. When this phenomena occurred, the probe did not advance and therefore collected data from the same elevation for a longer period of time. As the probe remained in the same vertical location and continued to heat the surrounding area for an extended period, it collected more gas at that location yielding a partially elevated reading.

These XSD readings which appear as spikes at the bottom of the graphs are also thought to be representative of soil conditions based on the distance from the bottom of the drive point to the XSD membrane and the estimated thickness of the silty sand where the highest contaminant concentrations are thought to be located. With the distance from the bottom of the drive point to the membrane at 10-12 inches and the thickness of the silty sand typically greater than 12 inches, we believe that many of these spike readings are collected within the silty sand zone. EC and HPT data also appear to provide an additional line of evidence to confirm this conclusion. This silty sand zone is the area where the highest levels of contamination are known to be present; therefore, an XSD spike would be expected in this zone. In 18 of the 22 MIP locations, depth data suggests that the XSD readings were collected less than 2.5 feet above the bedrock surface, and the EC/HPT data suggested that soils in this zone were comprised of more permeable material, presumably the silty sand.

The majority of the locations sampled in the areas to the north of the former drywell recorded limited XSD activity in the range of 50,000 to 70,000 uV. Geoprobe literature suggests that XSD readings in this range indicate a concentration of TCE in the range of 1 to 2.5 ppm in the soil gas.

The highest XSD results were observed in sampling points located west and southwest of the former drywell including locations 3A, 3B, 3D, 4A, 5A, and 5B. Including concentrations registered in the spikes at the bottom of the probe depth, XSD readings reached maximum levels of 94,000 and 121,000 uV in this area at sampling locations 5A and 5B, respectively. This data provides confirmation of the current site conceptual model which suggests that the former drywell was the original source of the contaminant release, and following discharge, the release migrated via the normal movement of the shallow groundwater in the western and southwestern directions.

The two Figures 5A and 5B show relative uV readings via color gradients with the higher readings shown in red and the lower in green. Figure 5A depicts gradients of the XSD data when the peaks at the bottom of the graphs are included. Figure 5B depicts gradients of the XSD data when the peaks at the bottom of the graphs have been excluded.

Figure 6 which shows concentrations of contaminants of concern in the surrounding groundwater is also provided in order to show the correlation between the XSD data, the soils data, and the groundwater concentrations in the various area in the vicinity of the former dry well.

PID and FID data

PID and FID instruments were also used to assess the vapors in the subsurface at all 22 of the MIP locations. The PID was expected to provide higher readings than the FID in the presence of chlorinated and ringed hydrocarbon compounds such as xylenes, and also in the presence of higher moisture content. The FID was expected to produce higher readings in the presence of methane which is not detected by PIDs.

Elevated PID and FID readings were encountered in a variety of MIP locations, also suggesting along with the XSD data that VOCs are present in the general area. However, whereas the XSD is specific to halogenated hydrocarbons, the PID and FID instruments detect non-halogenated compounds as well. The data therefore suggests that non-halogenated VOCS are also present in the area. A comparison of the XSD data to the FID/PID data also suggests that the vast majority of the chlorinated VOC impact is located where expected, in the areas downgradient of the former dry well.

The maximum PID reading from each sampling location was recorded. They ranged from a low of approximately 60,000 uV at location 2A to a high of 300,000 at location 3B detected at a depth of approximately 10.5 feet below the surface. Maximum FID readings ranged from a low of approximately 40,000 uV at location 2C to a high at location 7C where a reading of approximately 5,000,000 uV was detected at a depth of approximately 6.5 feet below the surface.

The PID data appears to correlate reasonably well with the current site conceptual model. Although there we some elevated PID readings in the areas north of the original release, higher PID readings were observed in those areas downgradient of the original drywell release where halogenated VOCs and ringed chain VOCs (xylene) are known to be present, including locations 3A, 3B, 4A and 5A. In addition, elevated PID readings in the samples collected from the areas north of the former drywell (MIP rows 1 and 2) were typically observed at elevations higher in the soil strata, suggesting that they may be from nearby surface releases and not from groundwater impacted by the former drywell release. The highest FID readings collected from locations 5B and 7C may have resulted from the presence of methane gas which has been generated via the biological remedial processes in the area.

HPT and EC data

HPT and EC data provide information regarding the general permeability of the soils surrounding the probe. The HPT and EC data collected during the MIP study also provided general confirmation of the site conceptual model and the understanding of the lithology of the

overburden soils in the area. The majority of the HPT and EC graphs showed three relatively distinct zones of permeability in the soil lithology. A more permeable material was typically present in the range of 0 to 4 feet below ground surface. This first zone has been typically considered a zone of relatively permeable fill material. The mid zone was comprised of a much less permeable material which has historically been observed as a tight clay material. The depth of the impermeable mid-zone ranged from approximately three to seven feet in thickness. Within the third vertical zone, more permeable materials were present once again. This third zone has typically been observed as a silty sand which is located just above the bedrock. The deepest MIP readings were typically collected from the top of this third, more permeable silty sand zone which has been estimated to have an approximate thickness of one to three feet.

Graphs for the XSD, PID, FID, EC and HPT data are provided in Appendix B.

4.5 CONCLUSION OF MIP INVESTIGATION

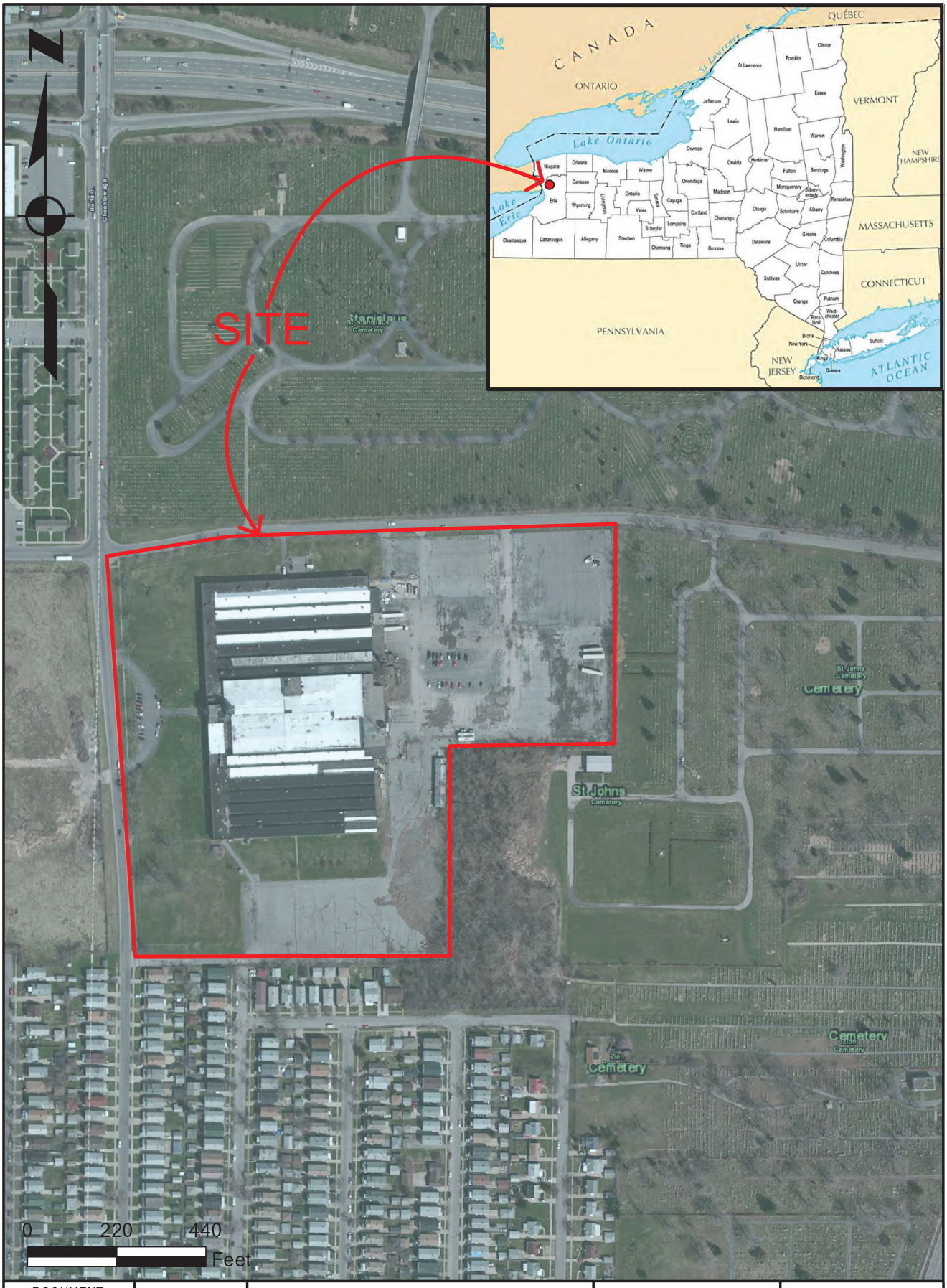
Energy*Solutions* reviewed the MIP data to determine the location of the silty-sand layer in addition to where we predicted bedrock would be encountered compared to how deep the probes were advanced. As indicated in the previous section, the MIP Probe was driven to the bedrock surface in many of the sampling locations. The MIP data did demonstrate that elevated VOC contamination is not present in the majority of the tight clay material and is located primarily within the silty-sand layer immediately above the bedrock interface.

The MIP System data when combined with the VOC data from laboratory analyses soil samples from the area, suggests that the most elevated VOC concentrations are concentrated in the silty-sand layer surrounding sampling location 3B with other moderately elevated concentrations generally located in areas to the south and west of this 3B location. Therefore, the locations and depths where the 3-DME and BDI Plus solutions and/or other appropriate inoculums will be injected for the maximum effectiveness will be near and to the south and west of Sampling Location 3B within the silty-sand layer.

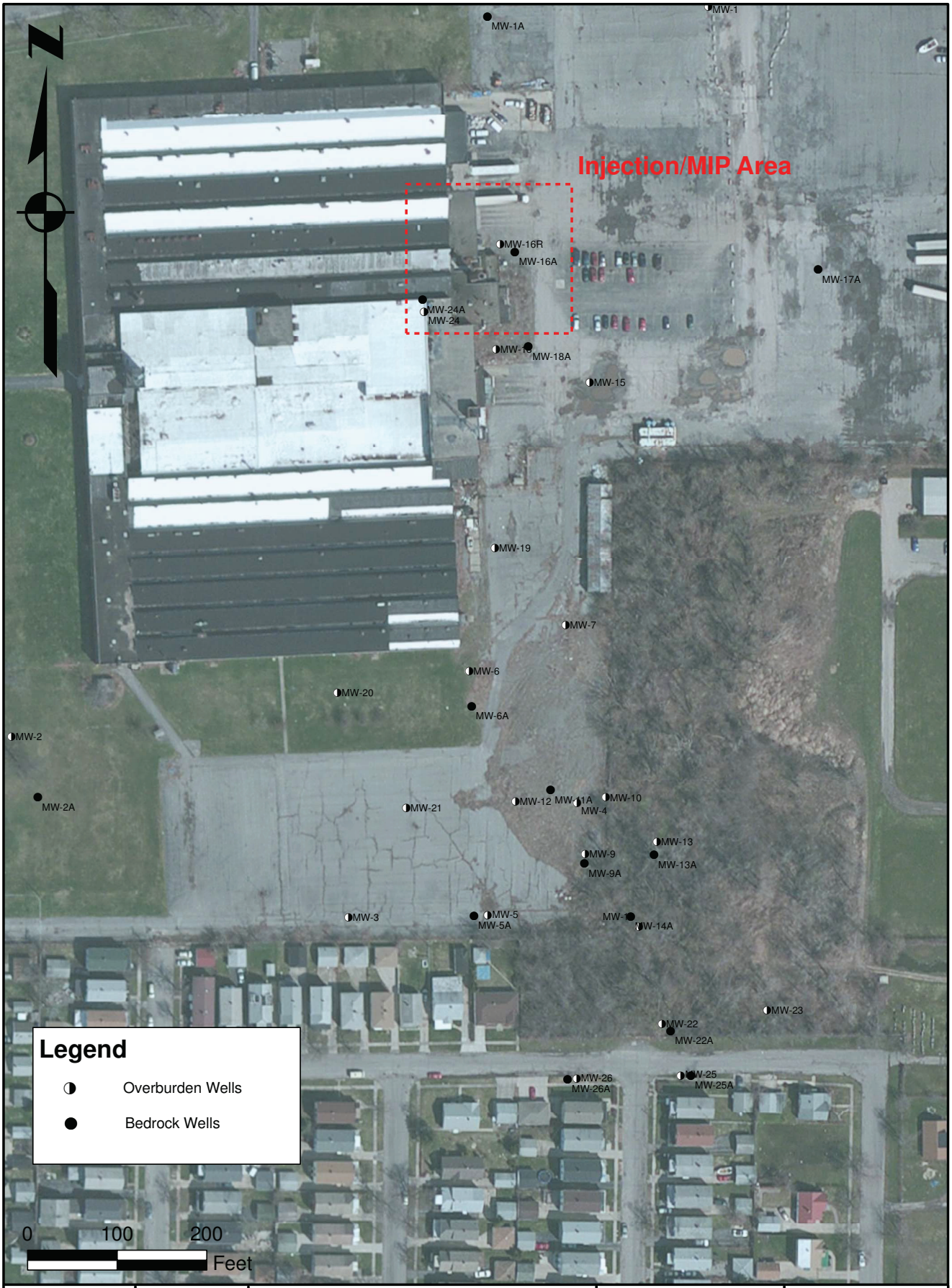
The proposed injection locations, volumes, and other pertinent details will be provided in a subsequent Injection Plan. The Injection Plan will be based on the results of this MIP Report and will be submitted to NYSDEC for review and comment. We anticipate implementation of the future Injection Plan after the new warehouse wide Sub-Slab Depressurization System (SSDS) is installed and operational. Implementing the injection after the installation of the SSDS will allow us to minimize the migration of off-gasses produced by the anaerobic activities limiting impact to the indoor air inside the building as much as possible.

APPENDIX A

FIGURES



DOCUMENT CONTROL NO.	PROJECT	LEICA MICROSYSTEMS INC. 203 EGGERT ROAD CHEEKTOWAGA, NY	ENERGYSOLUTIONS 984 Southford Rd Middlebury, CT 06762 203-797-8301	PROJECT # 137015 FILENAME:
REVISION NO.	DRAWING	Vicinity Map		SCALE: SEE SCALEBAR DATE: 8/13/15 BY: MT CK: FIGURE # 1



DOCUMENT CONTROL NO.	PROJECT	LEICA MICROSYSTEMS INC. 203 EGGERT ROAD CHEEKTOWAGA, NY	ENERGY SOLUTIONS 984 Southford Rd Middlebury, CT 06762 203-797-8301	PROJECT # 137015 FILENAME:
REVISION NO.	DRAWING	Site Map		SCALE: SEE SCALEBAR DATE: 2/5/16 BY: MT CK: RM FIGURE # 2

LEICA INC.

EGGERT & SUGAR ROADS
CHEEKTOWAGA, NEW YORK

SAMPLE LOCATION MAP

Supplemental Soil Sampling Area B Dry Well

DOCUMENT CONTROL NO.

REVISION NO.

PROJECT

DRAWING

ENERGY SOLUTIONS
984 Southford Rd
Middlebury, CT 06762
203-797-8301

PROJECT NO.: 137015

FILE NAME:

SCALE: SHOWN	DATE: 2/5/2016
BY: MT	CK: RM

FIGURE # 3

LEGEND:

- SUB-SLAB SOIL GAS SAMPLING
- SUB-SLAB SOIL, GAS AND INDOOR SAMPLING
- MONITORING WELL
- SOIL SAMPLE LOCATIONS
- PROPERTY LINE
- FENCE

FEET: 0 7.5 15 30

BASEMENT

LOADING DOCK RAMP

EXTERIOR

GAS

AREA 1
AREA 2
AREA 3
AREA 4
AREA 5
AREA 6
AREA 7
AREA 8

SAMPLE ID:	ABSR 1			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	0	NA	NA	NA
7'-9.5'	0	NA	NA	NA
9'-11'	0	NA	NA	NA
11'-12'	0	NA	NA	NA
12'-13.5'	0	2,600	NA	65

SAMPLE ID:	ABSR 2			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	4.5	220	12	100
7'-9.5'	0	54	26.1	ND
9'-11'	0	NA	NA	NA
11'-12'	0	NA	NA	NA
12'-13.5'	0	NA	NA	NA

SAMPLE ID:	ABSR 3			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	4.5	660	NA	41
7'-9.5'	0	NA	NA	NA
9'-11'	0	NA	NA	NA
11'-12'	0	NA	NA	NA
12'-13.5'	0	NA	NA	NA

SAMPLE ID:	ABSR 4			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	1.3	NA	NA	NA
7'-9.5'	28.7	NA	NA	NA
9'-10'	120	210	32,600	11,200
10'-12.5'	224	9.2	573	93

SAMPLE ID:	ABSR 5			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	3.3	NA	NA	NA
7'-9.5'	5.7	14	ND	6
9'-10'	14.6	NA	NA	NA
10'-12.5'	48.7	6	1,620	98

SAMPLE ID:	ABSR 6			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	44.5	2,300	ND	930
7'-9'	75.6	4,700	30	4,900

SAMPLE ID:	ABSR 7			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	33.7	NA	NA	NA
7'-9'	43.8	660	ND	41

SAMPLE ID:	ABSR 8			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-7'	31.3	NA	NA	NA
7'-9'	62.1	2,900	40	11,400
9'-9.5'	34.3	67	140	45

SAMPLE ID:	ABSR 9			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7'	0	NA	NA	NA
7'-10'	0	40	<11.8	<5.9

SAMPLE ID:	ABSR 10			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	0	29	<11.6	<5.8

SAMPLE ID:	ABSR 11			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-9'	27	<5.9	11.3	<5.9

SAMPLE ID:	ABSR 12			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	0	150	<11.6	8.4

SAMPLE ID:	ABSR 13			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	1.36	<720	11,500	<720

SAMPLE ID:	ABSR 14			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	1.39	340	1,000	450

SAMPLE ID:	ABSR 15			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	2.1	<5.8	<11.6	<5.8

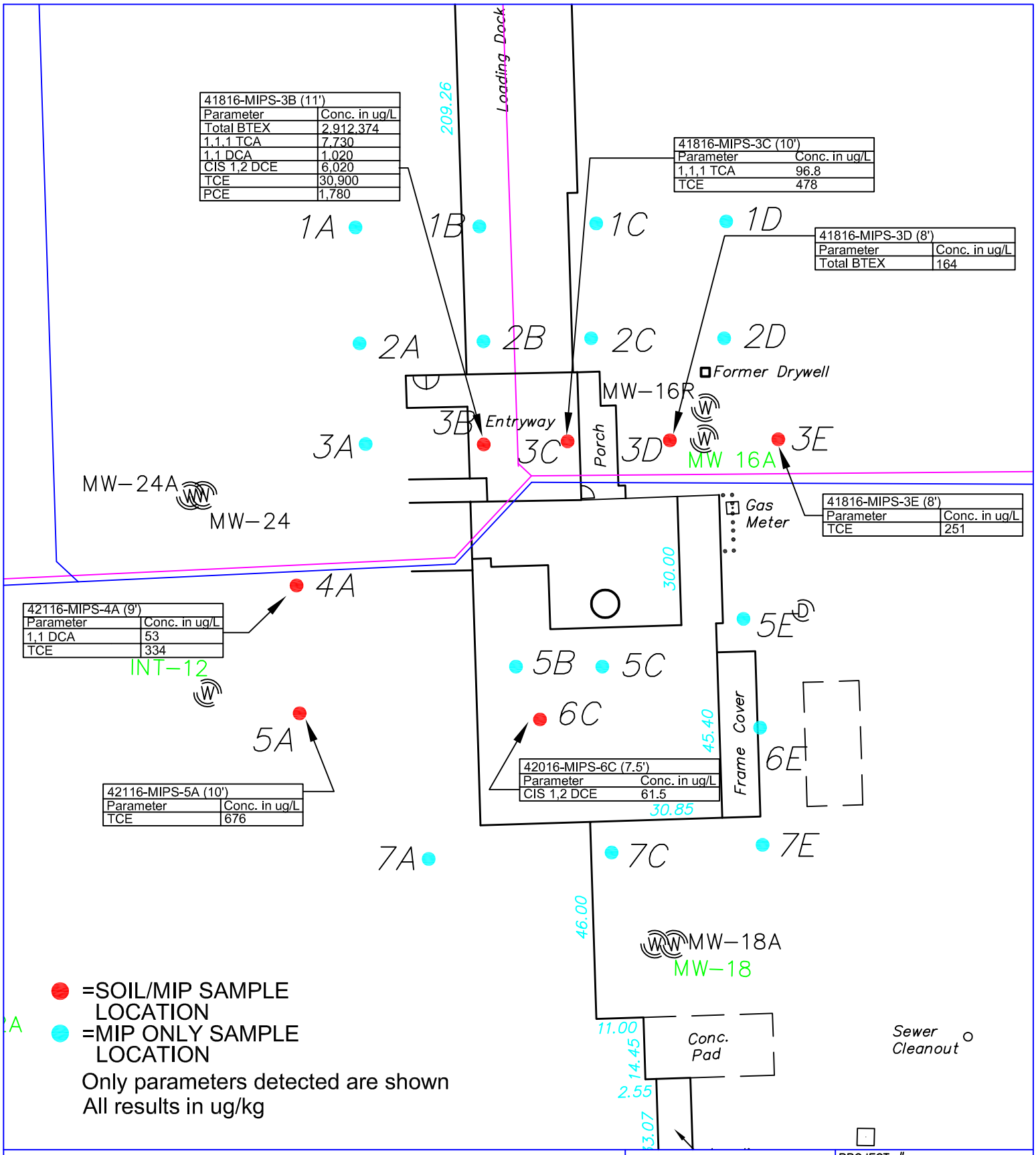
SAMPLE ID:	ABSR 16			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	65	NA	NA	NA
7'-9'	7.2	<30	<60	<30

SAMPLE ID:	ABSR 17			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7.9'-11'	3	190	<58	<29

SAMPLE ID:	ABSR 18			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	7.2	45	235	40

SAMPLE ID:	ABSR 19			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	2	NA	NA	NA
7'-10'	7.8	230	<11.4	<5.7

SAMPLE ID:	ABSR 20			
DEPTH	PID (PPM)	TCE (PPB)	TOTAL XYLENES (PPB)	TCA (PPB)
0'-4'	0	NA	NA	NA
4'-7.5'	0	NA	NA	NA
7'-10'	0	220	<24	<12

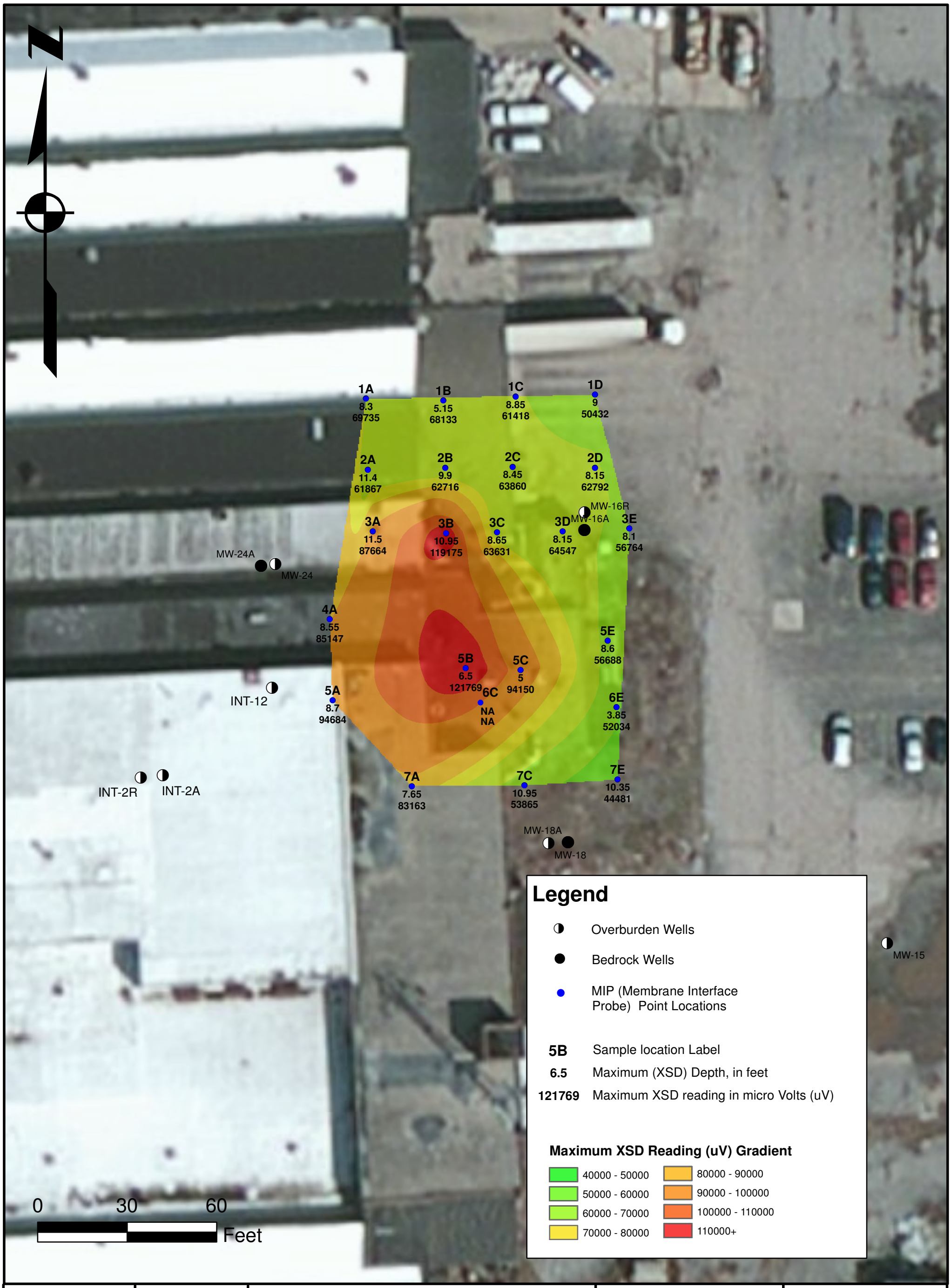


LEICA MICROSYSTEMS INC.
203 EGGERT RD
CHEEKTOWAGA, NY

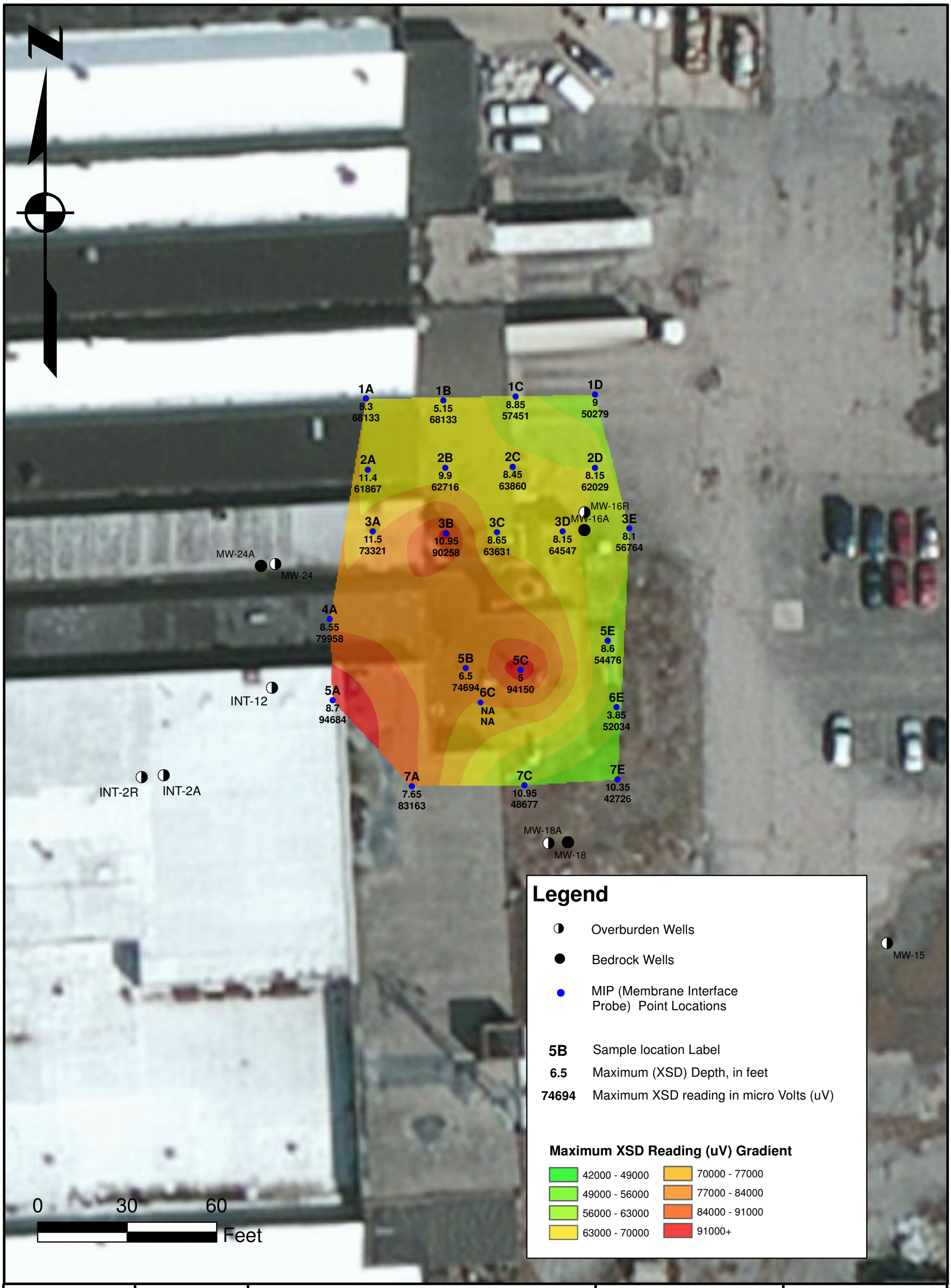
MIP INVESTIGATION SAMPLE LOCATIONS WITH SOILS DATA

ENERGY SOLUTIONS
984 SOUTHFORD RD
MIDDLEBURY, CT. 06762
(203)797-8301

PROJECT #	137015
FILENAME:	
SCALE:	1":30'
DATE:	7/22/16
BY:	DRS
CK:	
FIGURE #	4



DOCUMENT CONTROL NO.	PROJECT	LEICA MICROSYSTEMS INC. 203 EGGERT ROAD CHEEKTOWAGA, NY	ENERGYSOLUTIONS 984 Southford Rd Middlebury, CT 06762 203-797-8301	PROJECT # 137015 FILENAME:
REVISION NO.	DRAWING	Halogen Specific Data (XSD) Concentration Gradients (Data spikes at bottom of borehole included)		SCALE: *SEE SCALEBAR* DATE: 8/28/2016 BY: MT CK: RM FIGURE # 5A



Legend

- Overburden Wells
- Bedrock Wells
- MIP (Membrane Interface Probe) Point Locations

5B Sample location Label

6.5 Maximum (XSD) Depth, in feet

74694 Maximum XSD reading in micro Volts (uV)

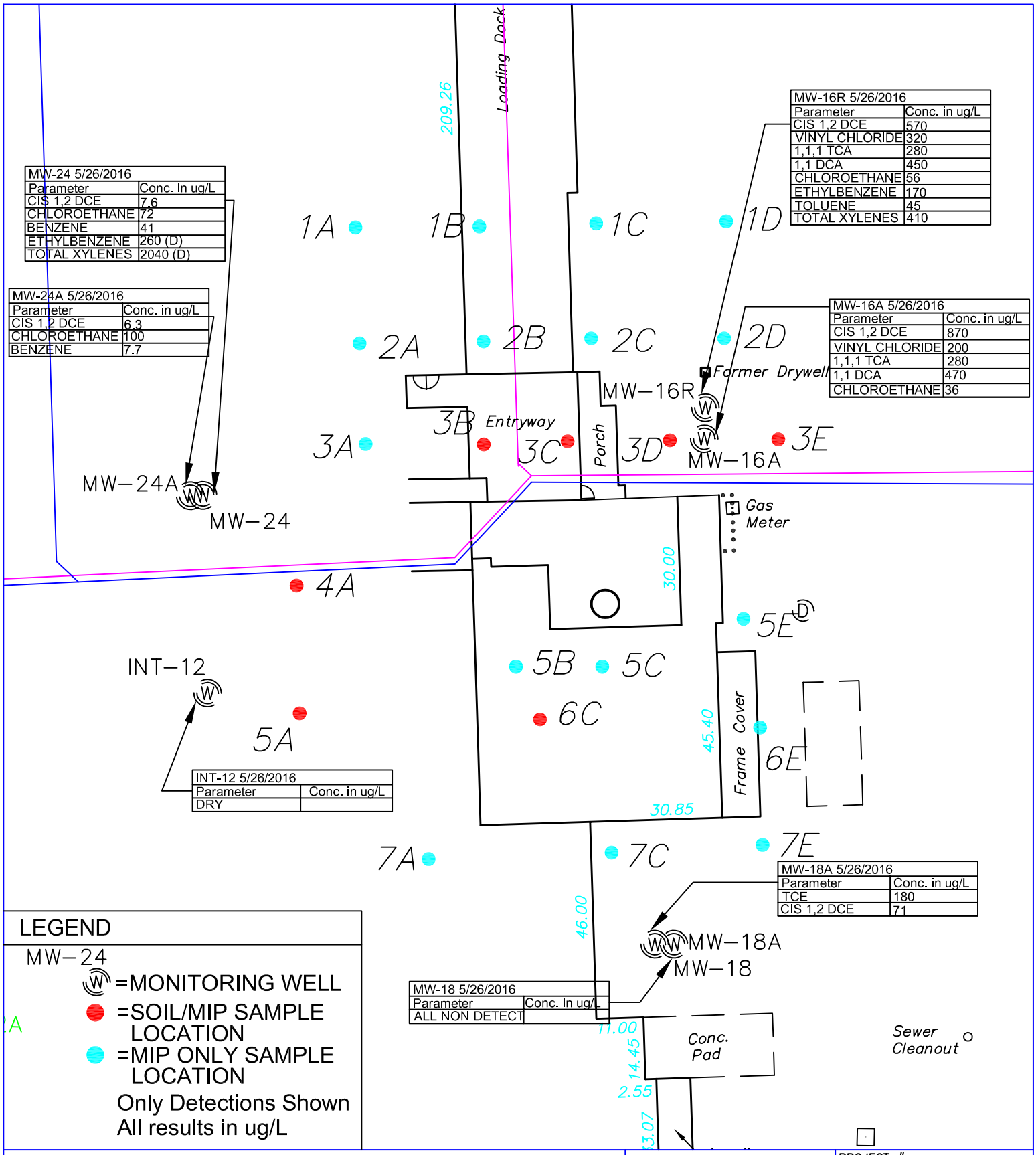
Maximum XSD Reading (uV) Gradient

42000 - 49000	70000 - 77000
49000 - 56000	77000 - 84000
56000 - 63000	84000 - 91000
63000 - 70000	91000+

DOCUMENT CONTROL NO.	PROJECT	LEICA MICROSYSTEMS INC. 203 EGGERT ROAD CHEEKTOWAGA, NY	PROJECT # 137015
REVISION NO.	DRAWING	Halogen Specific Data (XSD) Concentration Gradients (Data spikes at bottom of borehole excluded)	FILENAME:

ENERGYSOLUTIONS
984 Southford Rd
Middlebury, CT 06762
203-797-8301

SCALE: *SEE SCALEBAR*	DATE: 8/28/2016
BY: MT	CK: RM
FIGURE # 5B	



LEICA MICROSYSTEMS INC.
203 EGGERT RD
CHEEKTOWAGA, NY

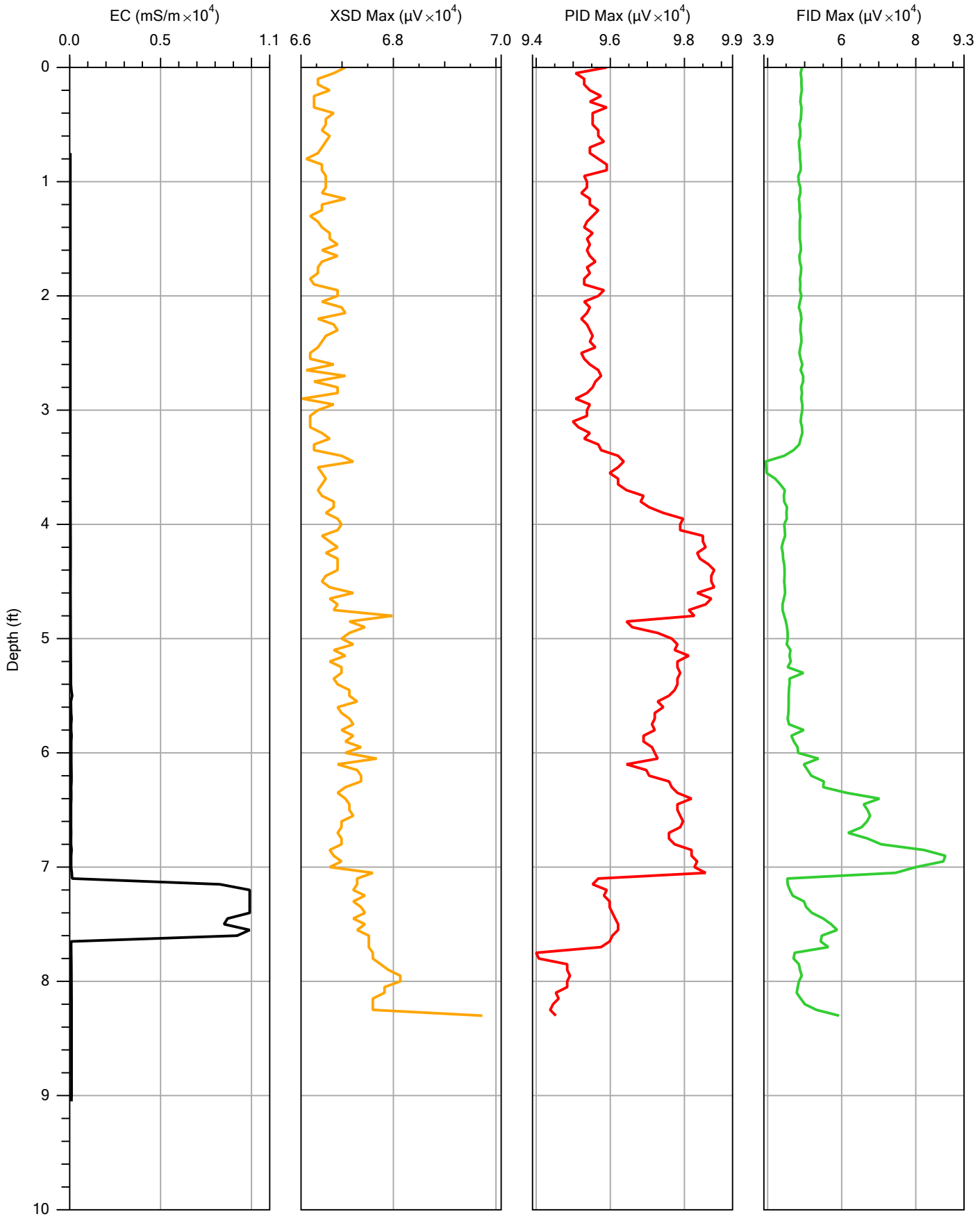
2016 GROUNDWATER DATA
MIP INVESTIGATION AREA

ENERGY SOLUTIONS
984 SOUTHFORD RD
MIDDLEBURY, CT. 06762
(203)797-8301

PROJECT #	137015
FILENAME:	
SCALE:	1":30'
DATE:	8/2/16
BY:	DRS
CK:	
FIGURE #	6

APPENDIX B

MIP DATA GRAPHS



CASCADE
DRILLING | TECHNICAL SERVICES

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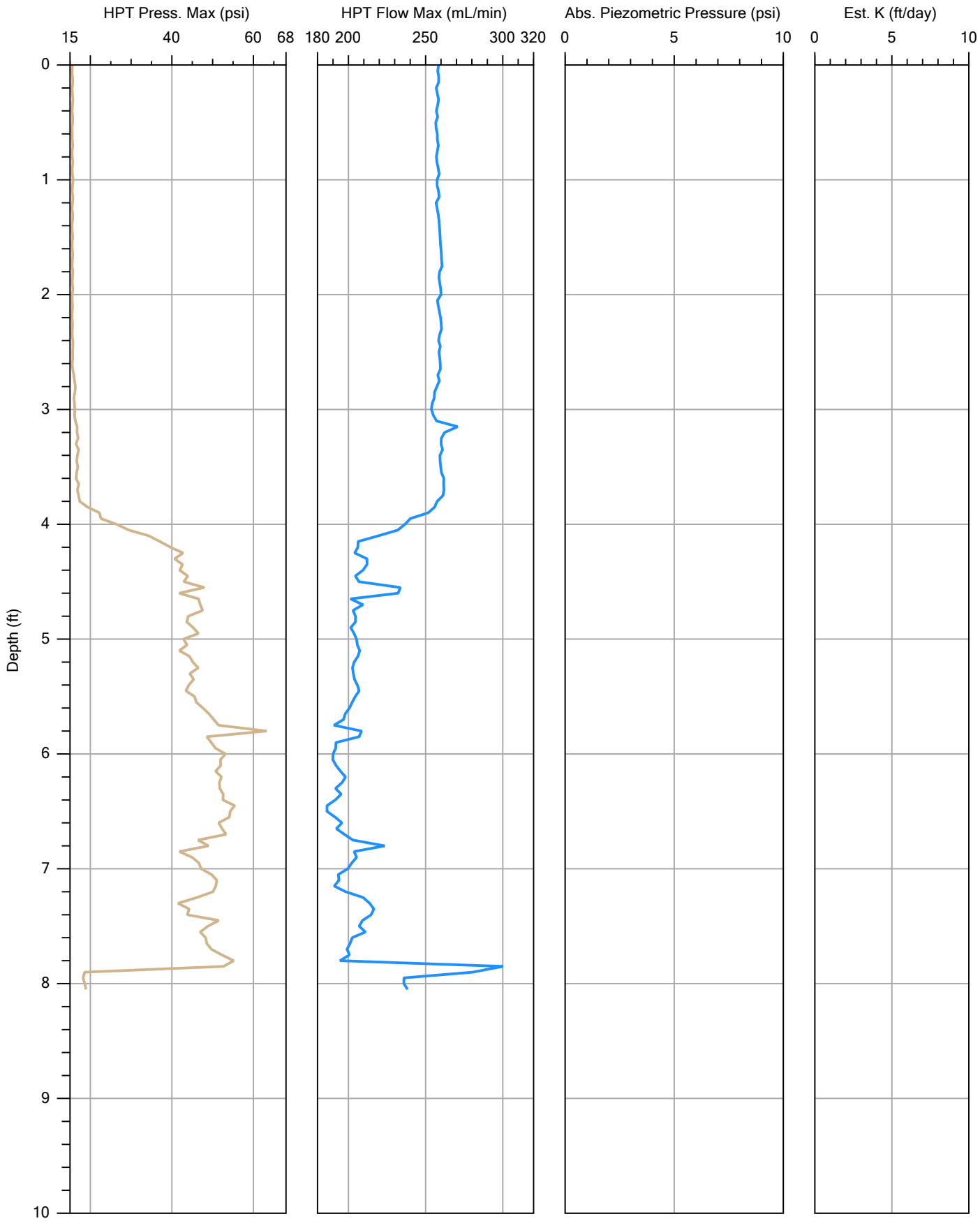
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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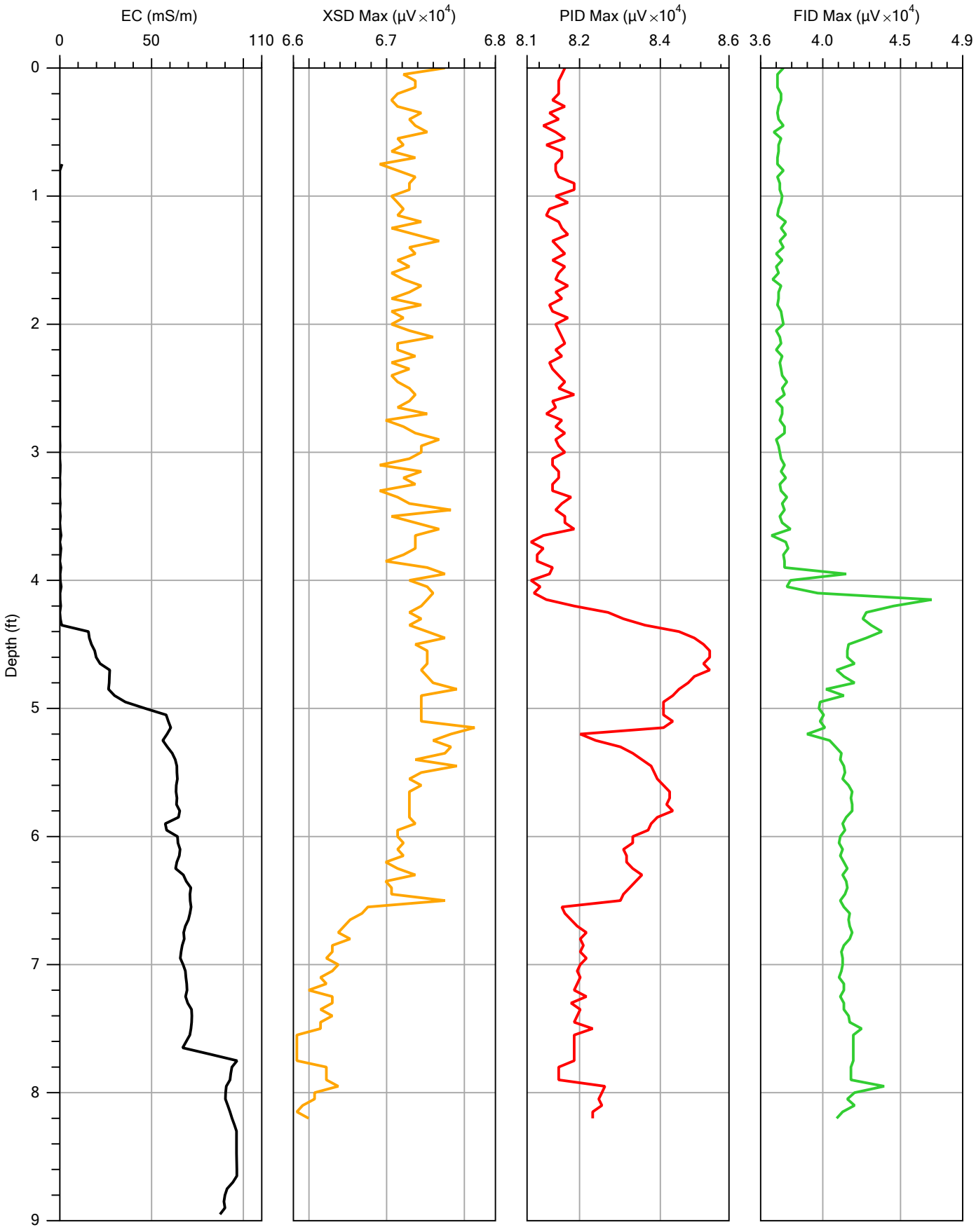
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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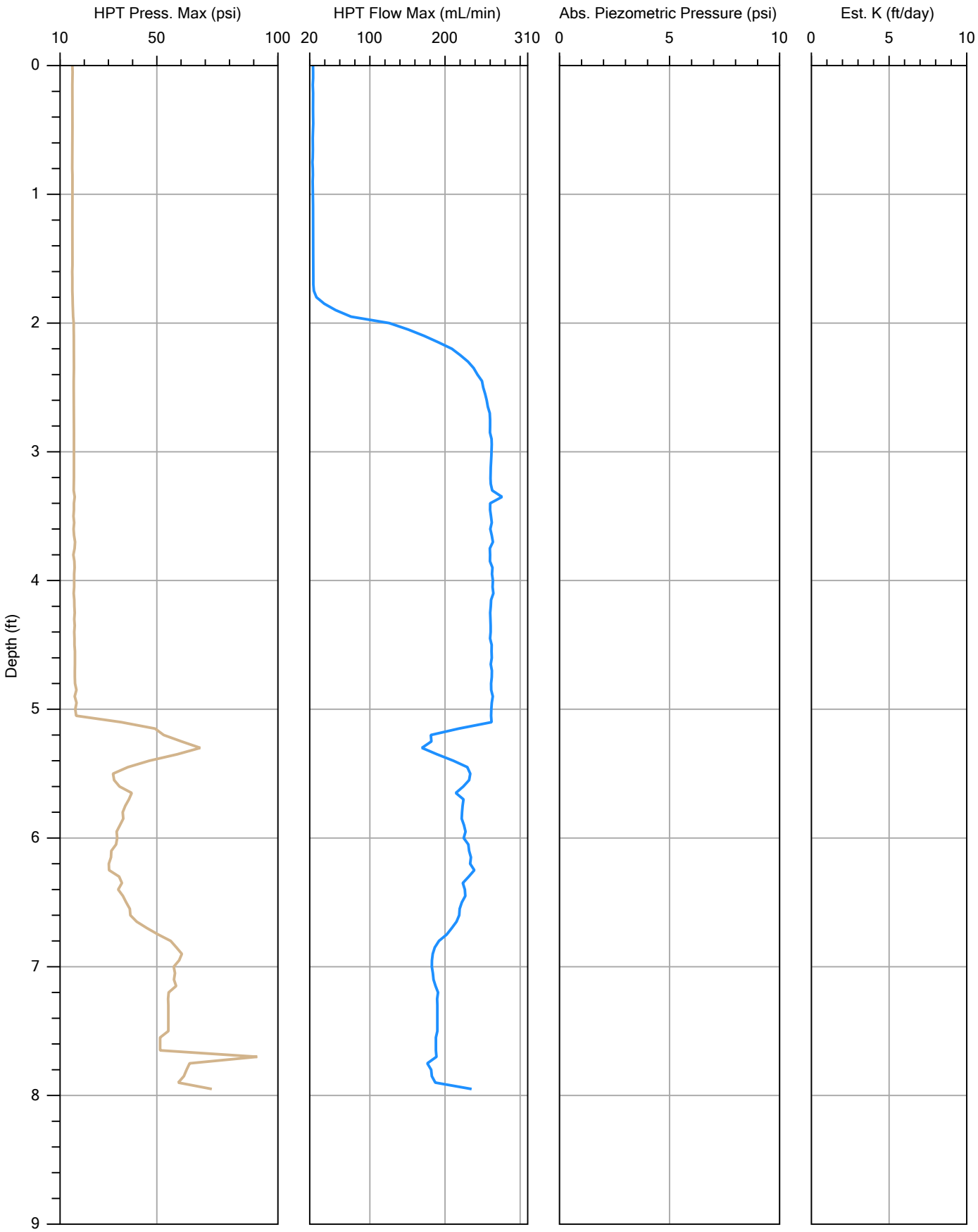
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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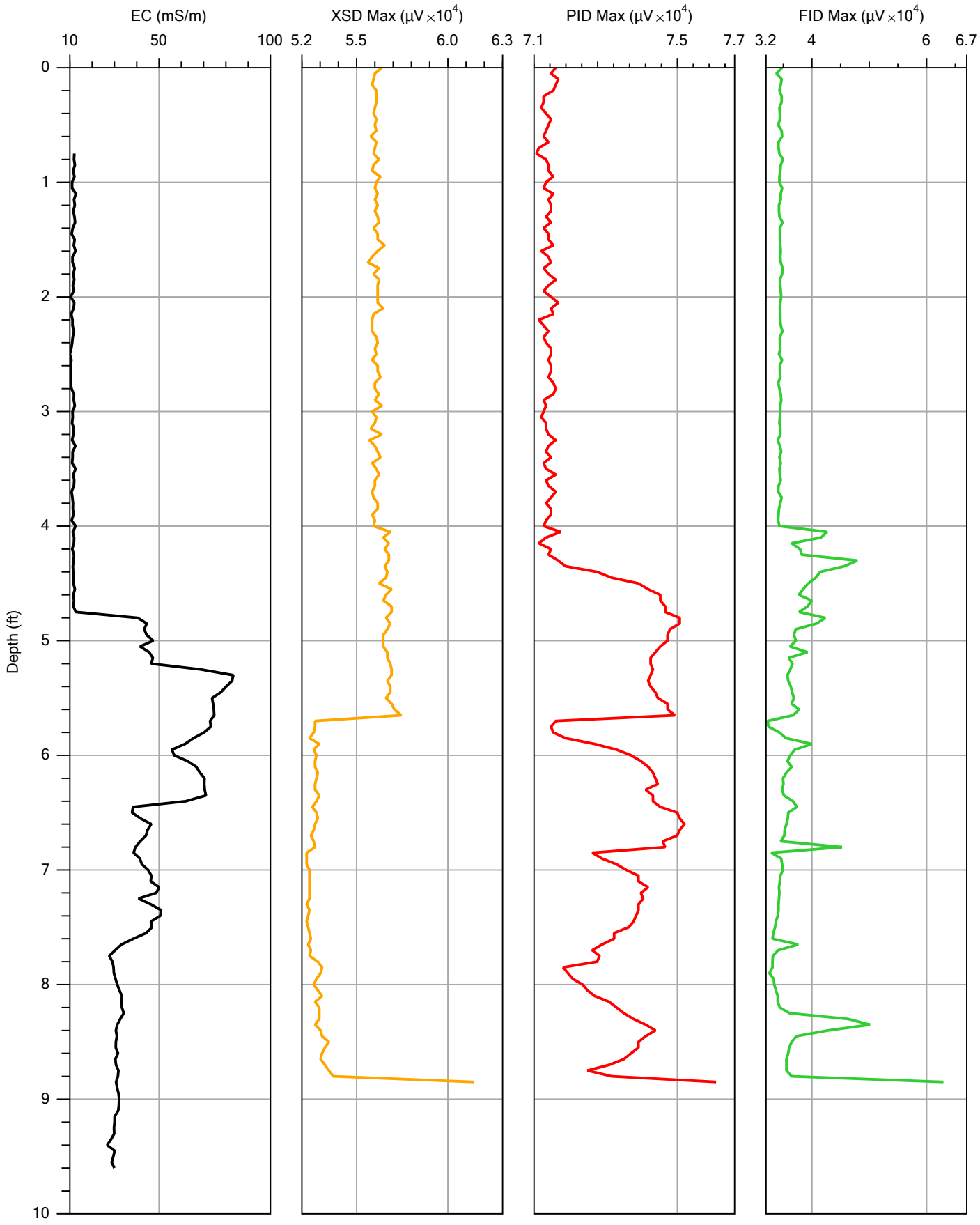
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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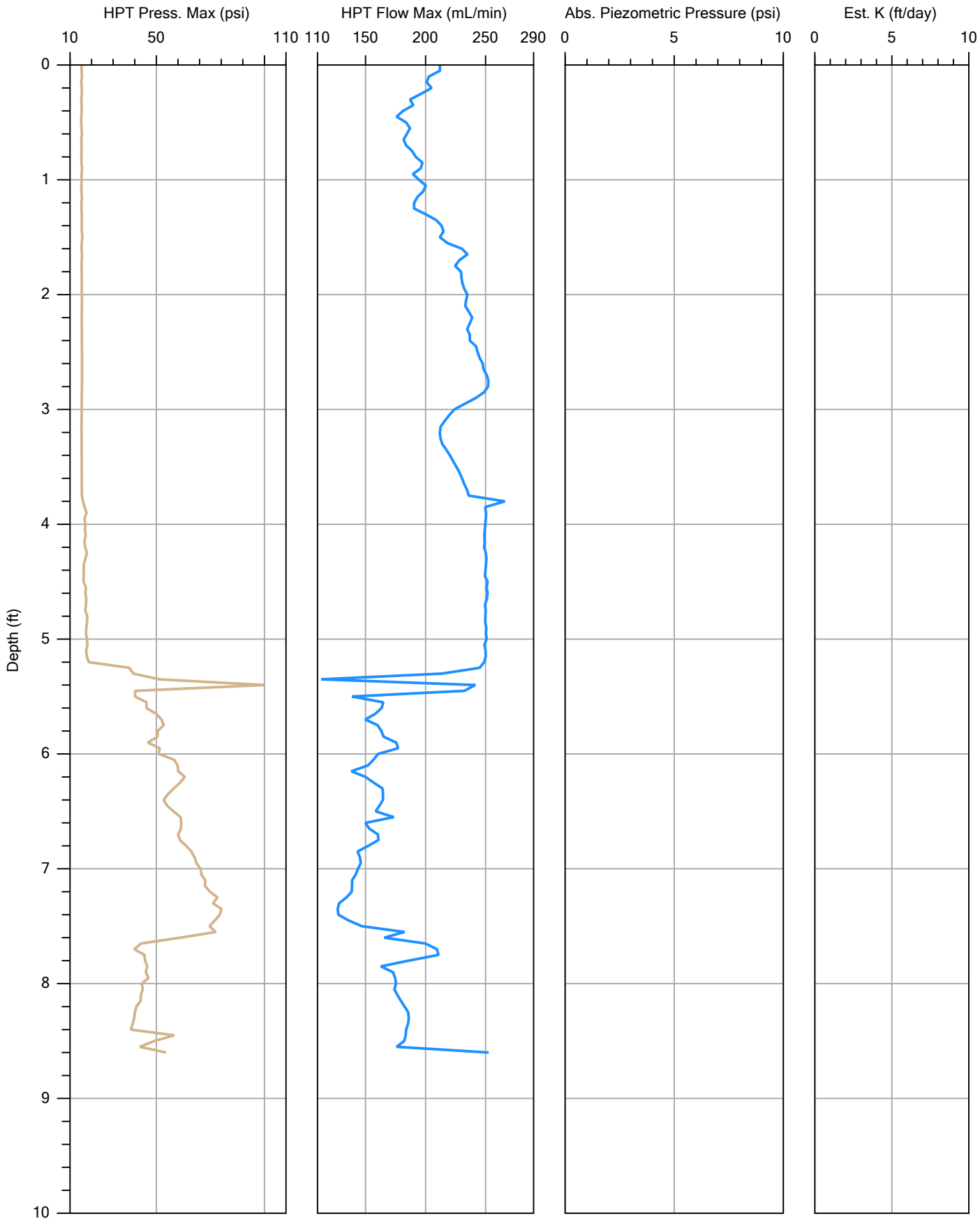
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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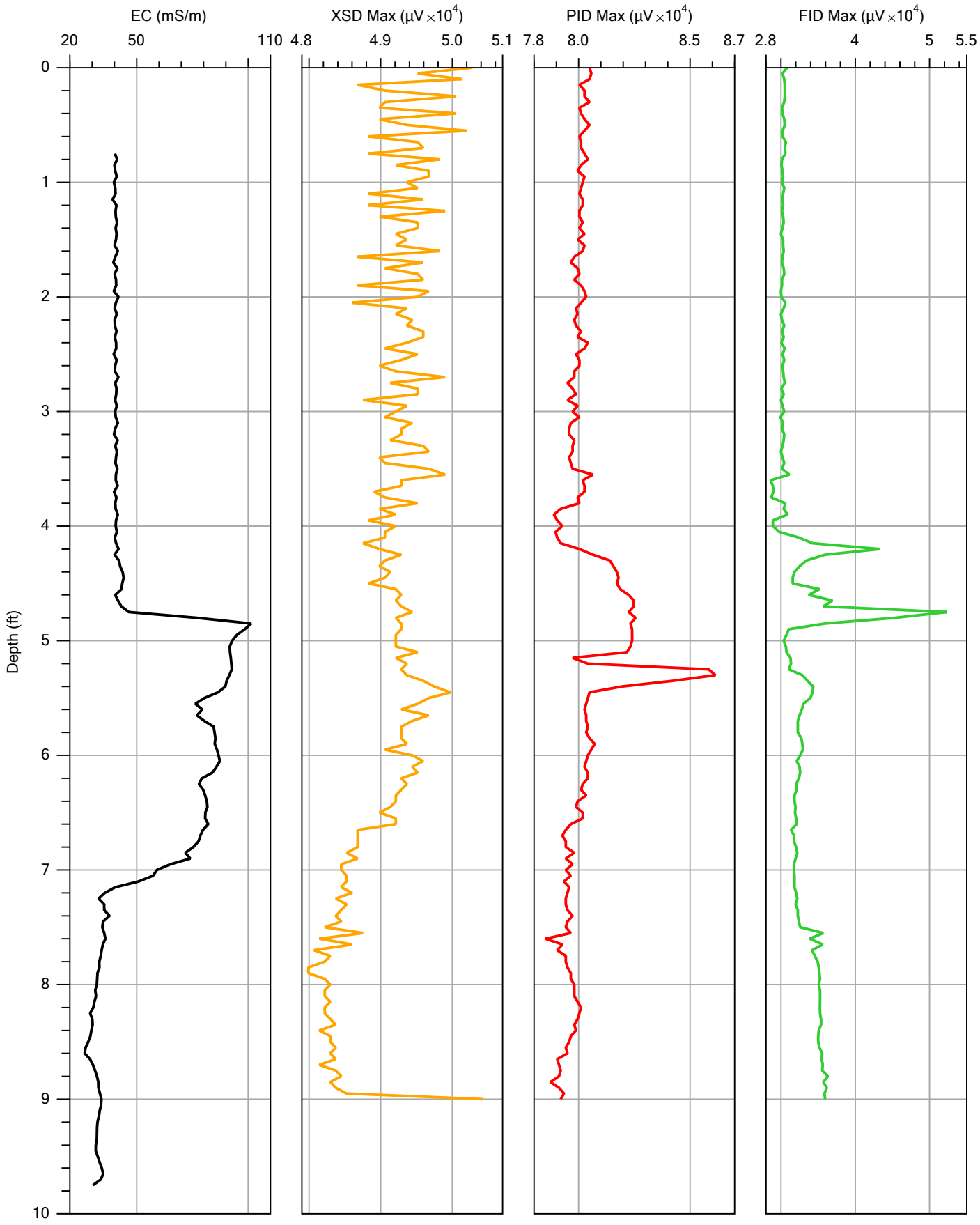
Project ID:	Client: Energy Solutions	Location:



CASCADE
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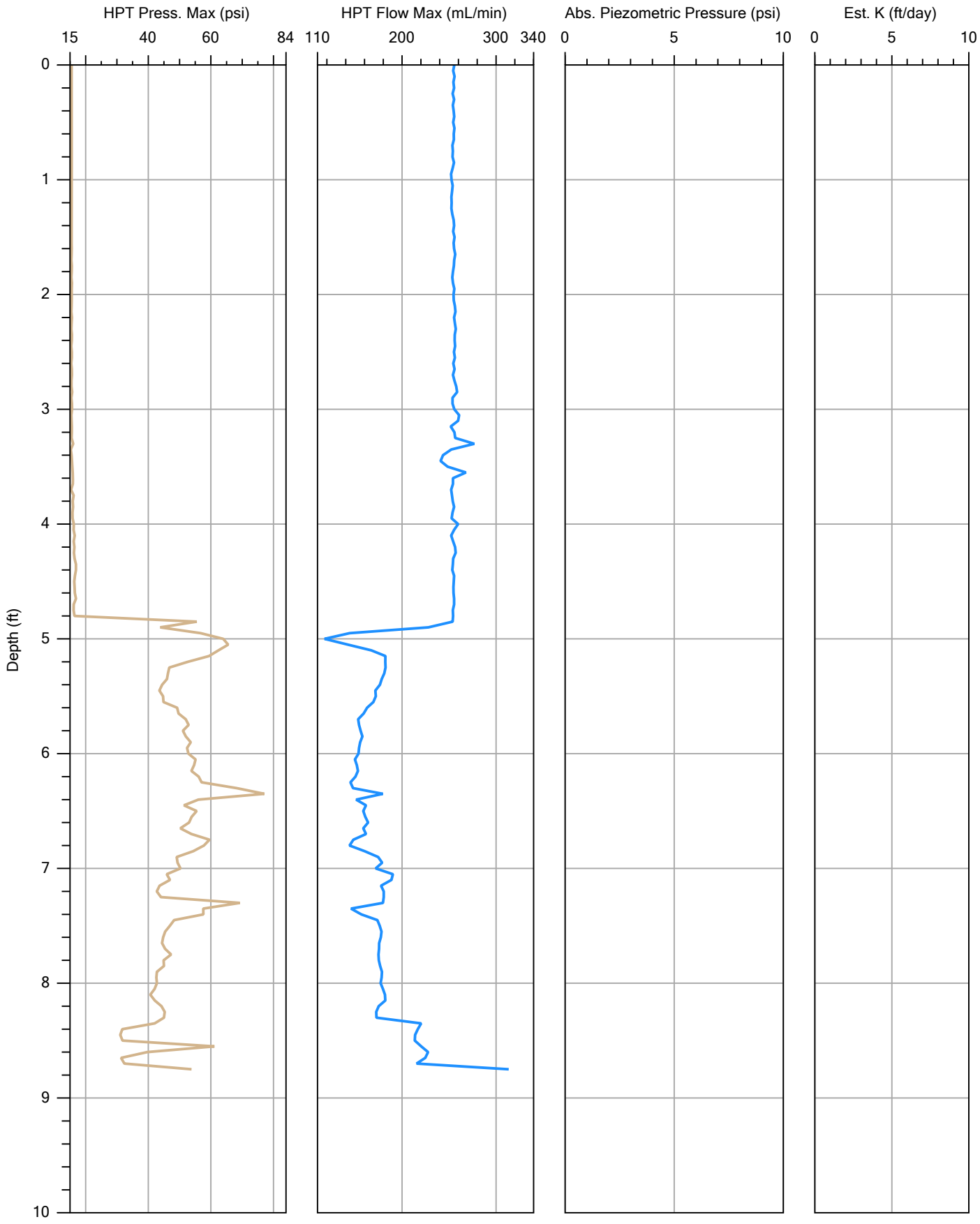
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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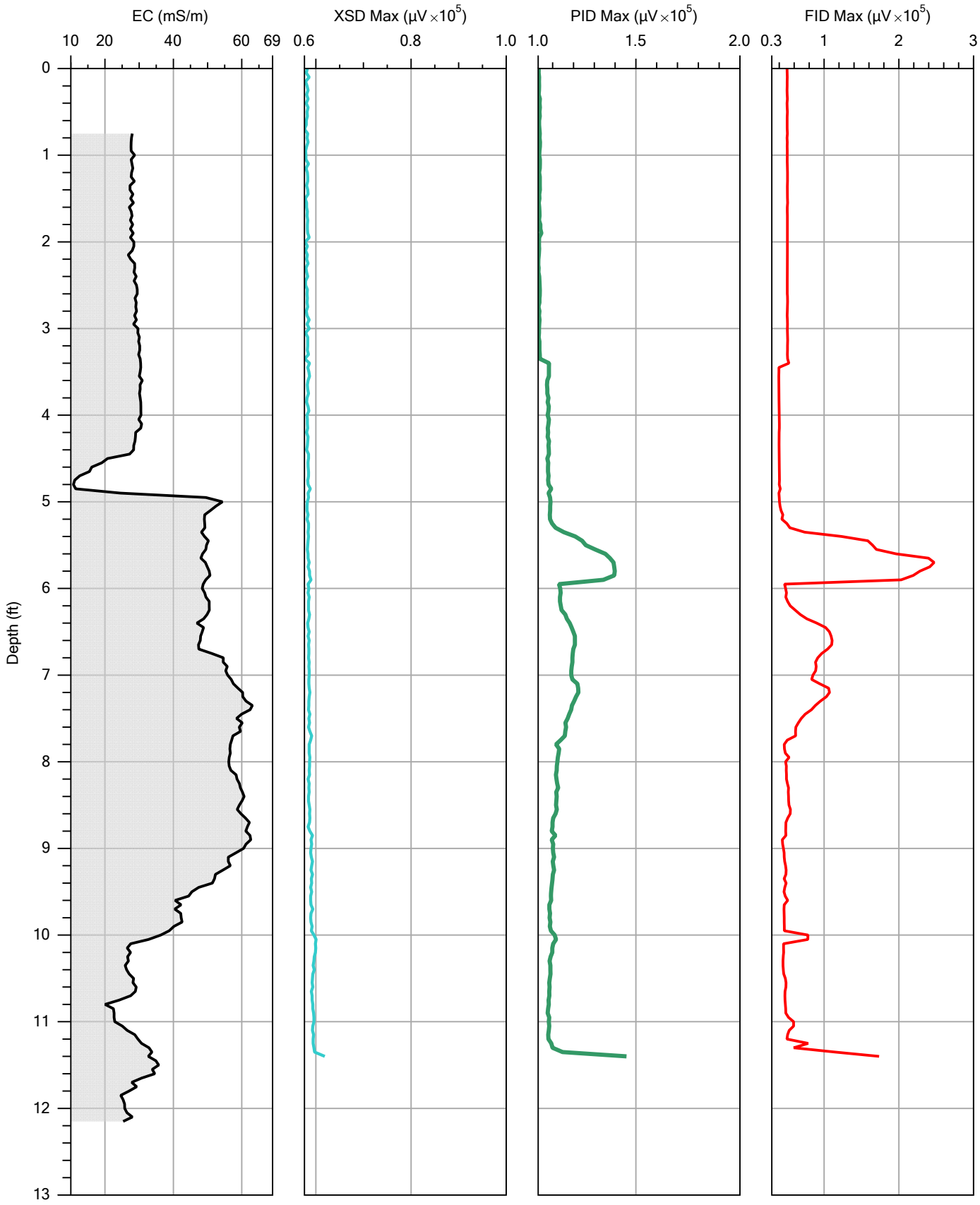
Project ID:	Client: Energy Solutions	Location:



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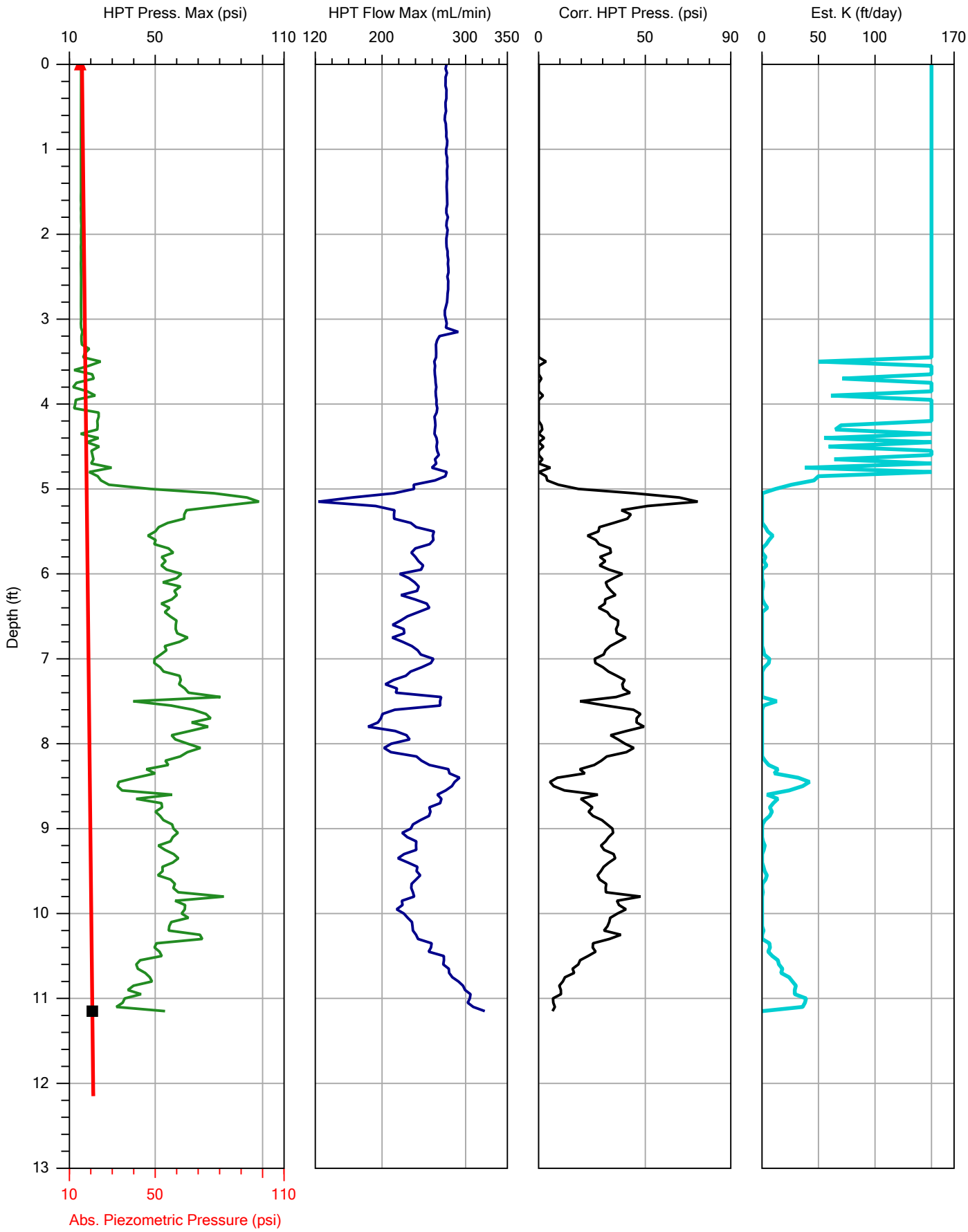
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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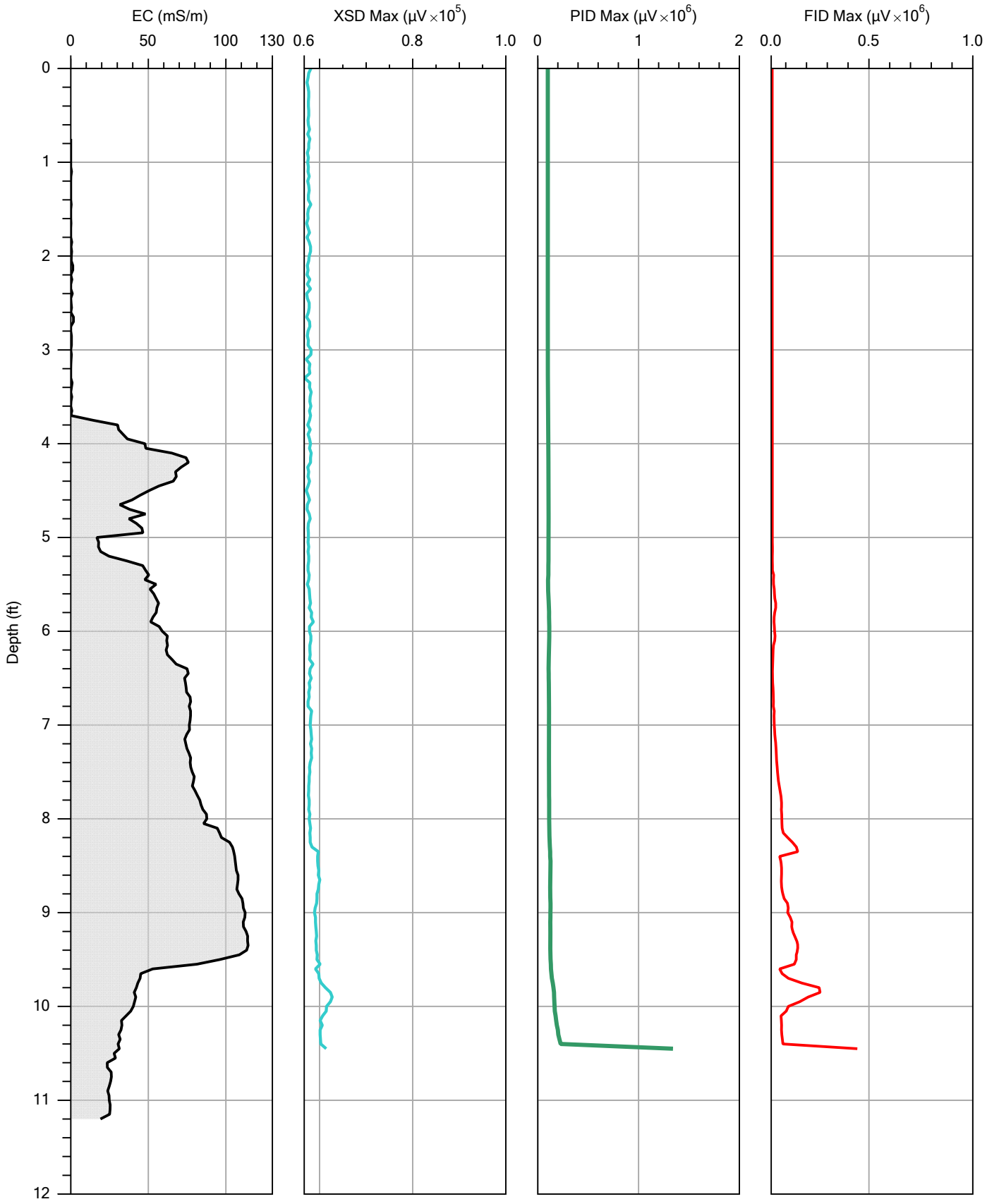
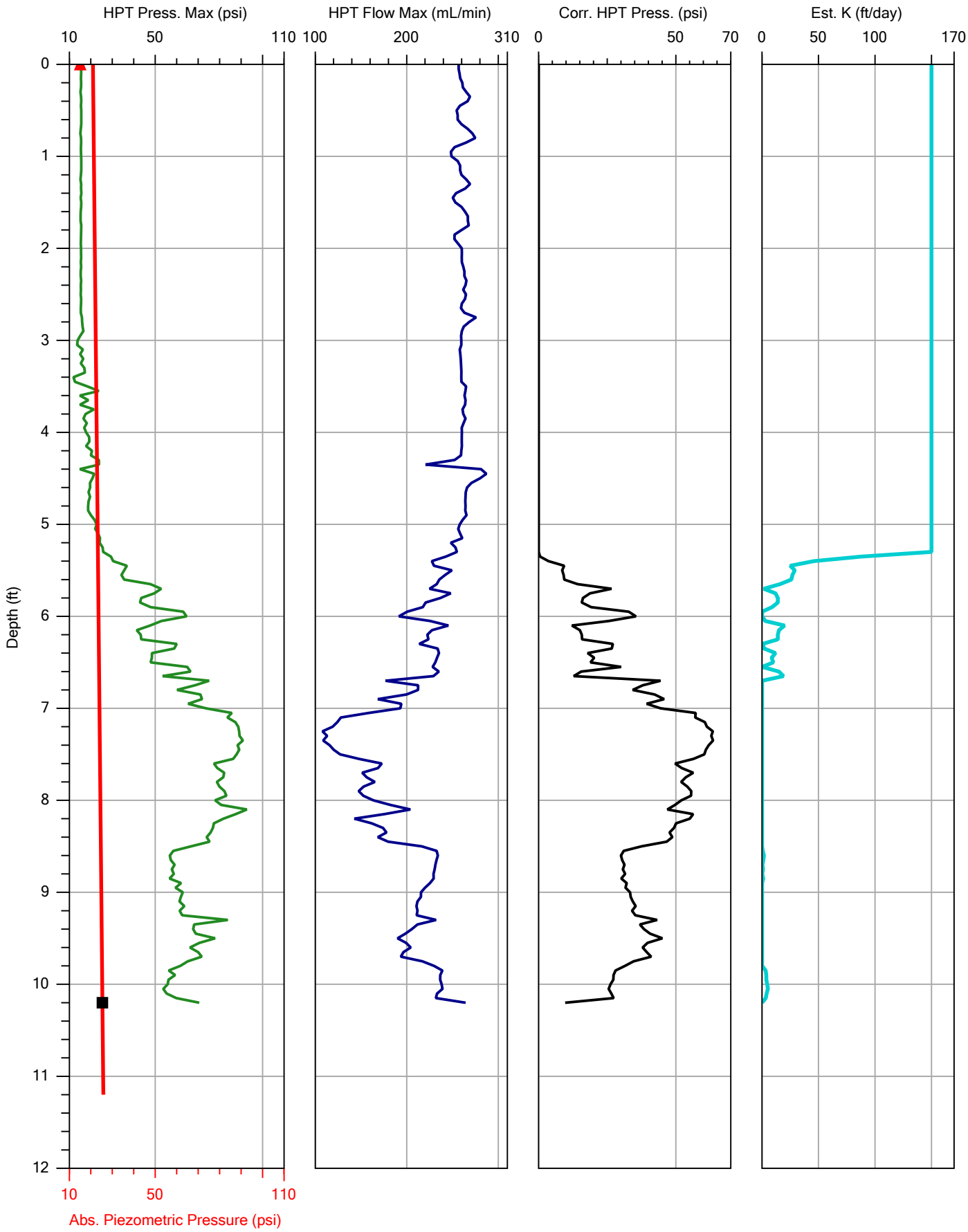
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-2B.MHP
Company: Cascade Tech Services	Operator: Z Fordley	Date: 4/18/2016
Project ID:	Client: Energy Solutions	Location: 42° 55′ 45″ N, 78° 47′ 48″ W



CASCADE
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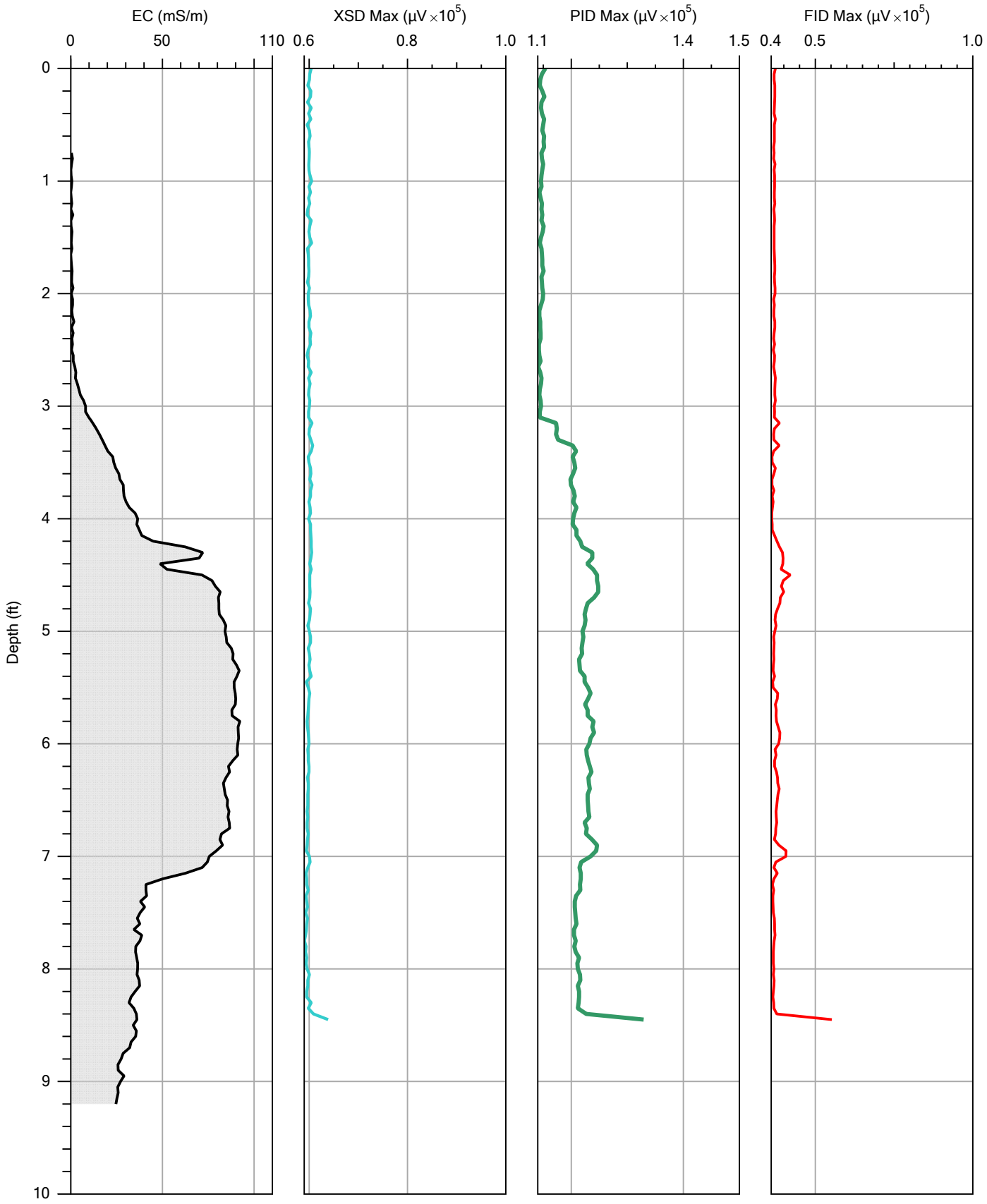
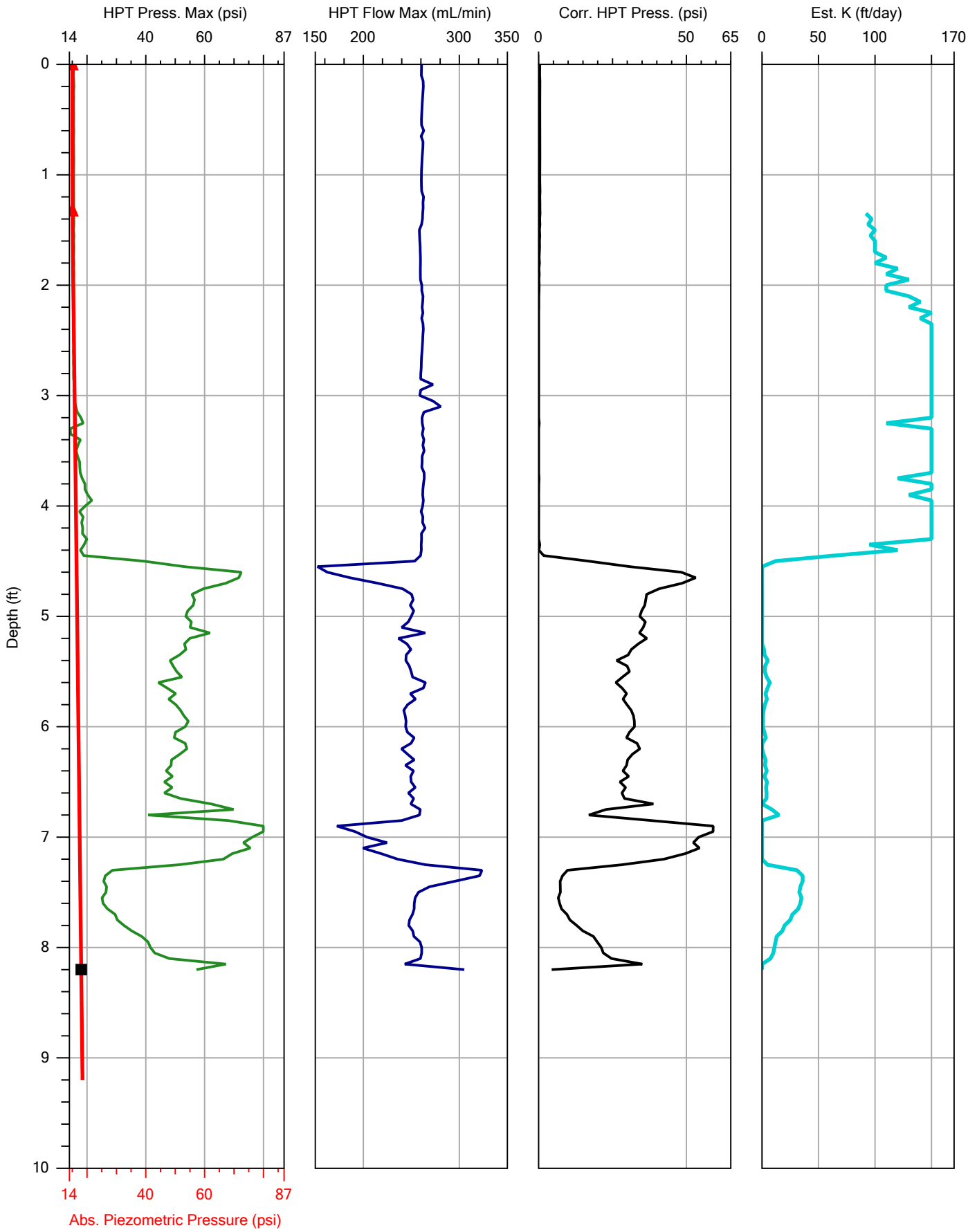
Company: Cascade Tech Services	Operator: Z Fordley	Date: 4/18/2016
Project ID:	Client: Energy Solutions	Location: 42° 55′ 45″ N, 78° 47′ 48″ W



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-2C.MHP
Company: Cascade Tech Services	Operator: Z Fordley	Date: 4/18/2016
Project ID:	Client: Energy Solutions	Location: 42° 55′ 46″ N, 78° 47′ 47″ W



CASCADE
DRILLING | TECHNICAL SERVICES

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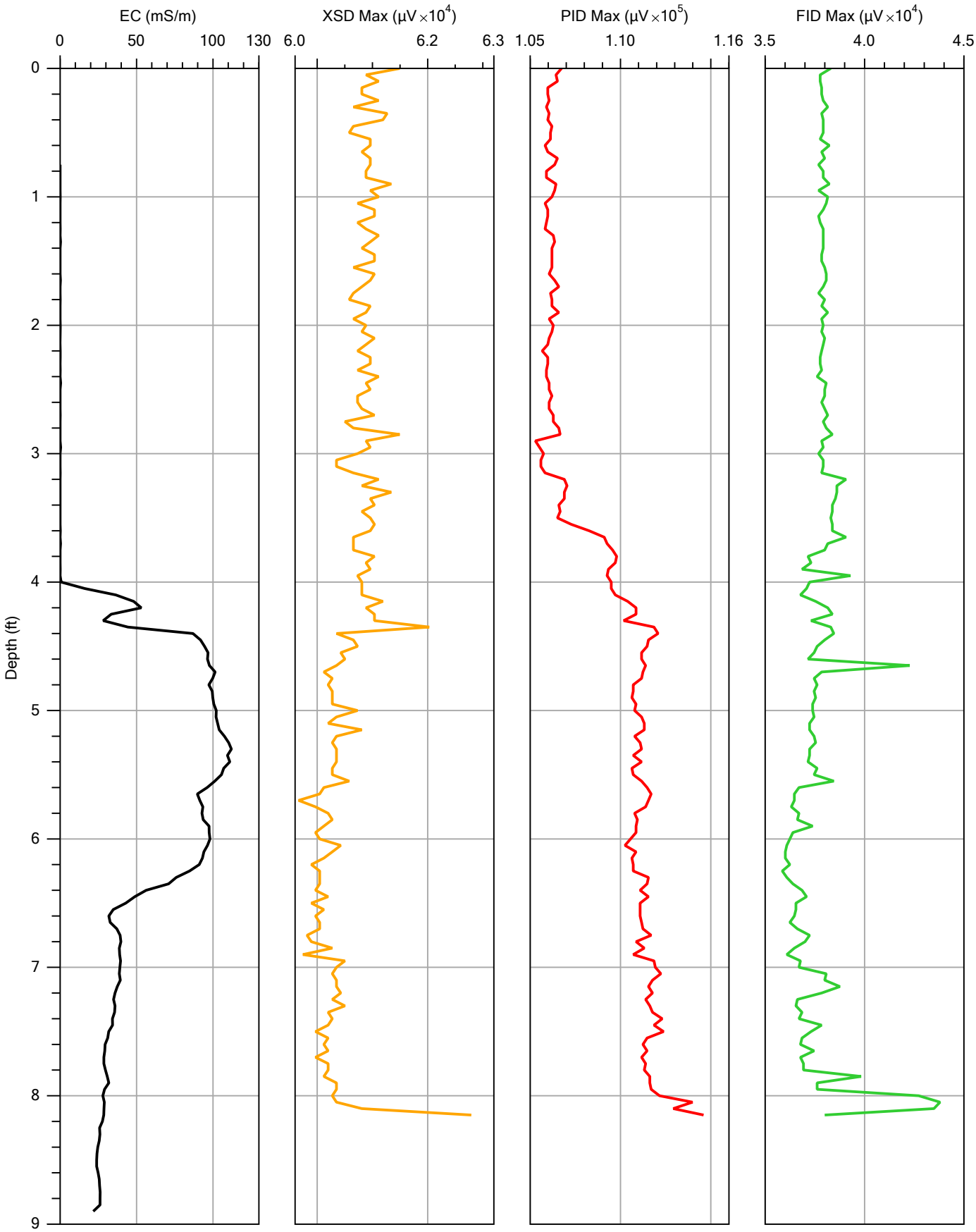
Company: Cascade Tech Services	Operator: Z Fordley	Date: 4/18/2016
Project ID:	Client: Energy Solutions	Location: 42° 55′ 46″ N, 78° 47′ 47″ W



CASCADE
DRILLING | TECHNICAL SERVICES

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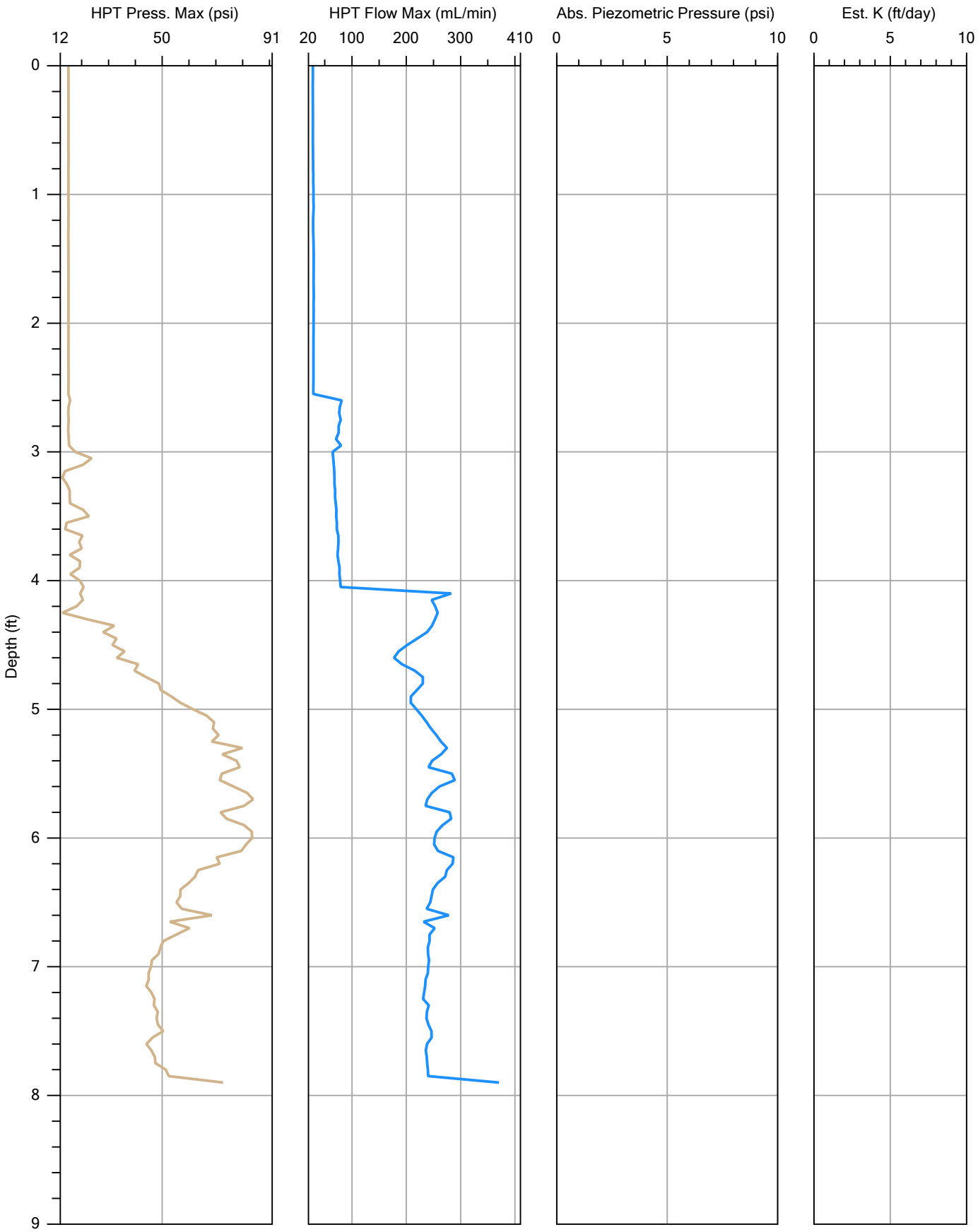
Company: Cascade Tech Services	Operator: Z Fordley	Date: 4/18/2016
Project ID:	Client: Energy Solutions	Location: 42° 55′ 46″ N, 78° 47′ 46″ W



CASCADE
DRILLING | TECHNICAL SERVICES

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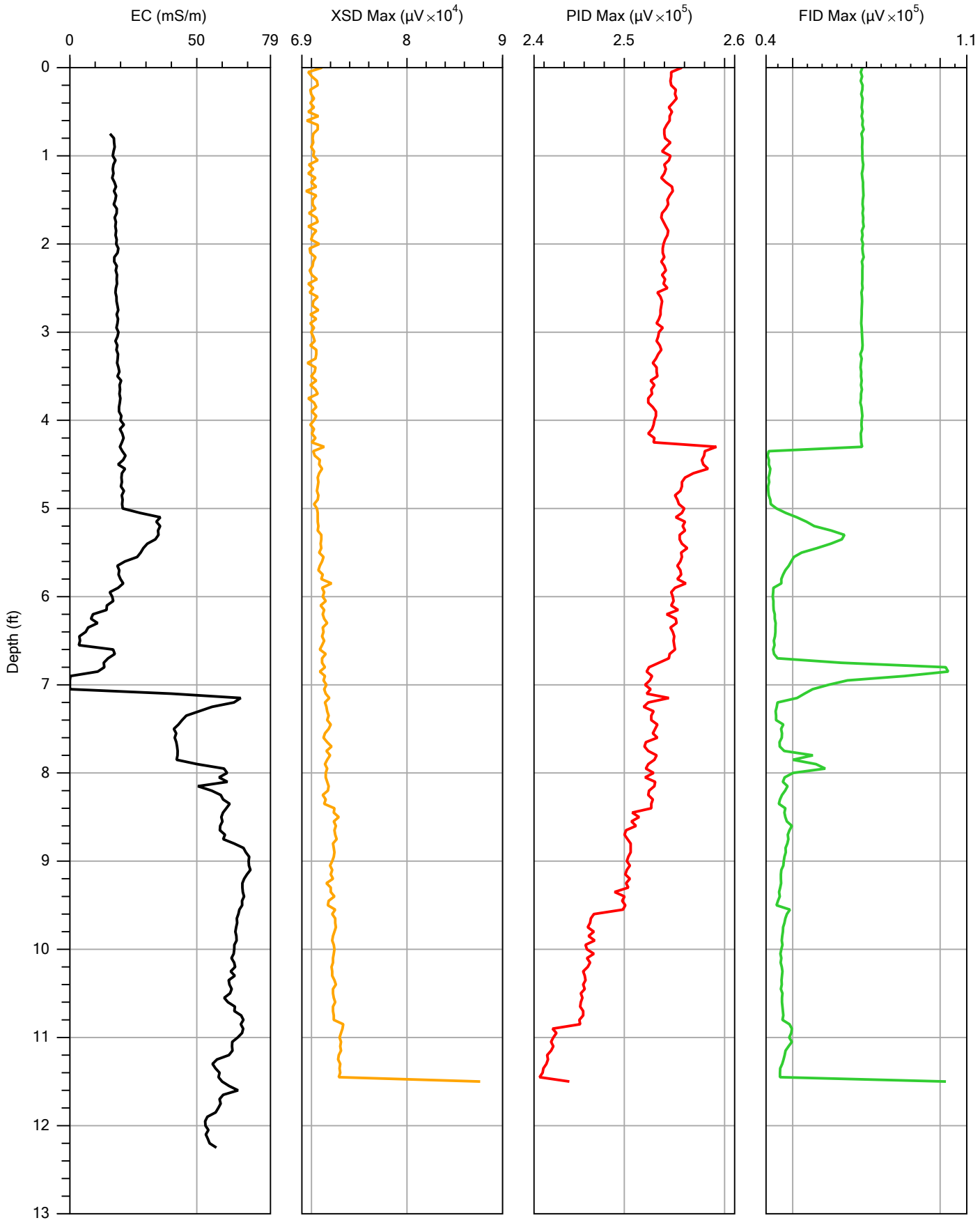
Project ID:	Client: Energy Solutions	Location: 42° 55′ 46″ N, 78° 47′ 46″ W



CASCADE
DRILLING | TECHNICAL SERVICES

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Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
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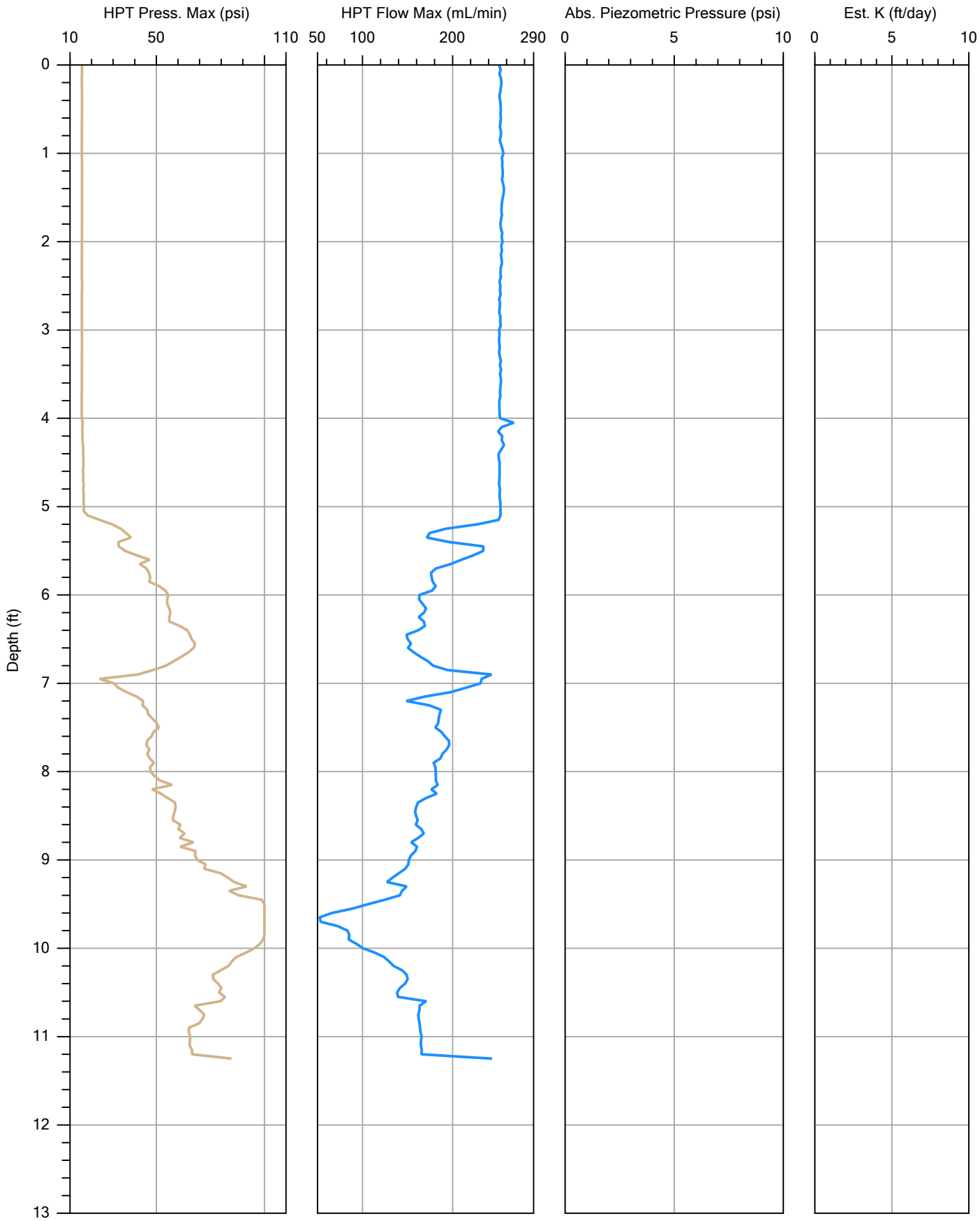

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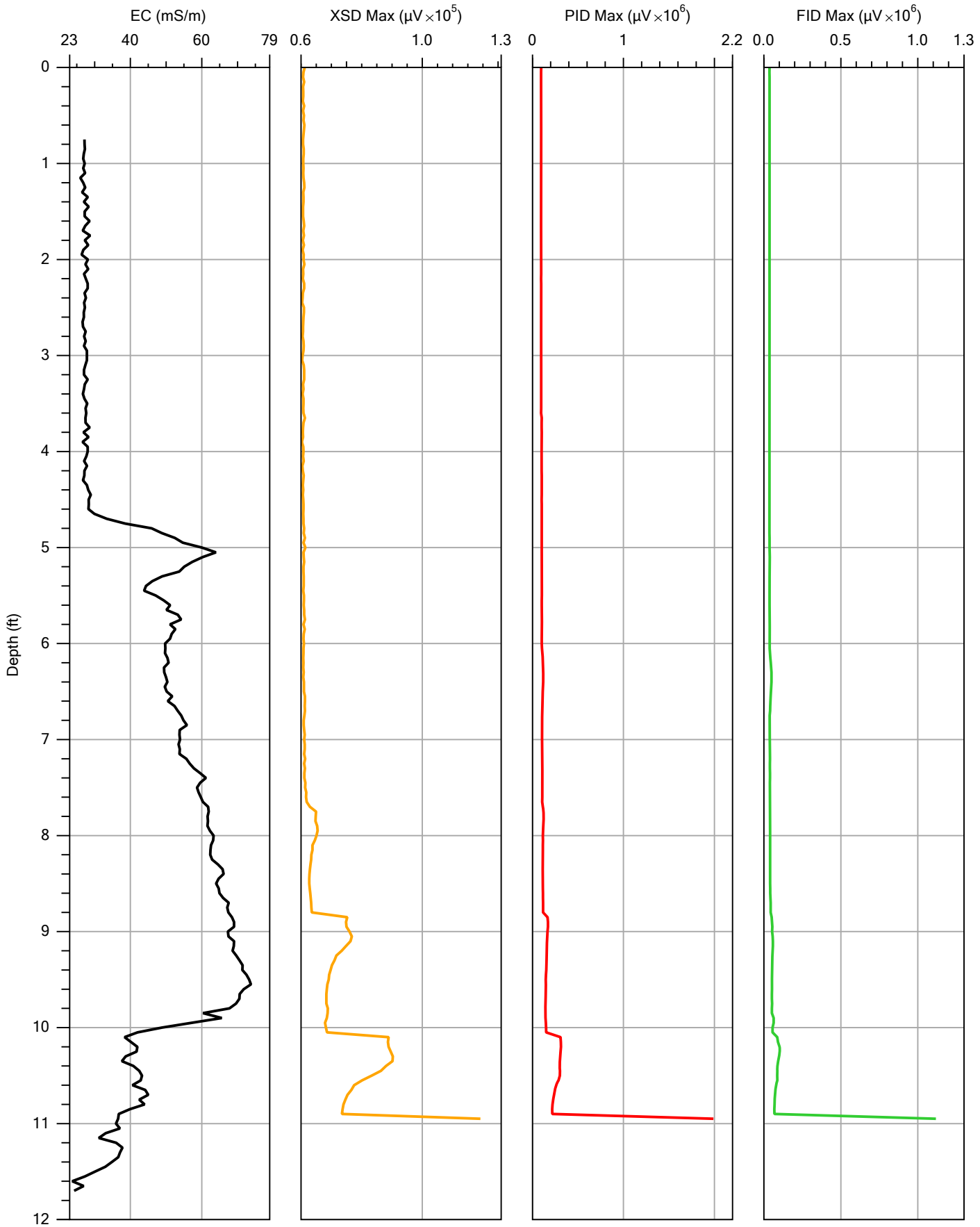

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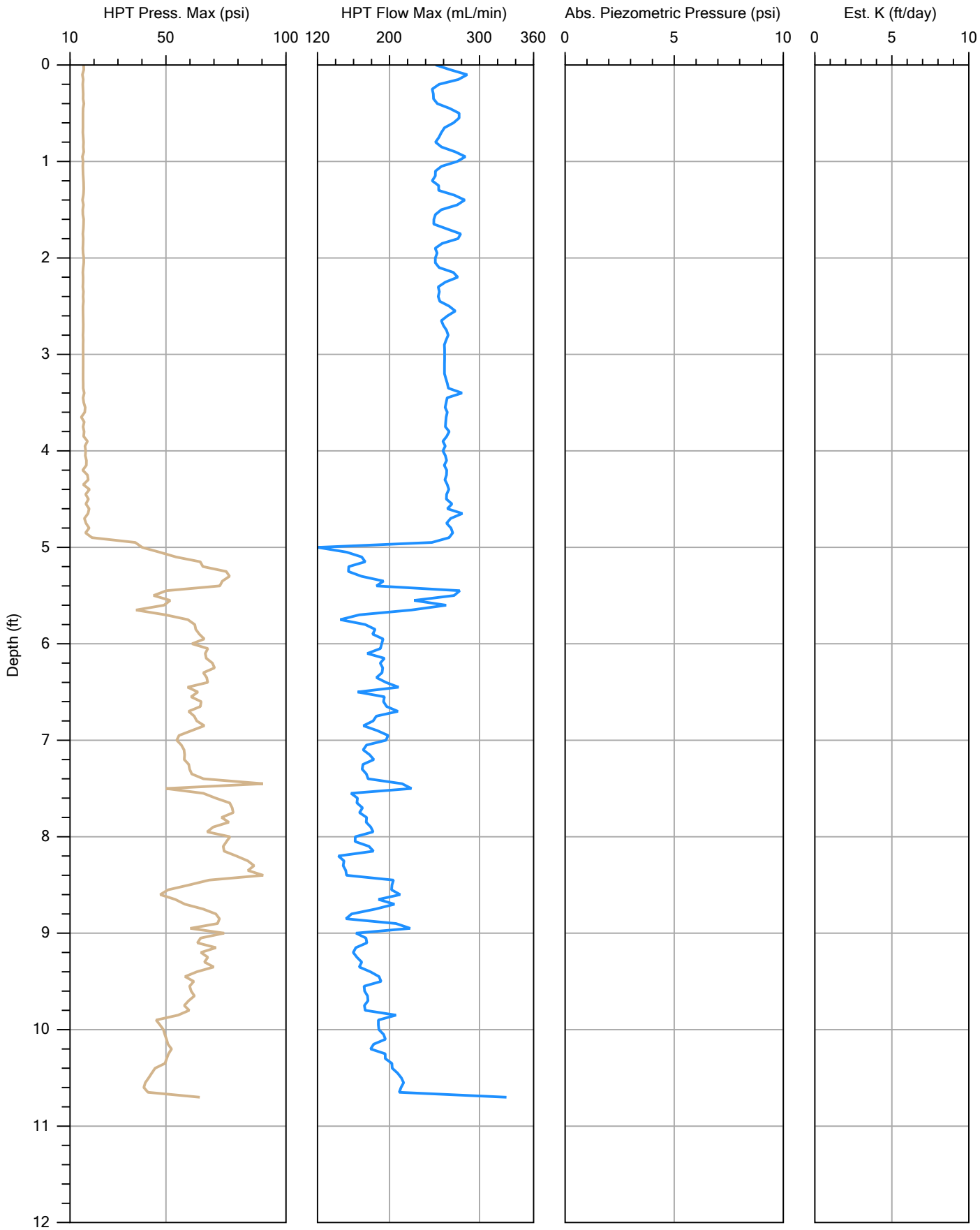

CASCADE
DRILLING | TECHNICAL SERVICES

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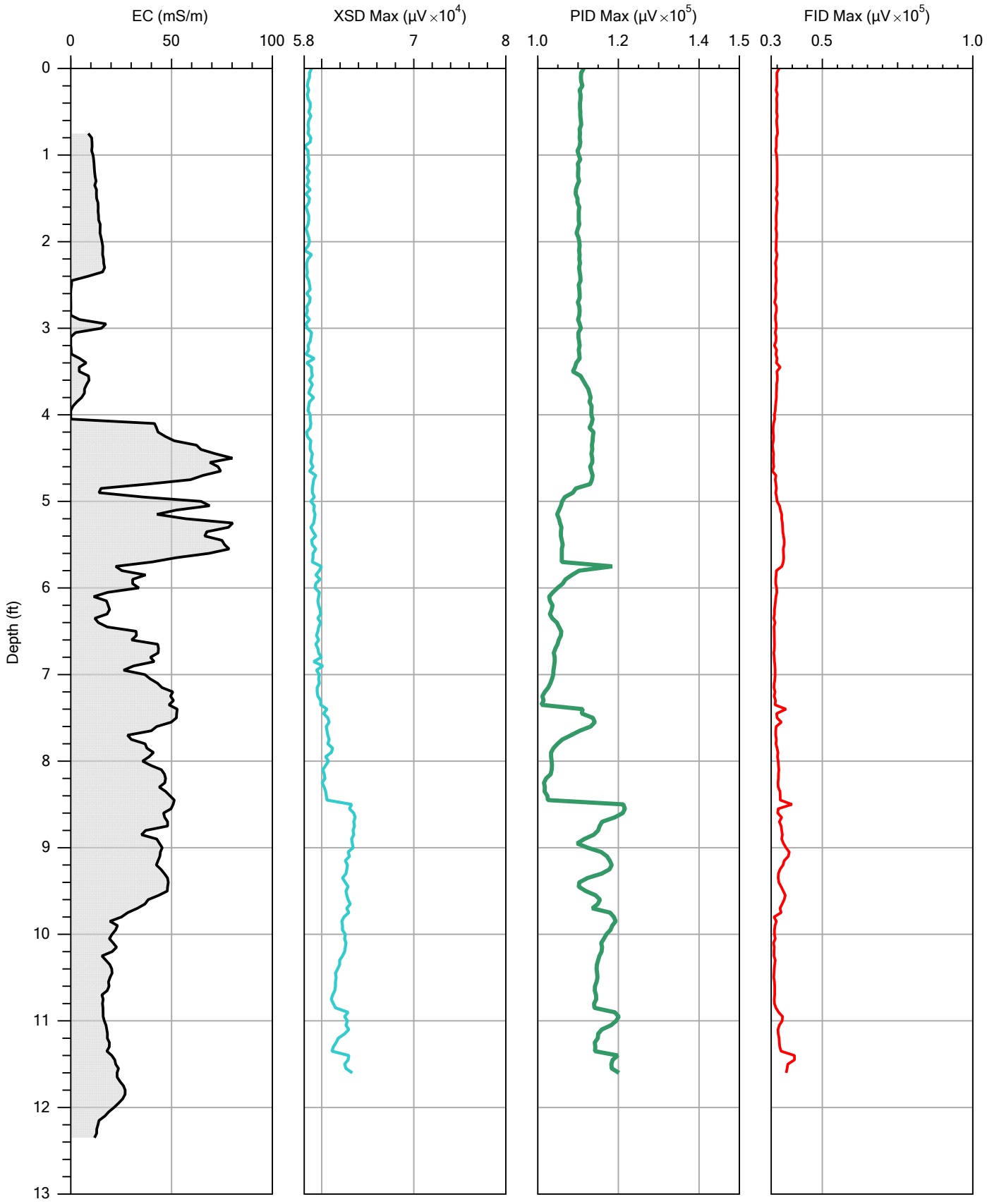

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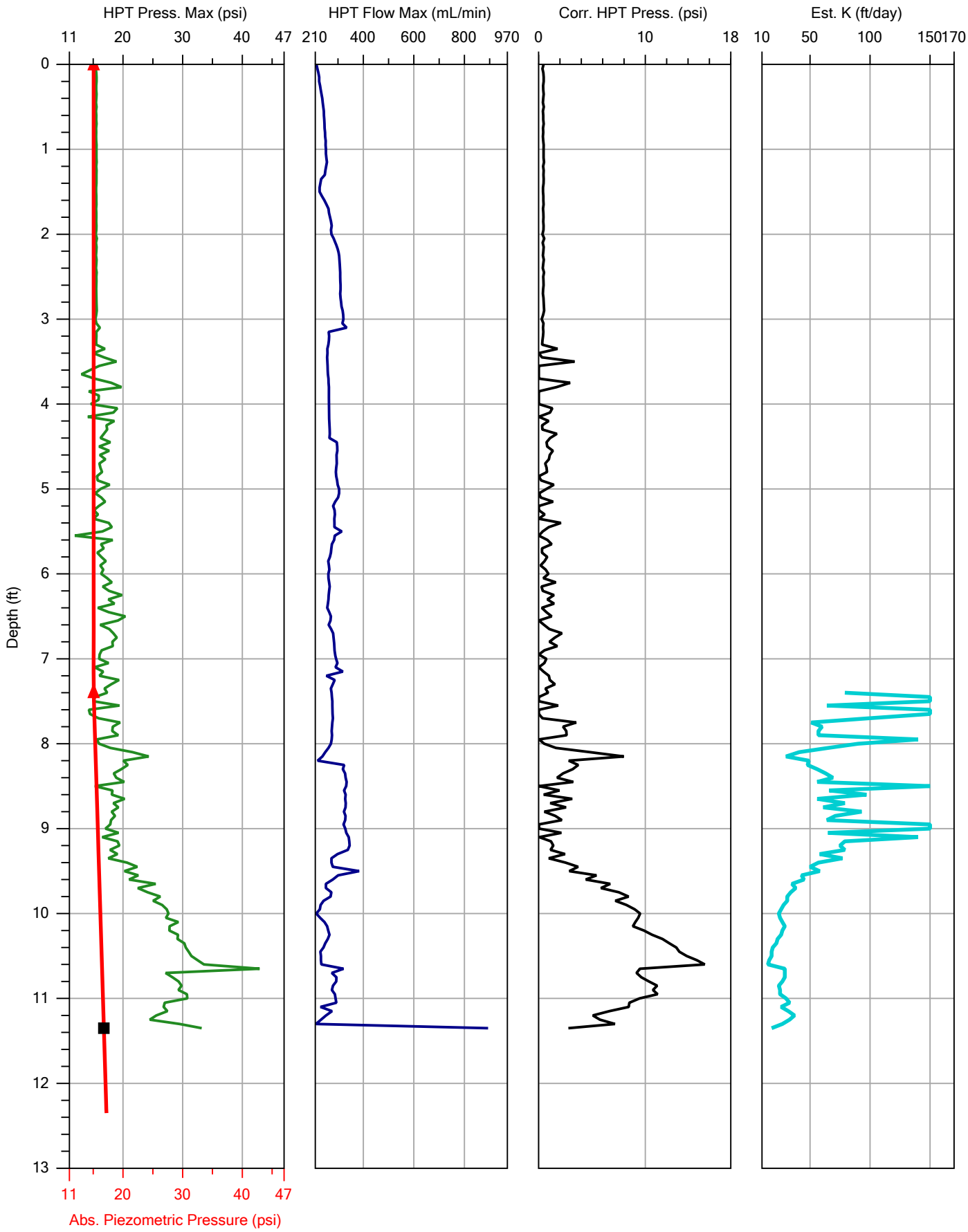

CASCADE
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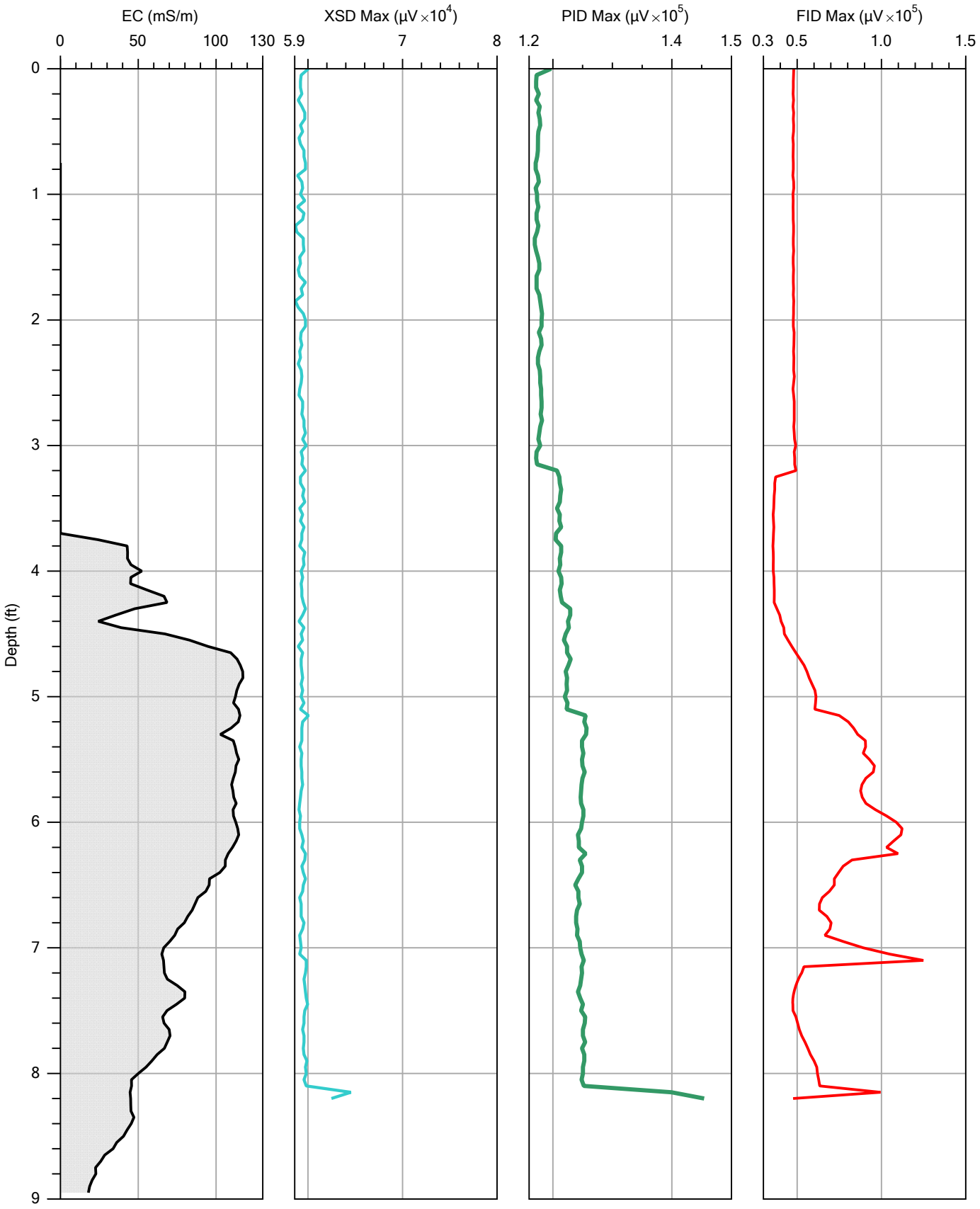

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DRILLING | TECHNICAL SERVICES

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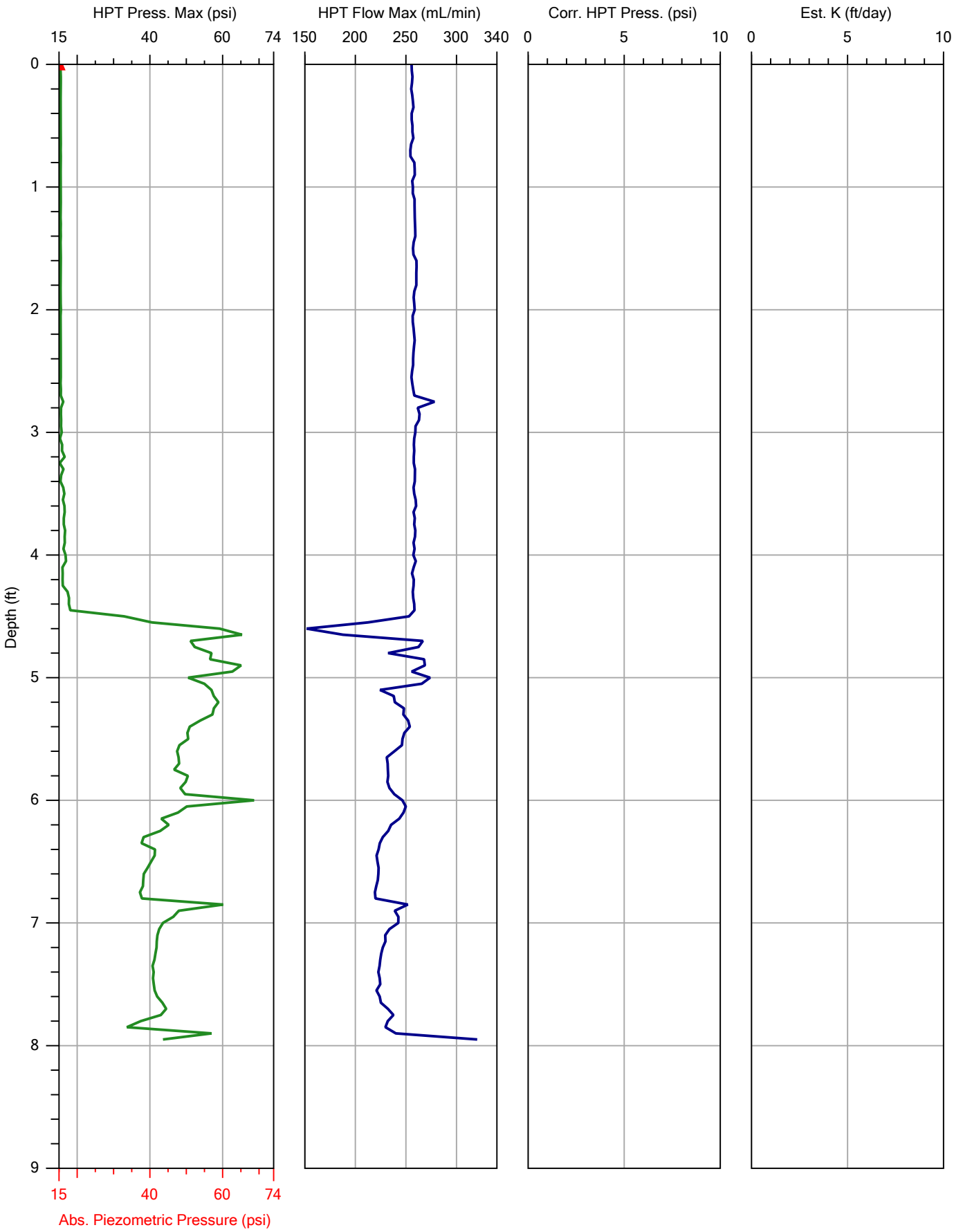
Project ID:	Client: Energy Solutions	Location: 42° 55′ 45″ N, 78° 47′ 47″ W



CASCADE
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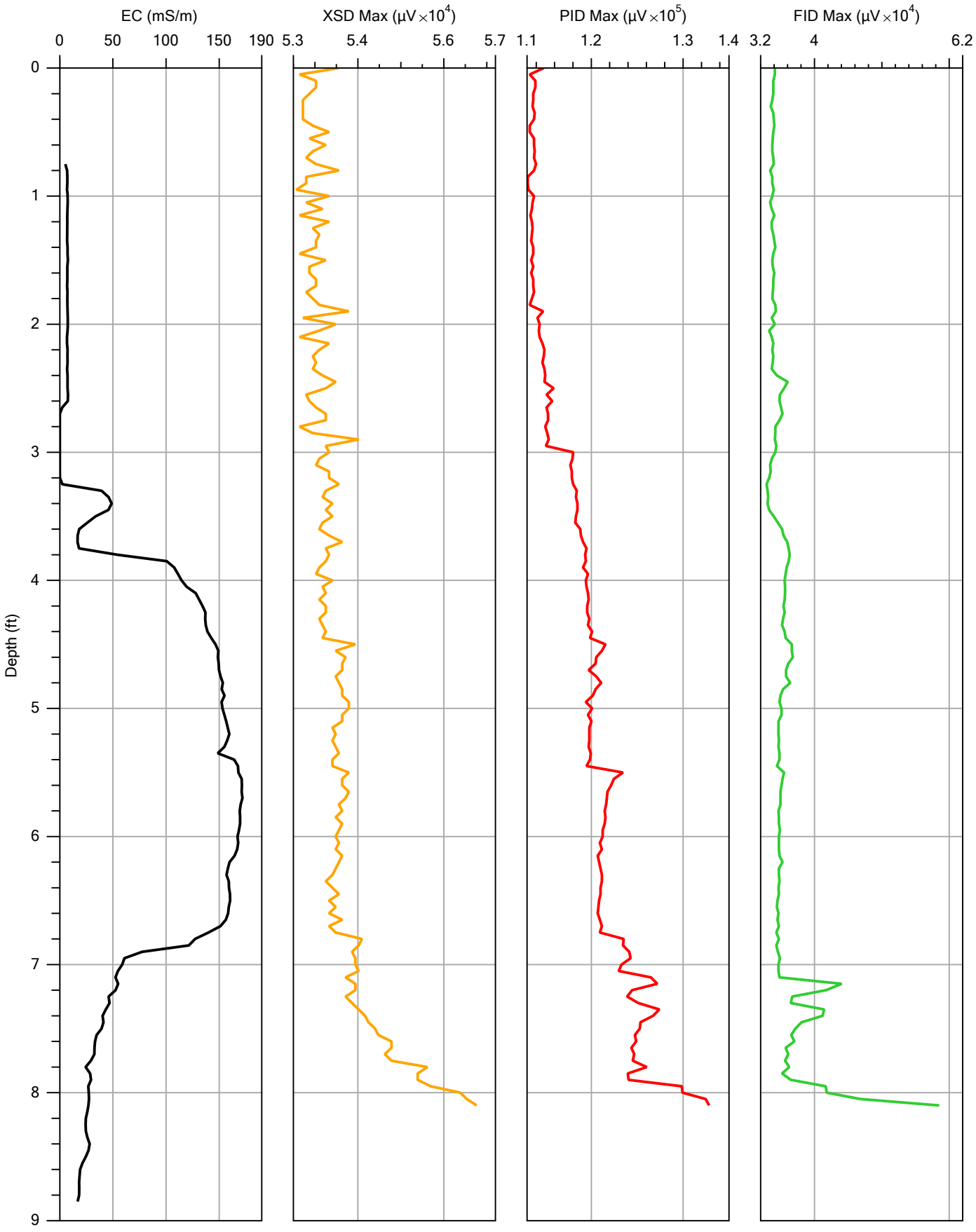

CASCADE
DRILLING | TECHNICAL SERVICES

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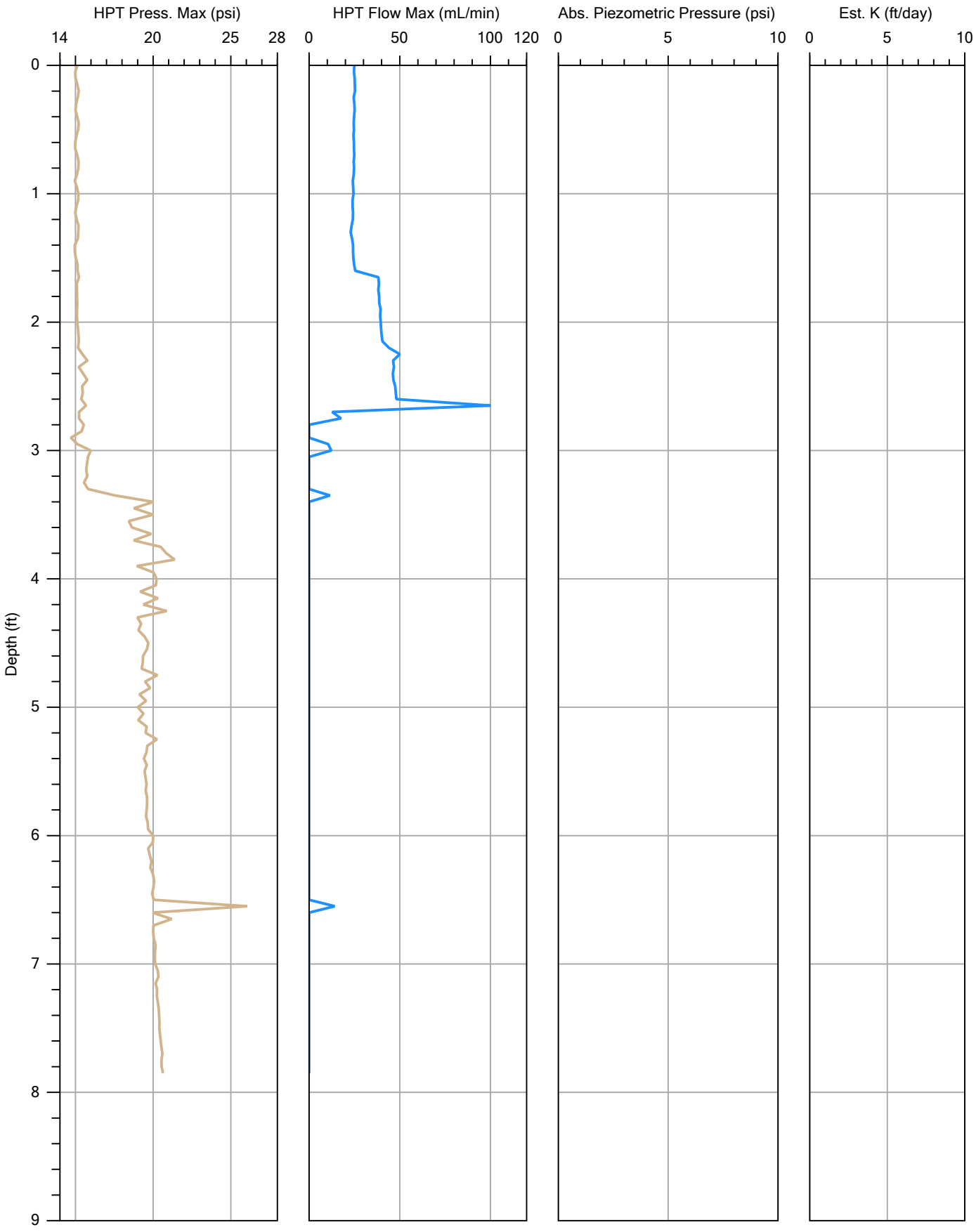
Project ID:	Client: Energy Solutions	Location: 42° 55′ 45″ N, 78° 47′ 46″ W



CASCADE
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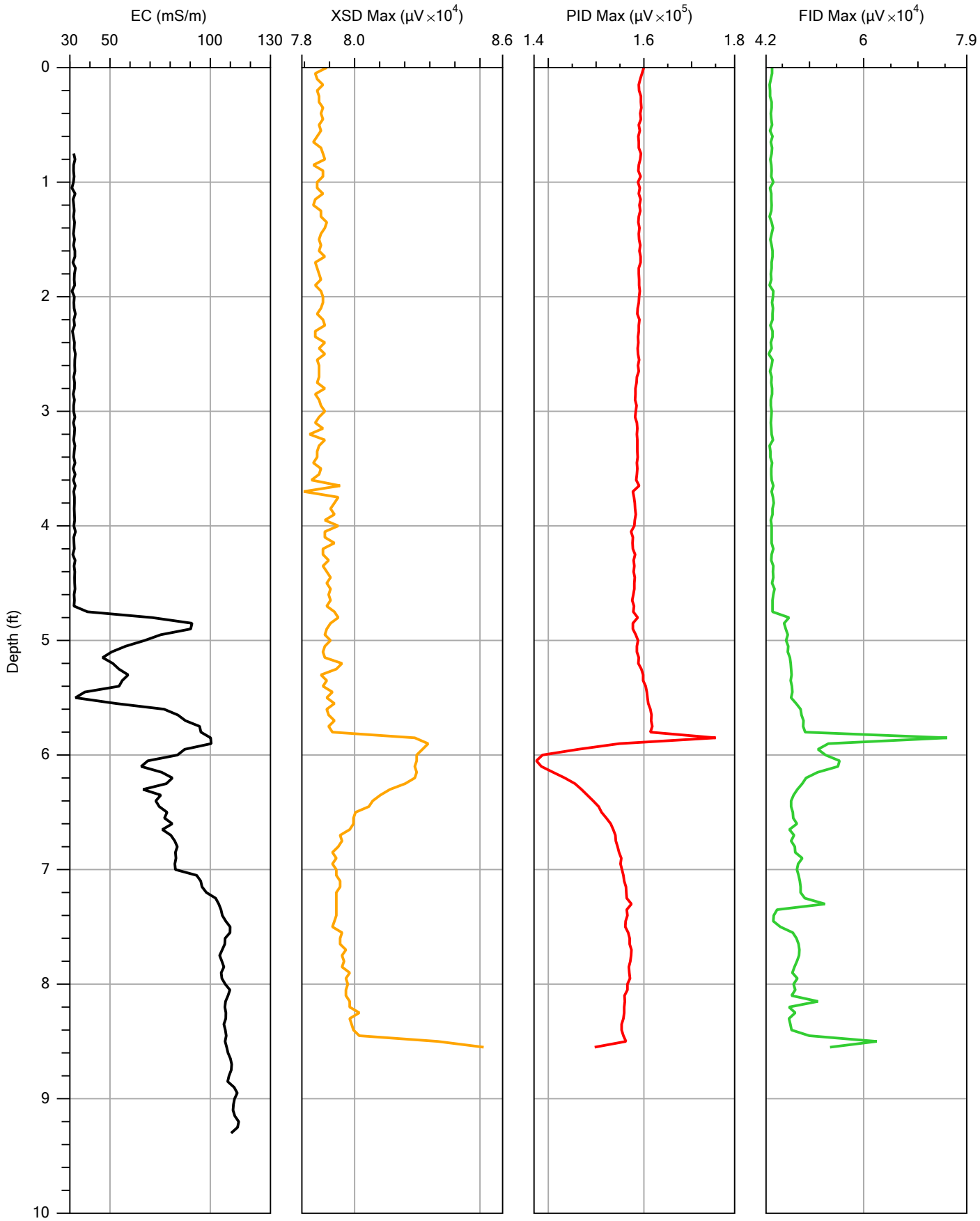
Company: Cascade Tech Services	Operator: Z Fordley	Date: 4/18/2016
Project ID:	Client: Energy Solutions	Location: 42° 55′ 45″ N, 78° 47′ 46″ W



CASCADE
DRILLING | TECHNICAL SERVICES

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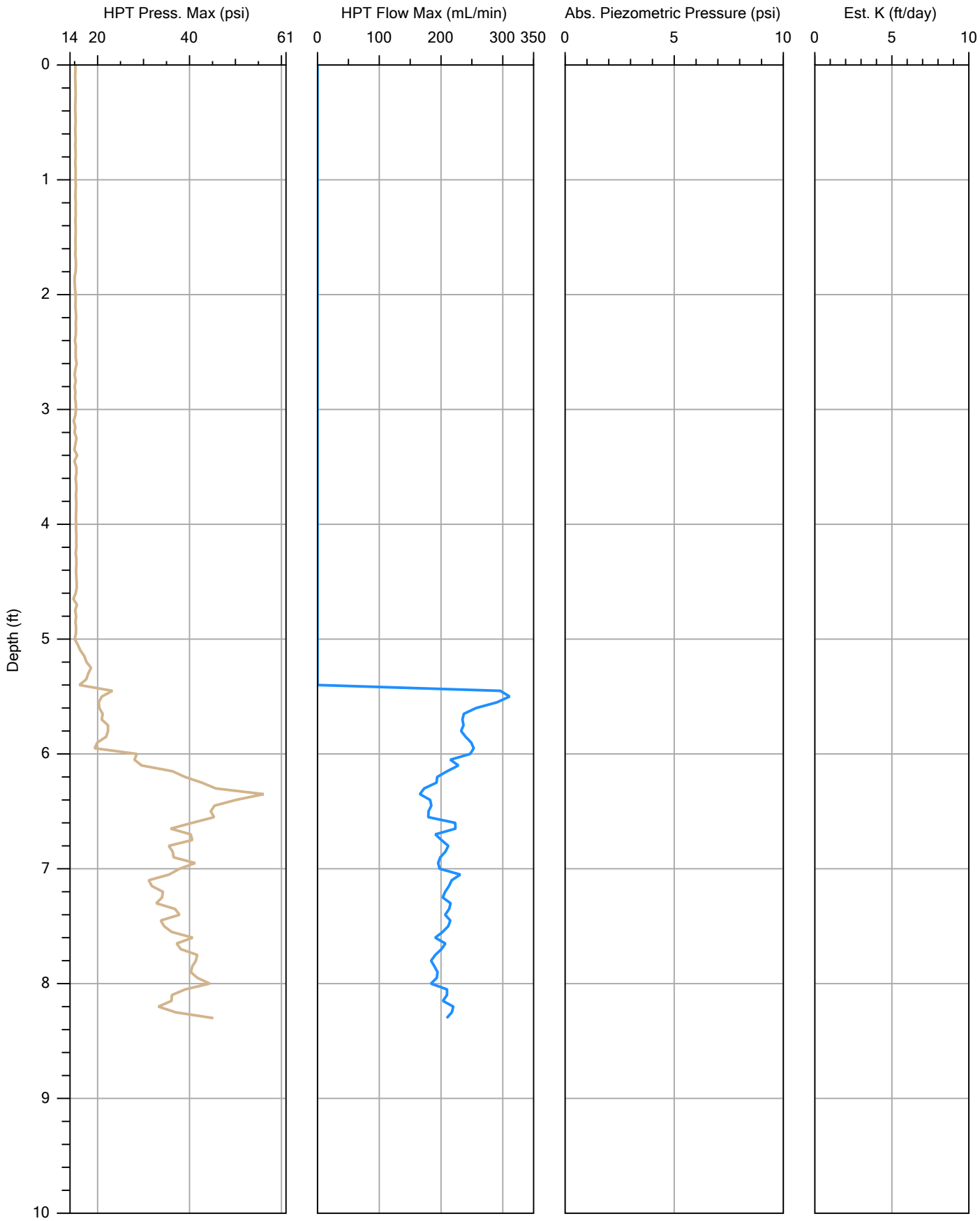
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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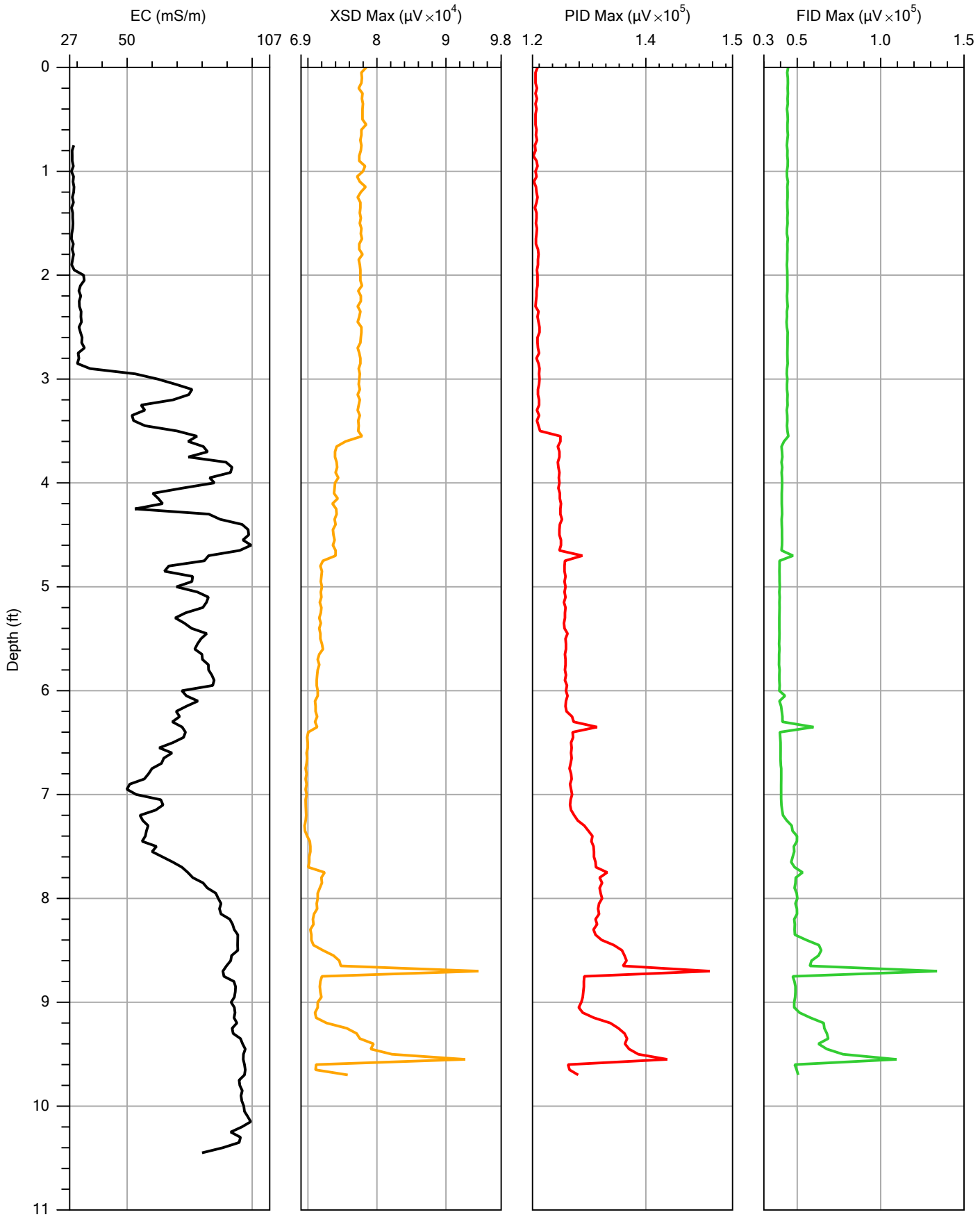
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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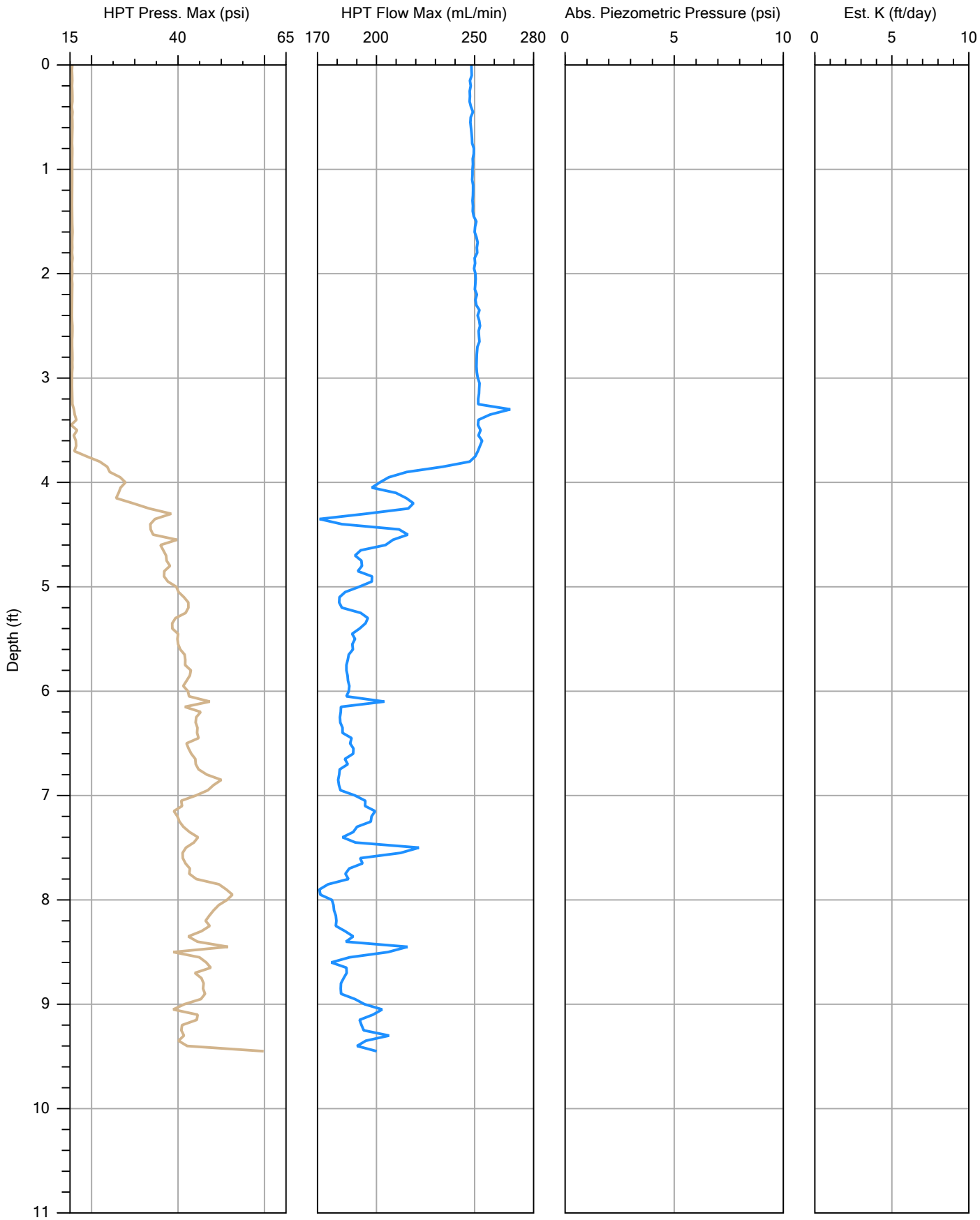
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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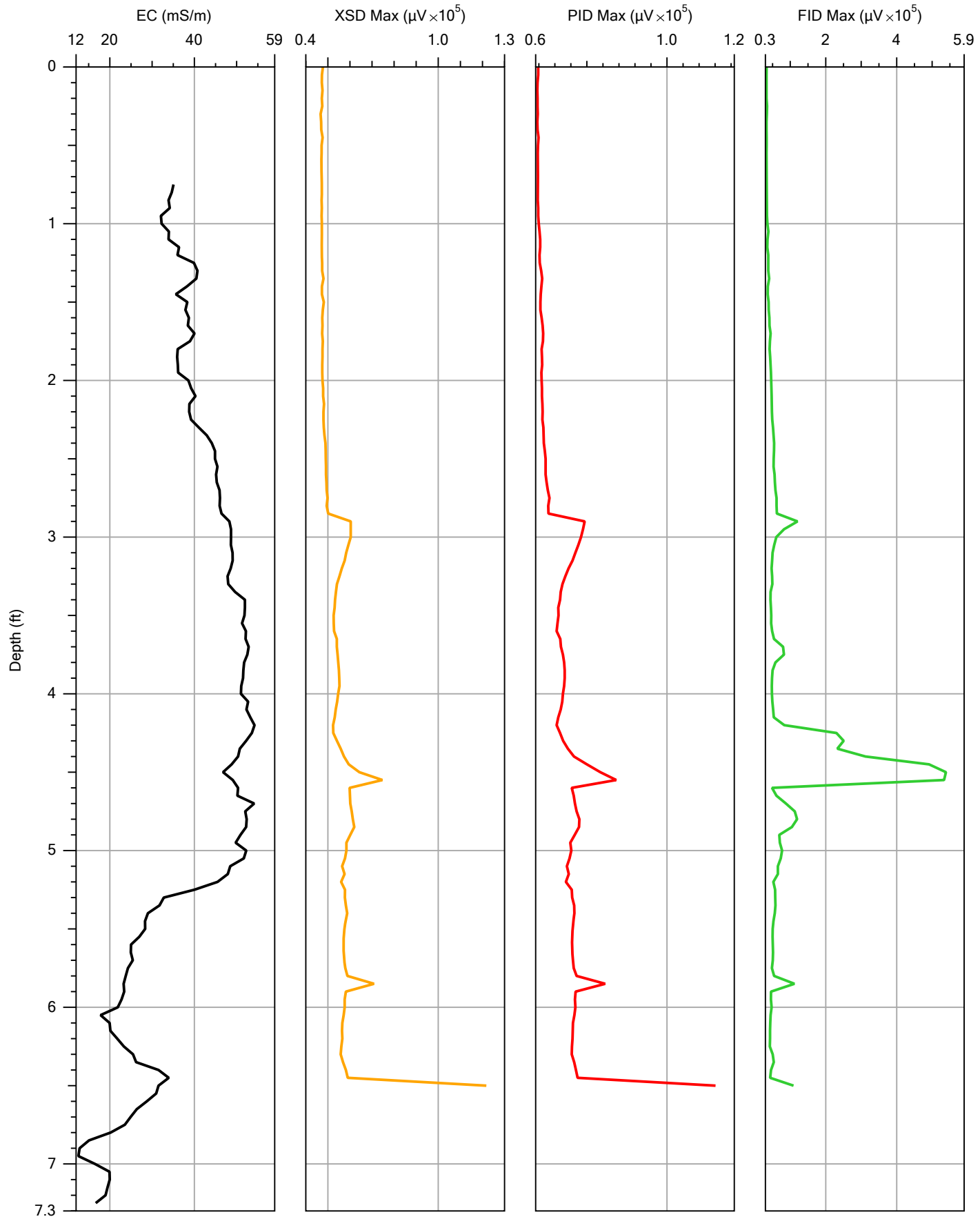
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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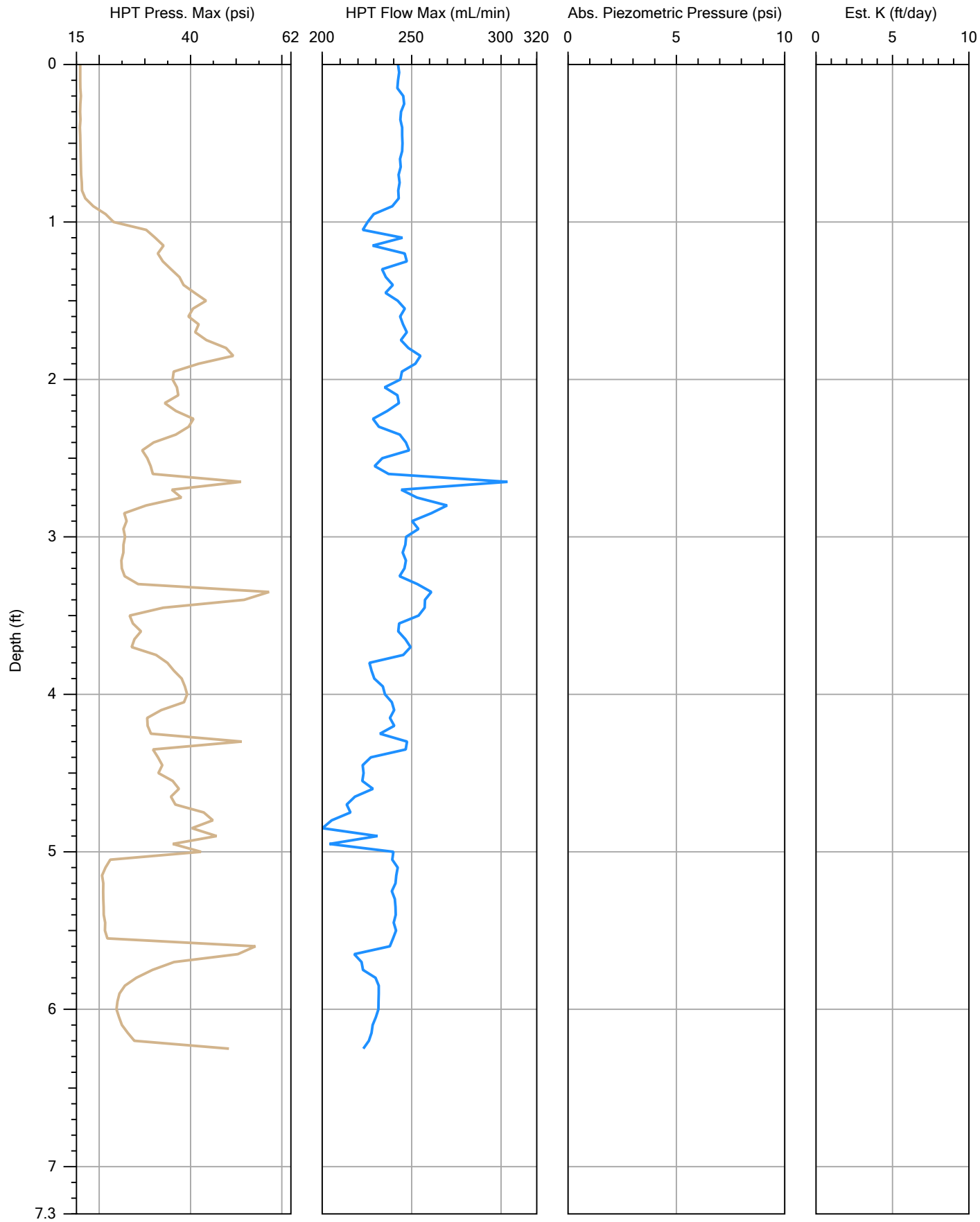
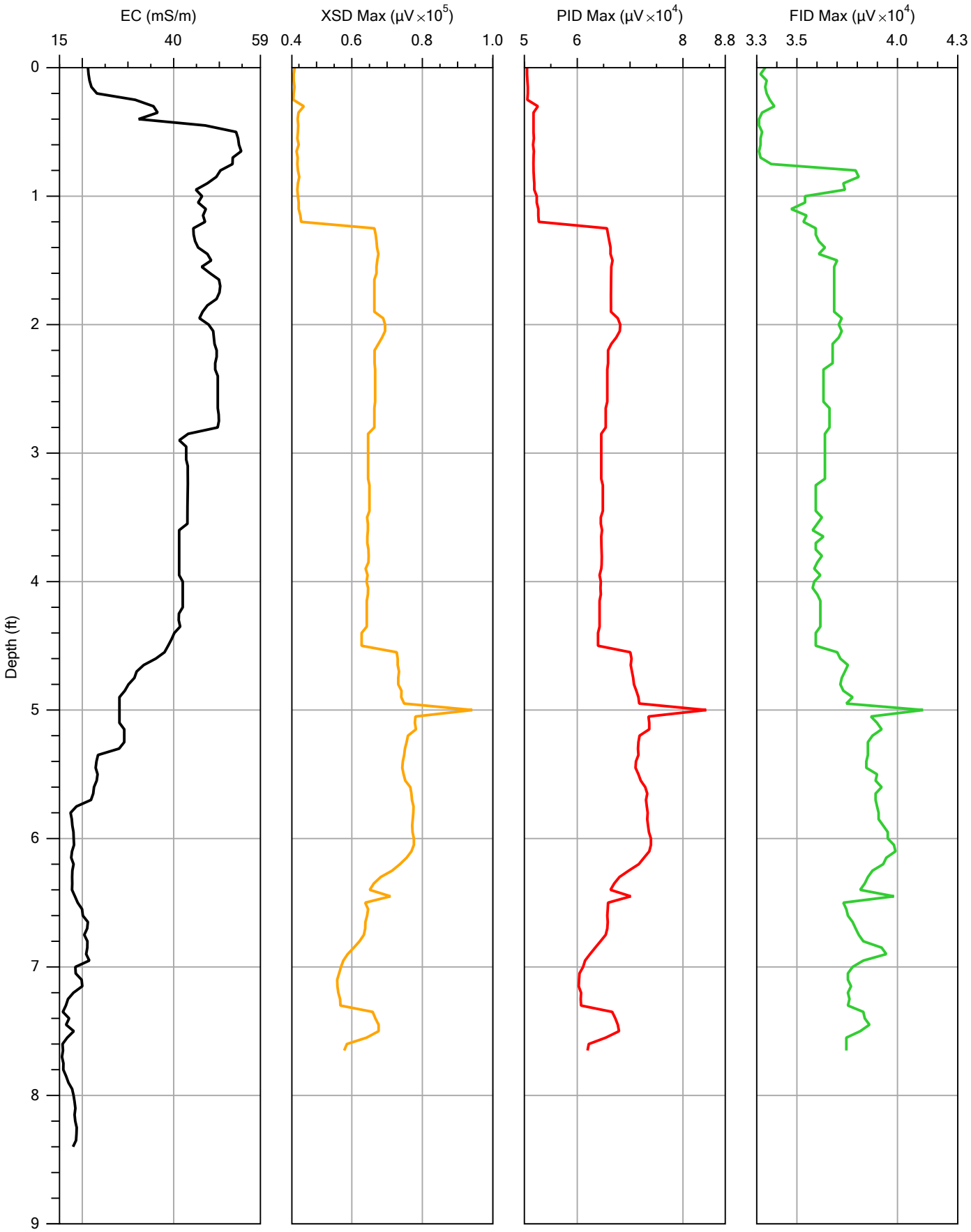
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/20/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-5B.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/20/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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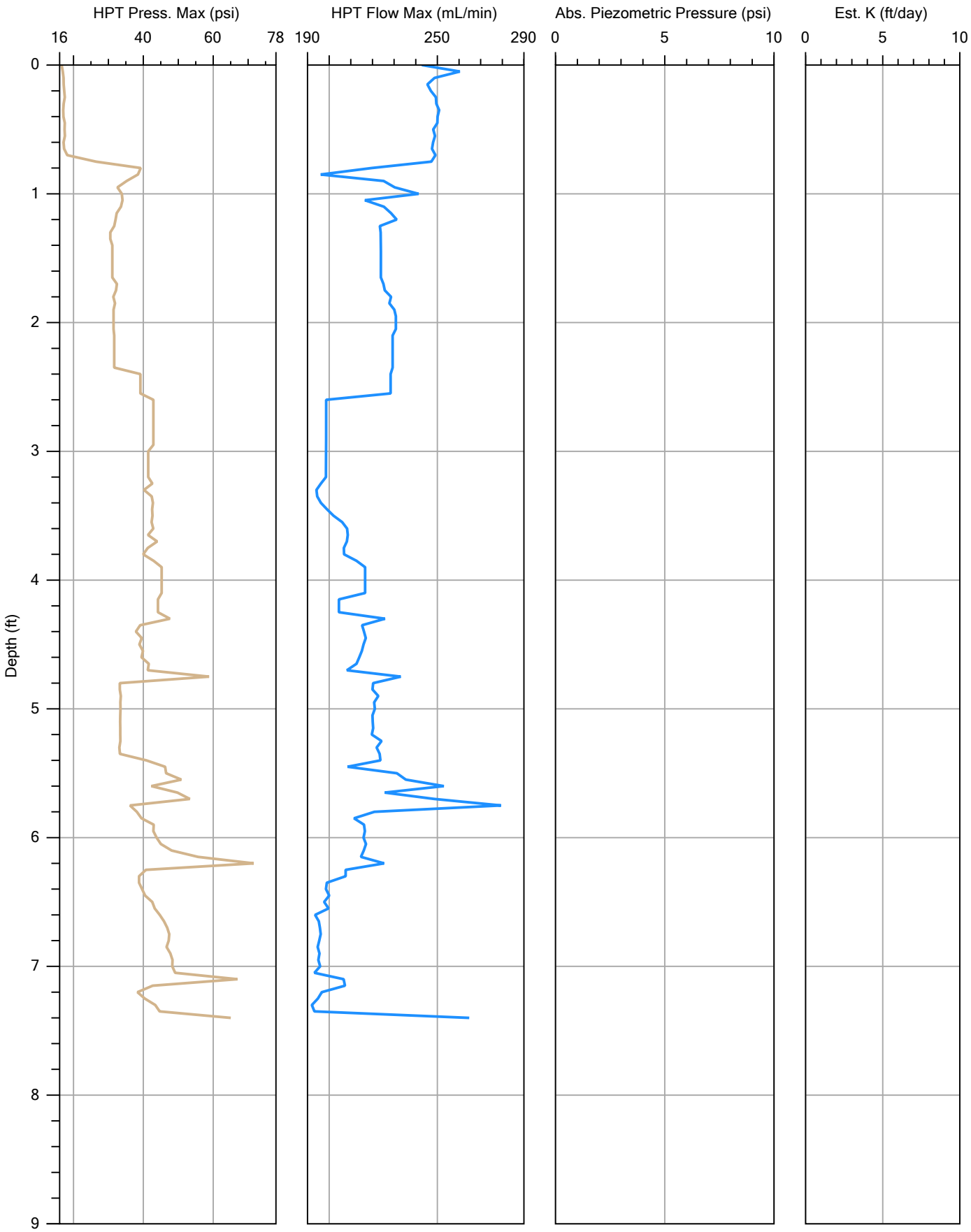
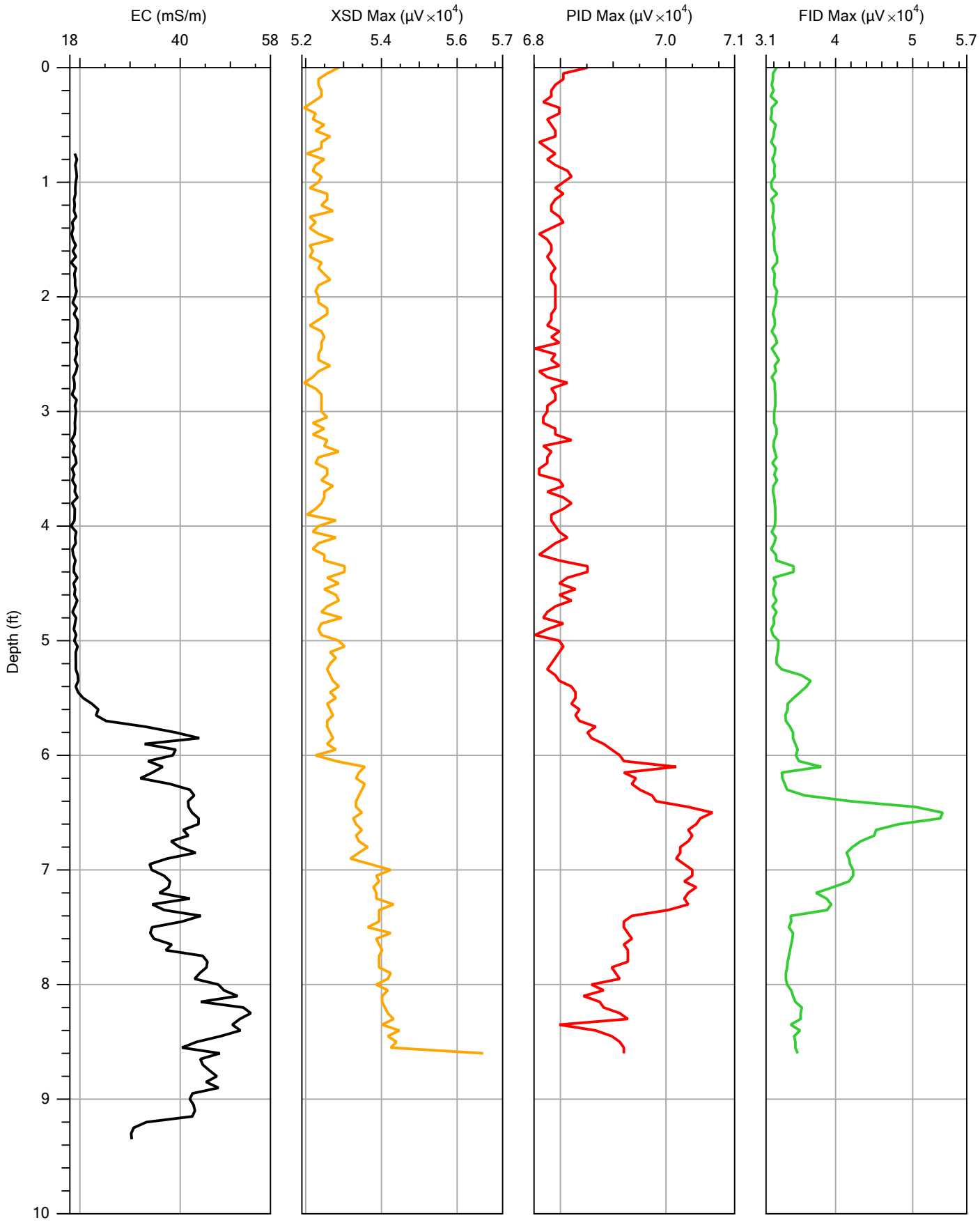
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/20/2016
Project ID:	Client: Energy Solutions	Location:



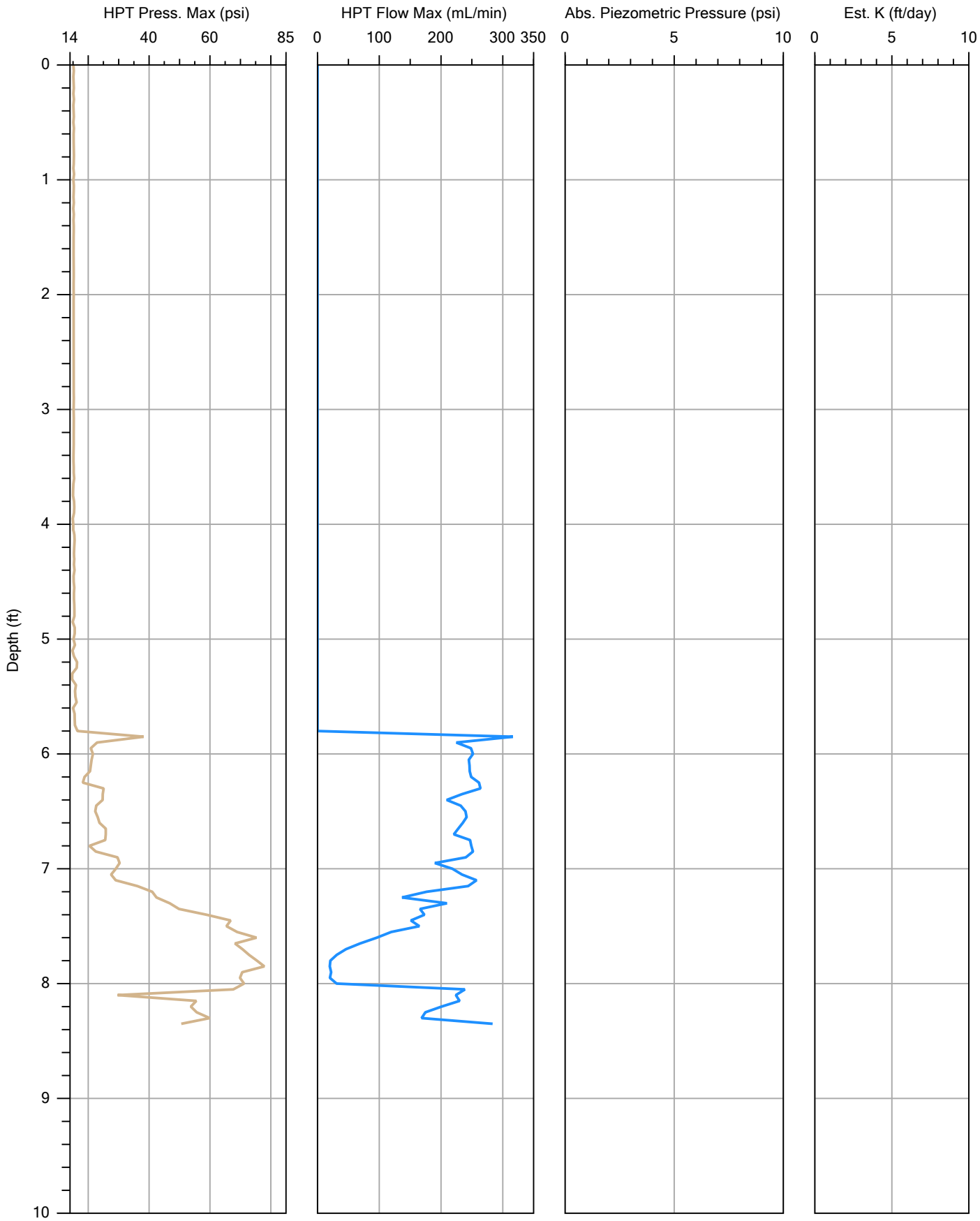
CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-5C.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/20/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-5E.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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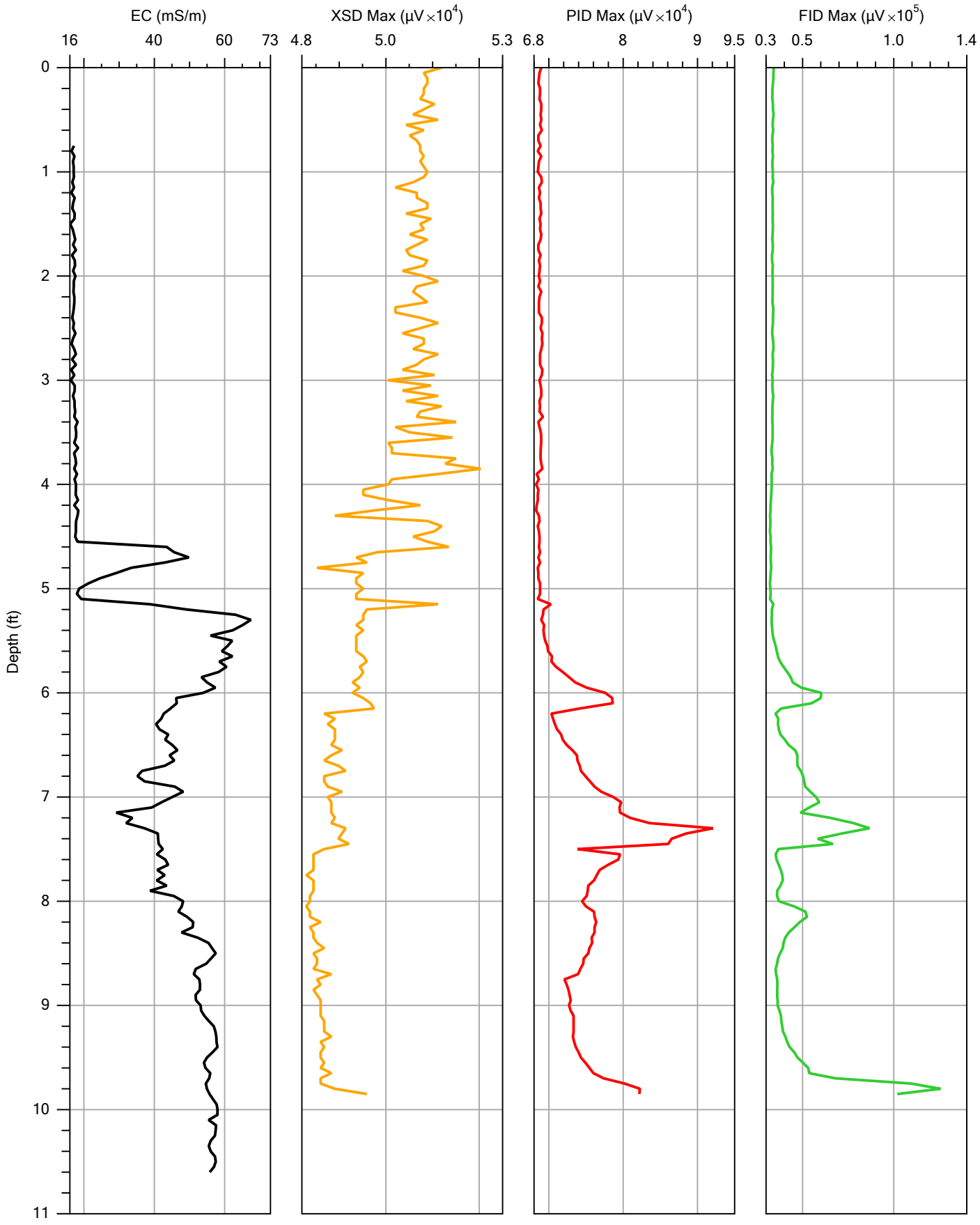
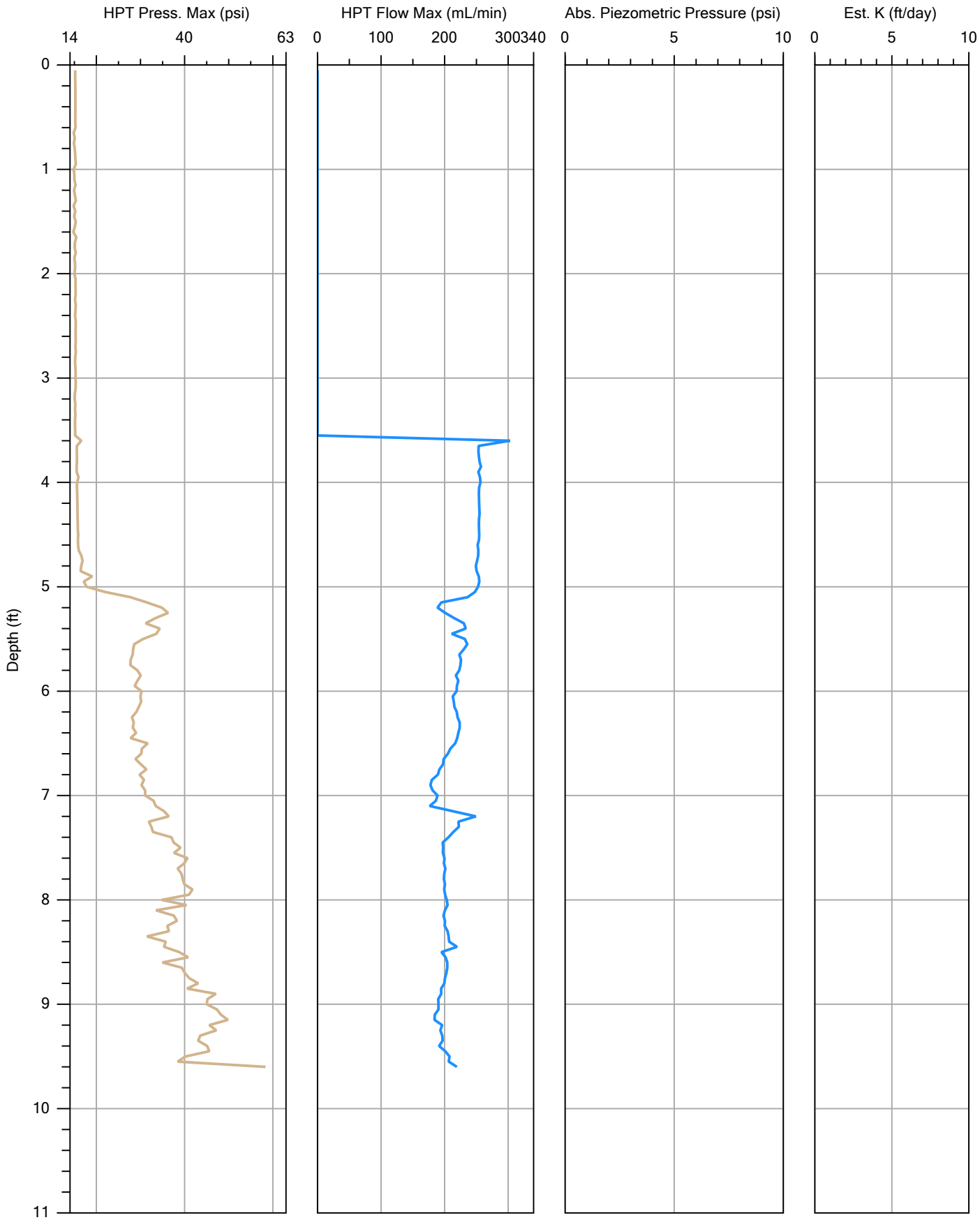
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



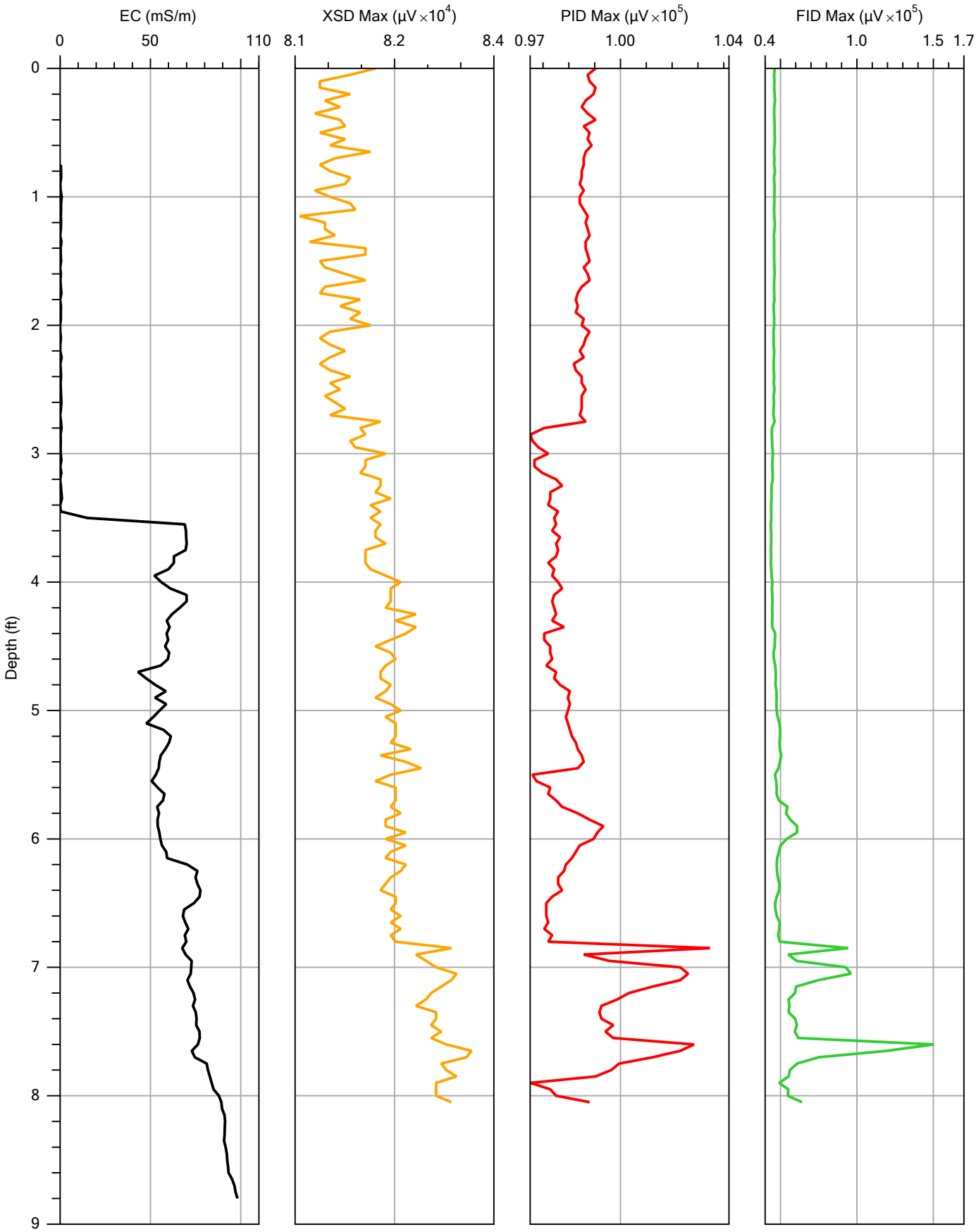
CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-6E.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-6E.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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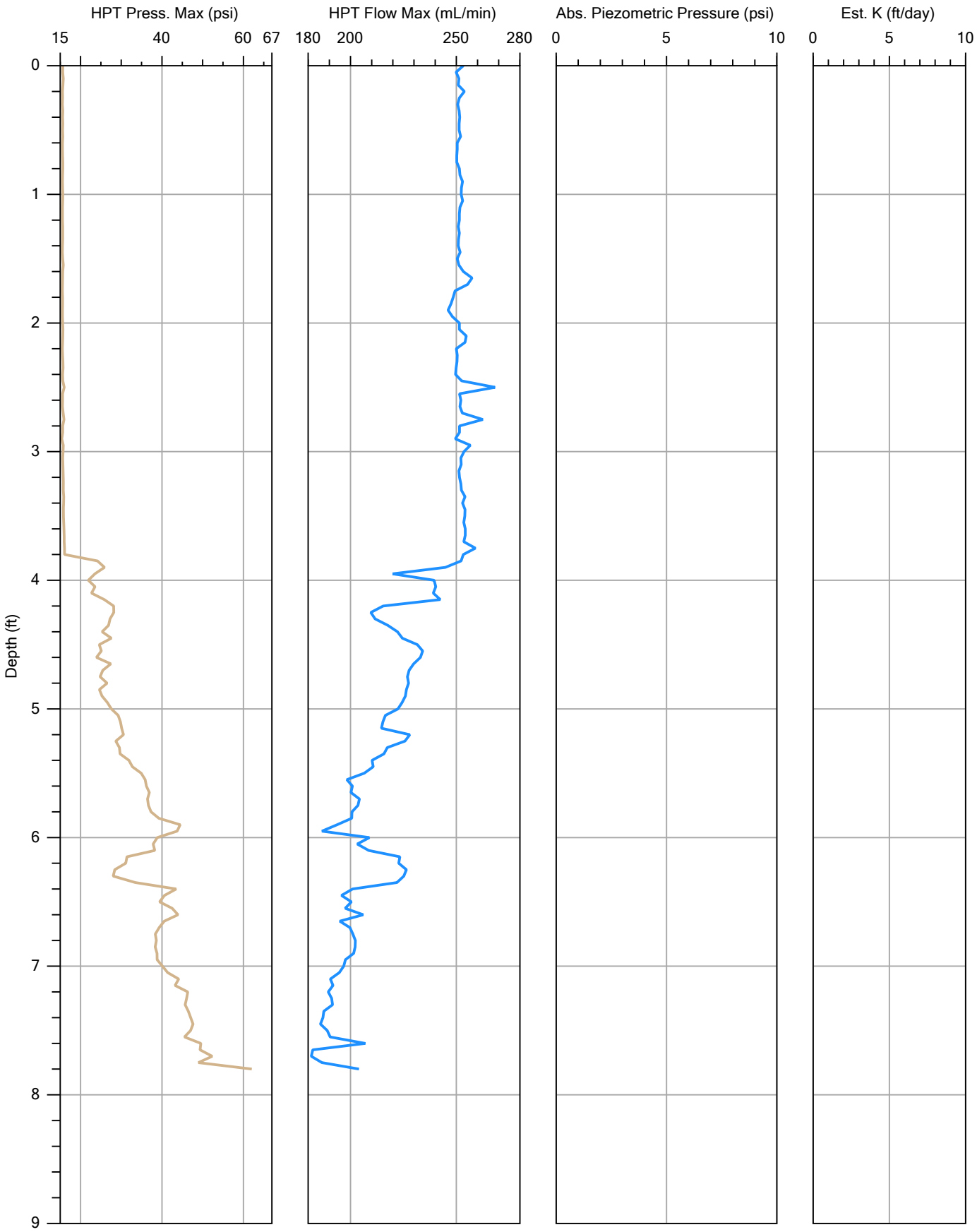
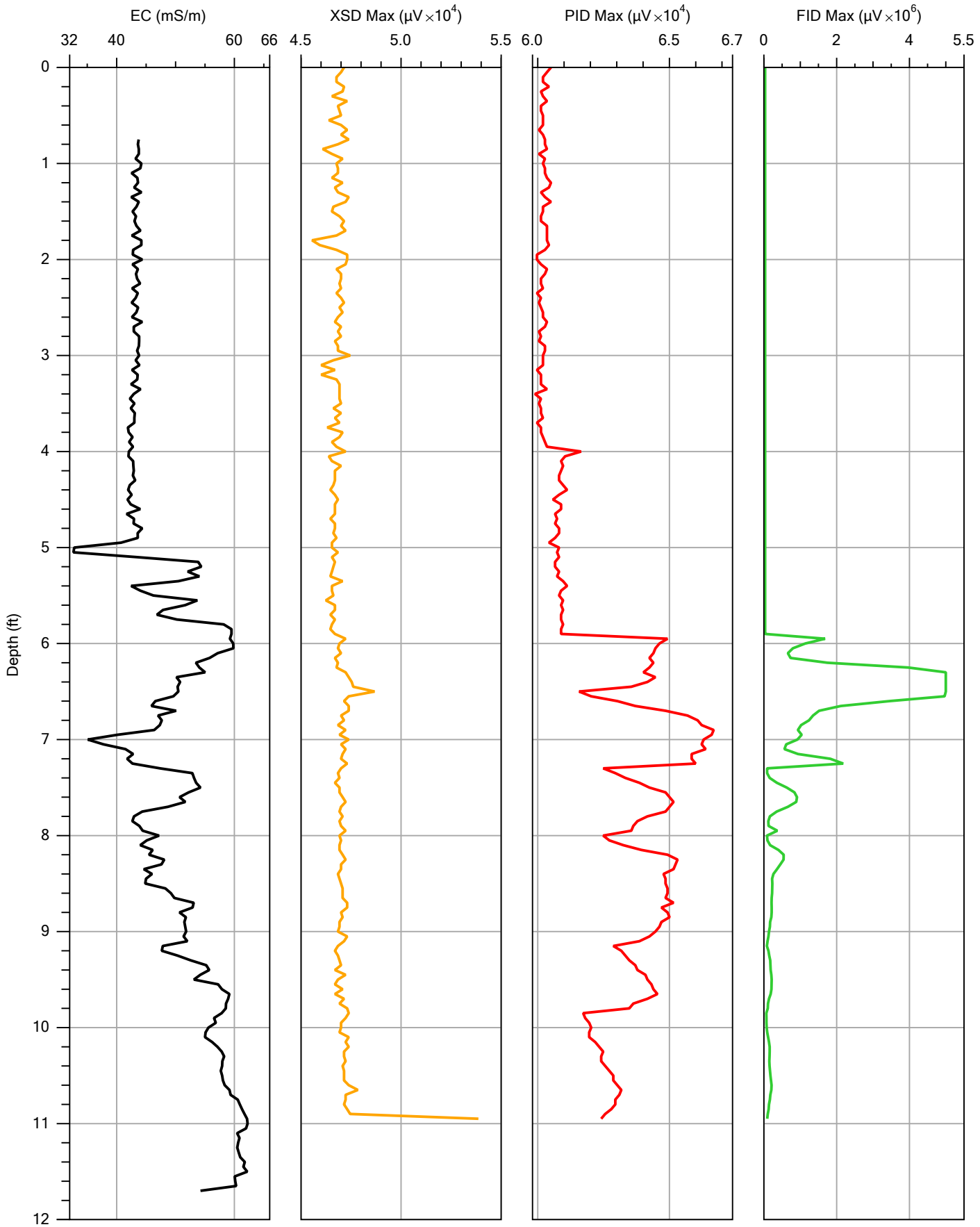
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-7A.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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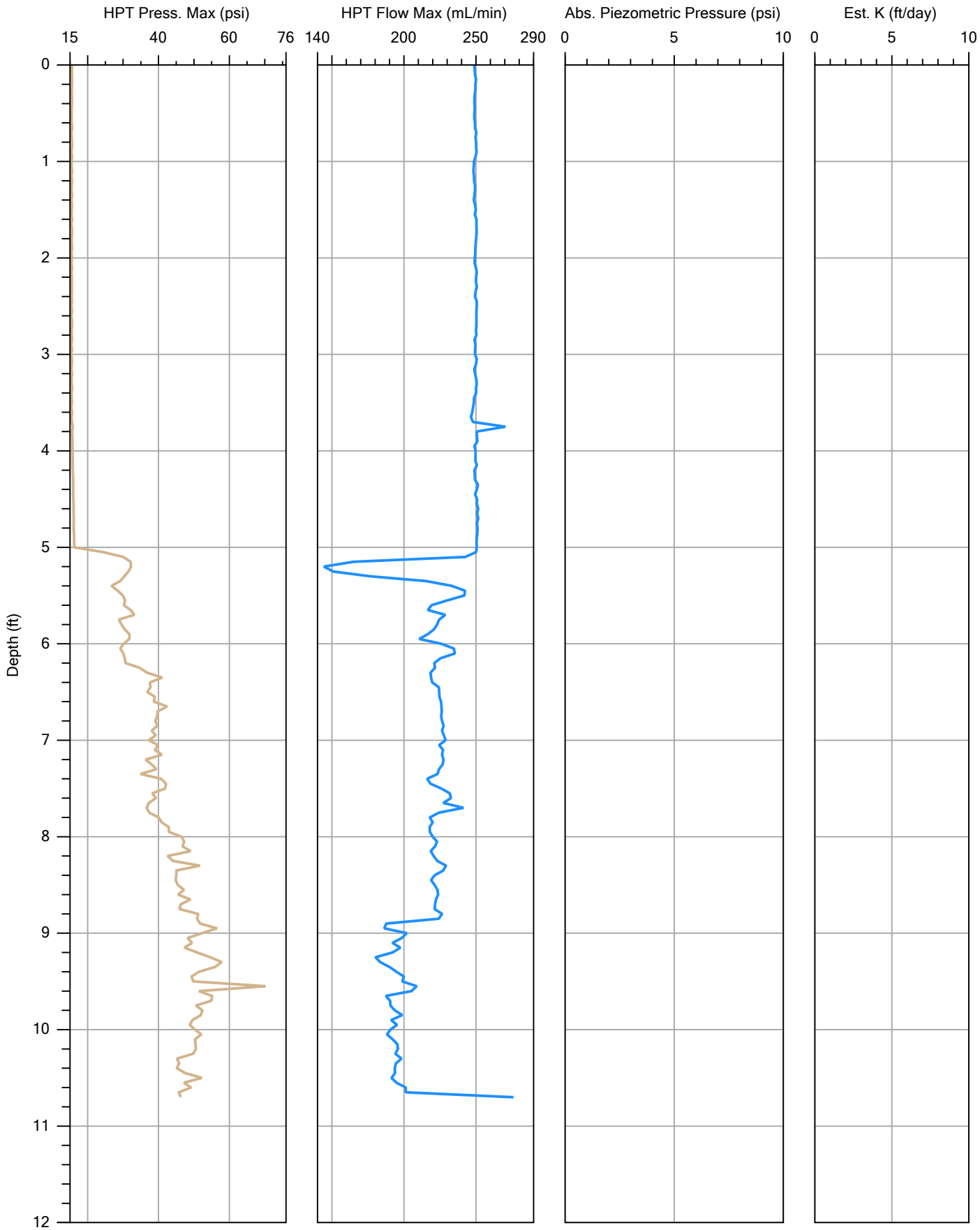
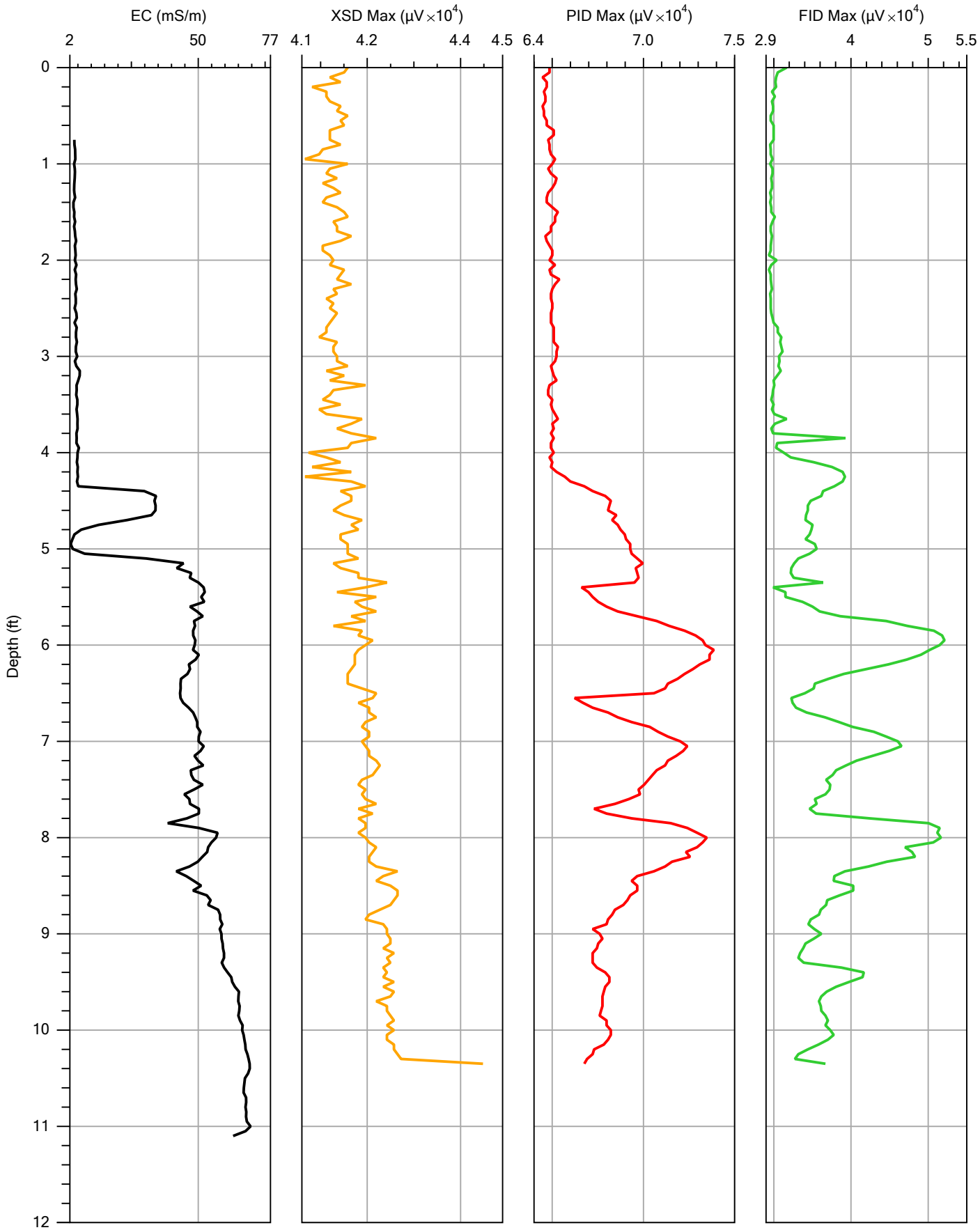
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-7C.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

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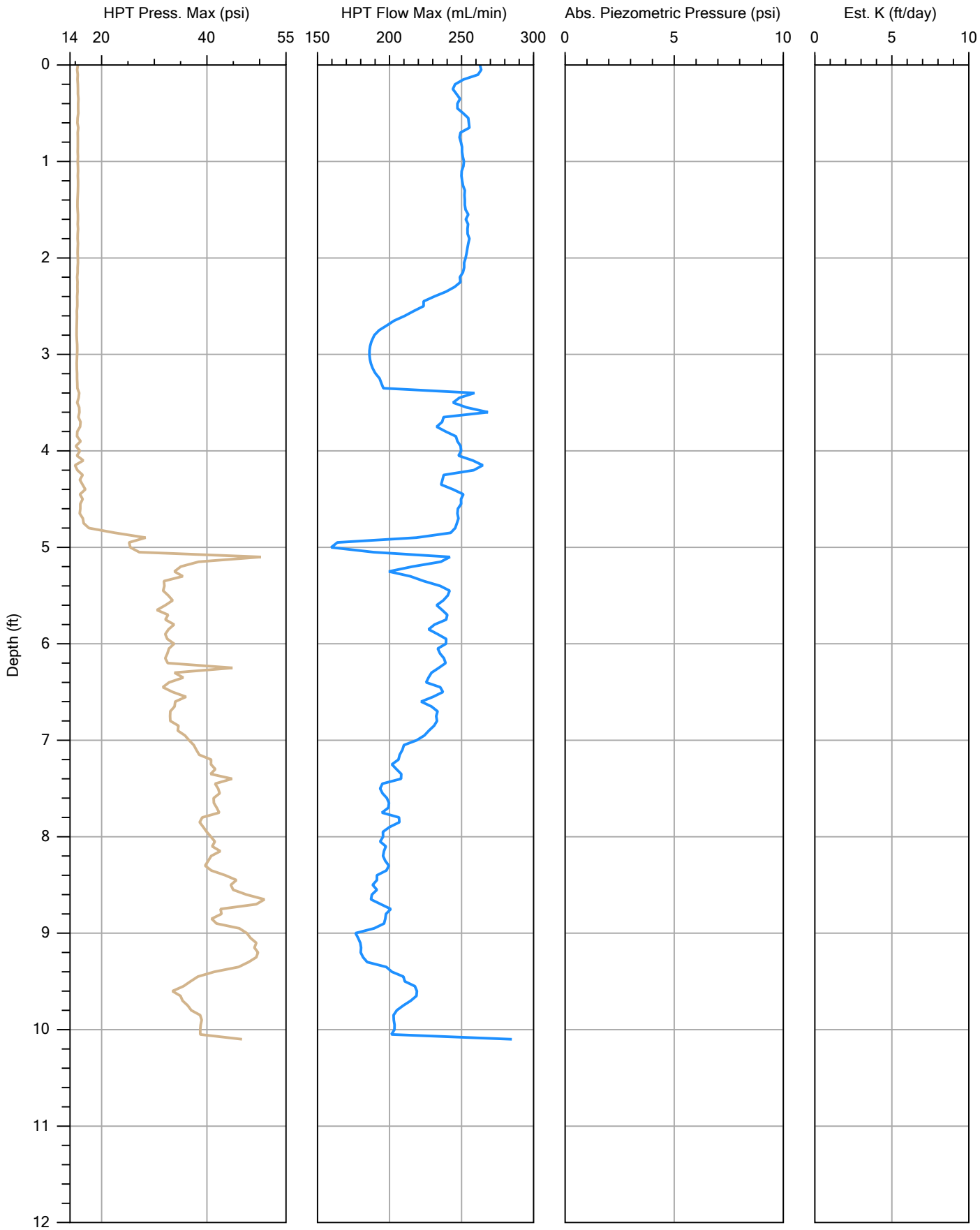
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:



CASCADE
DRILLING | TECHNICAL SERVICES

		File: MIHPT-7E.MHP
Company: Cascade Technical Services	Operator: Z Fordley	Date: 4/19/2016
Project ID:	Client: Energy Solutions	Location:

APPENDIX C

ANALTICAL DATA TABLE

Table C-1
LEICA MIP STUDY
SOIL SAMPLE DATA

	Adjusted Remedial Action Objectives (RAOs)		41816-MIPS-3E-8'				41816-MIPS-3D-8'			
			2137348001				2137348002			
			4/18/16		09:15		4/18/16		10:20	
	Clay	Sandy Silt	Sandy Silt (ug/Kg)				Sandy Silt (ug/Kg)			
ANALYTE_NAME	(TOC=1.5%)	(TOC=2.0%)	RESULT	Q	RL	MDL	RESULT	Q	RL	MDL
1,1,1-Trichloroethane	1,140	1,520	55.4	U	55.4	12.2	47	U	47	10.3
1,1,2,2-Tetrachloroethane			55.4	U	55.4	18.9	47	U	47	16
1,1,2-Trichloroethane			55.4	U	55.4	18.3	47	U	47	15.5
1,1-Dichloroethane	225	300	55.4	U	55.4	15.5	47	U	47	13.1
1,1-Dichloroethene			55.4	U	55.4	16.1	47	U	47	13.6
1,2,3-Trichlorobenzene			111	U	111	51.6	93.9	U	93.9	43.7
1,2,4-Trichlorobenzene			111	U	111	45.5	93.9	U	93.9	38.5
1,2-Dibromo-3-chloropropane			388	U	388	83.2	329	U	329	70.4
1,2-Dibromoethane			55.4	U	55.4	15.5	47	U	47	13.1
1,2-Dichlorobenzene			55.4	U	55.4	21.1	47	U	47	17.8
1,2-Dichloroethane			55.4	U	55.4	17.7	47	U	47	15
1,2-Dichloropropane			55.4	U	55.4	13.3	47	U	47	11.3
1,3-Dichlorobenzene			55.4	U	55.4	13.9	47	U	47	11.7
1,4-Dichlorobenzene			55.4	U	55.4	15	47	U	47	12.7
1,4-Dioxane			17,700	U	17,700	3,270	15,000	U	15,000	2,770
2-Butanone			554	U	554	99.8	470	U	470	84.5
2-Hexanone			277	U	277	72.1	235	U	235	61.1
4-Methyl-2-Pentanone(MIBK)			277	U	277	83.2	235	U	235	70.4
Acetone			554	U	554	172	470	U	470	146
Benzene			55.4	U	55.4	12.8	47	U	47	10.8
Bromochloromethane			55.4	U	55.4	17.7	47	U	47	15
Bromodichloromethane			55.4	U	55.4	15	47	U	47	12.7
Bromoform			55.4	U	55.4	22.2	47	U	47	18.8
Bromomethane			55.4	U	55.4	21.6	47	U	47	18.3
Carbon Disulfide			55.4	U	55.4	12.8	47	U	47	10.8
Carbon Tetrachloride			55.4	U	55.4	17.2	47	U	47	14.6
Chlorobenzene			55.4	U	55.4	10.5	47	U	47	8.9
Chlorodibromomethane			55.4	U	55.4	25	47	U	47	21.1
Chloroethane			55.4	U	55.4	18.3	47	U	47	15.5
Chloroform			55.4	U	55.4	11.6	47	U	47	9.9
Chloromethane			55.4	U	55.4	17.2	47	U	47	14.6
cis-1,2-Dichloroethene	105	140	55.4	U	55.4	17.7	47	U	47	15
cis-1,3-Dichloropropene			55.4	U	55.4	17.2	47	U	47	14.6
Cyclohexane			55.4	U	55.4	16.1	47	U	47	13.6
Dichlorodifluoromethane			55.4	U	55.4	18.3	47	U	47	15.5
Ethylbenzene	8,250	11,000	55.4	U	55.4	18.9	47	U	47	16
Freon 113			55.4	U	55.4	14.4	47	U	47	12.2
Isopropylbenzene			55.4	U	55.4	12.2	47	U	47	10.3
Methyl acetate			111	U	111	17.7	93.9	U	93.9	15
Methyl cyclohexane			55.4	U	55.4	16.6	47	U	47	14.1
Methyl t-Butyl Ether			55.4	U	55.4	18.3	47	U	47	15.5
Methylene Chloride	158	210	55.4	U	55.4	25	47	U	47	21.1
mp-Xylene			111	U	111	28.8	93.9	U	93.9	24.4
o-Xylene			55.4	U	55.4	18.3	92.6		47	15.5
Styrene			55.4	U	55.4	13.3	47	U	47	11.3
Tetrachloroethene			55.4	U	55.4	19.4	47	U	47	16.4
Toluene	2,250	3,000	55.4	U	55.4	12.8	47	U	47	10.8
Total Xylenes	1,800	2,400	166	U	166	36.6	164		141	31
trans-1,2-Dichloroethene			55.4	U	55.4	14.4	47	U	47	12.2
trans-1,3-Dichloropropene			55.4	U	55.4	16.1	47	U	47	13.6
Trichloroethene	945	1,260	251		55.4	18.3	47	U	47	15.5
Trichlorofluoromethane			55.4	U	55.4	13.3	47	U	47	11.3
Vinyl Chloride	171	228	55.4	U	55.4	16.6	47	U	47	14.1
Total BTEX				U			164			
Total PCE, TCE, DCE and VC			251					U		
Total Chorinated Ethanes				U				U		

Refer to Laboratory reports for qualifier notes

Table C-1
LEICA MIP STUDY
SOIL SAMPLE DATA

	Adjusted Remedial Action Objectives (RAOs)		41816-MIPS-3B-11'				41816-MIPS-3C-10'			
			2137348003				2137348004			
			4/18/16		13:30		4/18/16		13:50	
	Clay	Sandy Silt	Sandy Silt (ug/Kg)				Clay (ug/Kg)			
ANALYTE_NAME	(TOC=1.5%)	(TOC=2.0%)	RESULT	Q	RL	MDL	RESULT	Q	RL	MDL
1,1,1-Trichloroethane	1,140	1,520	**7,730**		374	82.2	96.8		45.2	9.9
1,1,2,2-Tetrachloroethane			374	U	374	127	45.2	U	45.2	15.4
1,1,2-Trichloroethane			374	U	374	123	45.2	U	45.2	14.9
1,1-Dichloroethane	225	300	1,020		374	105	45.2	U	45.2	12.6
1,1-Dichloroethene			374	U	374	108	45.2	U	45.2	13.1
1,2,3-Trichlorobenzene			747	U	747	348	90.3	U	90.3	42
1,2,4-Trichlorobenzene			747	U	747	306	90.3	U	90.3	37
1,2-Dibromo-3-chloropropane			2,620	U	2,620	561	316	U	316	67.7
1,2-Dibromoethane			374	U	374	105	45.2	U	45.2	12.6
1,2-Dichlorobenzene			374	U	374	142	45.2	U	45.2	17.2
1,2-Dichloroethane			374	U	374	120	45.2	U	45.2	14.5
1,2-Dichloropropane			374	U	374	89.7	45.2	U	45.2	10.8
1,3-Dichlorobenzene			374	U	374	93.4	45.2	U	45.2	11.3
1,4-Dichlorobenzene			374	U	374	101	45.2	U	45.2	12.2
1,4-Dioxane			120,000	U	120,000	22,000	14,500	U	14,500	2,660
2-Butanone			3,740	U	3740	673	452	U	452	81.3
2-Hexanone			1870	U	1870	486	226	U	226	58.7
4-Methyl-2-Pentanone(MIBK)			1870	U	1870	561	226	U	226	67.7
Acetone			3740	U	3740	1,160	452	U	452	140
Benzene			374	U	374	86	45.2	U	45.2	10.4
Bromochloromethane			374	U	374	120	45.2	U	45.2	14.5
Bromodichloromethane			374	U	374	101	45.2	U	45.2	12.2
Bromoform			374	U	374	149	45.2	U	45.2	18.1
Bromomethane			374	U	374	146	45.2	U	45.2	17.6
Carbon Disulfide			374	U	374	86	45.2	U	45.2	10.4
Carbon Tetrachloride			374	U	374	116	45.2	U	45.2	14
Chlorobenzene			1,040		374	71	45.2	U	45.2	8.6
Chlorodibromomethane			374	U	374	168	45.2	U	45.2	20.3
Chloroethane			374	U	374	123	45.2	U	45.2	14.9
Chloroform			374	U	374	78.5	45.2	U	45.2	9.5
Chloromethane			374	U	374	116	45.2	U	45.2	14
cis-1,2-Dichloroethene	105	140	6,020		374	120	45.2	U	45.2	14.5
cis-1,3-Dichloropropene			374	U	374	116	45.2	U	45.2	14
Cyclohexane			374	U	374	108	45.2	U	45.2	13.1
Dichlorodifluoromethane			374	U	374	123	45.2	U	45.2	14.9
Ethylbenzene	8,250	11,000	**206,000**		18,700	6,350	45.2	U	45.2	15.4
Freon 113			374	U	374	97.2	45.2	U	45.2	11.7
Isopropylbenzene			15,200		374	82.2	45.2	U	45.2	9.9
Methyl acetate			747	U	747	120	90.3	U	90.3	14.5
Methyl cyclohexane			374	U	374	112	45.2	U	45.2	13.5
Methyl t-Butyl Ether			374	U	374	123	45.2	U	45.2	14.9
Methylene Chloride	158	210	374	U	374	168	45.2	U	45.2	20.3
mp-Xylene			2,150,000		37,400	9,720	90.3	U	90.3	23.5
o-Xylene			527,000		18,700	6,170	45.2	U	45.2	14.9
Styrene			374	U	374	89.7	45.2	U	45.2	10.8
Tetrachloroethene			1,780		374	131	45.2	U	45.2	15.8
Toluene	2,250	3,000	**36,000**		374	86	45.2	U	45.2	10.4
Total Xylenes	1,800	2,400	**2,670,000**		56,100	12300	135	U	135	29.8
trans-1,2-Dichloroethene			374	U	374	97.2	45.2	U	45.2	11.7
trans-1,3-Dichloropropene			374	U	374	108	45.2	U	45.2	13.1
Trichloroethene	945	1,260	**30,900**		374	123	478		45.2	14.9
Trichlorofluoromethane			374	U	374	89.7	45.2	U	45.2	10.8
Vinyl Chloride	171	228	374	U	374	112	45.2	U	45.2	13.5
Total BTEX			**2,912,374**					U		
Total PCE, TCE, DCE and VC			**38,700**				478			
Total Chorinated Ethanes			8,750				96.8			

Refer to Laboratory reports for qualifier notes

Table C-1
LEICA MIP STUDY
SOIL SAMPLE DATA

	Adjusted Remedial Action Objectives (RAOs)		42016-MIPS-6C-7.5'				42116-MIPS-5A[-10]			
			2138500001				2138500002			
			04/20/16		17:20		04/21/16		11:00	
	Clay	Sandy Silt	Sandy Silt (ug/Kg)				Sandy Silt (ug/Kg)			
ANALYTE_NAME	(TOC=1.5%)	(TOC=2.0%)	RESULT	Q	RL	MDL	RESULT	Q	RL	MDL
1,1,1-Trichloroethane	1,140	1,520	43.4	U	43.4	9.6	37	U	37	8.1
1,1,2,2-Tetrachloroethane			43.4	U	43.4	14.8	37	U	37	12.6
1,1,2-Trichloroethane			43.4	U	43.4	14.3	37	U	37	12.2
1,1-Dichloroethane	225	300	43.4	U	43.4	12.2	37	U	37	10.4
1,1-Dichloroethene			43.4	U	43.4	12.6	37	U	37	10.7
1,2,3-Trichlorobenzene			86.9	U	86.9	40.4	73.9	U	73.9	34.4
1,2,4-Trichlorobenzene			86.9	U	86.9	35.6	73.9	U	73.9	30.3
1,2-Dibromo-3-chloropropane			304	U	304	65.2	259	U	259	55.4
1,2-Dibromoethane			43.4	U	43.4	12.2	37	U	37	10.4
1,2-Dichlorobenzene			43.4	U	43.4	16.5	37	U	37	14
1,2-Dichloroethane			43.4	U	43.4	13.9	37	U	37	11.8
1,2-Dichloropropane			43.4	U	43.4	10.4	37	U	37	8.9
1,3-Dichlorobenzene			43.4	U	43.4	10.9	37	U	37	9.2
1,4-Dichlorobenzene			43.4	U	43.4	11.7	37	U	37	10
1,4-Dioxane			13,900	U	13,900	2,560	11,800	U	11,800	2,180
2-Butanone			434	U	434	78.2	370	U	370	66.5
2-Hexanone			217	U	217	56.5	185	U	185	48.1
4-Methyl-2-Pentanone(MIBK)			217	U	217	65.2	185	U	185	55.4
Acetone			434	U	434	135	370	U	370	115
Benzene			43.4	U	43.4	10	37	U	37	8.5
Bromochloromethane			43.4	U	43.4	13.9	37	U	37	11.8
Bromodichloromethane			43.4	U	43.4	11.7	37	U 4	37	10
Bromoform			43.4	U	43.4	17.4	37	U	37	14.8
Bromomethane			43.4	U	43.4	16.9	37	U	37	14.4
Carbon Disulfide			43.4	U	43.4	10	37	U	37	8.5
Carbon Tetrachloride			43.4	U	43.4	13.5	37	U	37	11.5
Chlorobenzene			43.4	U	43.4	8.3	37	U	37	7
Chlorodibromomethane			43.4	U	43.4	19.5	37	U 5	37	16.6
Chloroethane			43.4	U	43.4	14.3	37	U	37	12.2
Chloroform			43.4	U	43.4	9.1	37	U	37	7.8
Chloromethane			43.4	U	43.4	13.5	37	U	37	11.5
cis-1,2-Dichloroethene	105	140	61.5		43.4	13.9	37	U	37	11.8
cis-1,3-Dichloropropene			43.4	U	43.4	13.5	37	U	37	11.5
Cyclohexane			43.4	U	43.4	12.6	37	U	37	10.7
Dichlorodifluoromethane			43.4	U	43.4	14.3	37	U	37	12.2
Ethylbenzene	8,250	11,000	43.4	U	43.4	14.8	37	U	37	12.6
Freon 113			43.4	U	43.4	11.3	37	U 2	37	9.6
Isopropylbenzene			43.4	U	43.4	9.6	37	U	37	8.1
Methyl acetate			86.9	U	86.9	13.9	73.9	U	73.9	11.8
Methyl cyclohexane			43.4	U	43.4	13	37	U 1	37	11.1
Methyl t-Butyl Ether			43.4	U	43.4	14.3	37	U	37	12.2
Methylene Chloride	158	210	43.4	U	43.4	19.5	37	U	37	16.6
mp-Xylene			86.9	U	86.9	22.6	73.9	U 6	73.9	19.2
o-Xylene			43.4	U	43.4	14.3	37	U	37	12.2
Styrene			43.4	U	43.4	10.4	37	U	37	8.9
Tetrachloroethene			43.4	U	43.4	15.2	37	U	37	12.9
Toluene	2,250	3,000	43.4	U	43.4	10	37	U	37	8.5
Total Xylenes	1,800	2,400	130	U	130	28.7	111	U	111	24.4
trans-1,2-Dichloroethene			43.4	U	43.4	11.3	37	U	37	9.6
trans-1,3-Dichloropropene			43.4	U	43.4	12.6	37	U	37	10.7
Trichloroethene	945	1,260	43.4	U	43.4	14.3	676	3	37	12.2
Trichlorofluoromethane			43.4	U	43.4	10.4	37	U	37	8.9
Vinyl Chloride	171	228	43.4	U	43.4	13	37	U	37	11.1
Total BTEX				U				U		
Total PCE, TCE, DCE and VC			62				676			
Total Chorinated Ethanes				U				U		

Refer to Laboratory reports for qualifier notes

Table C-1
LEICA MIP STUDY
SOIL SAMPLE DATA

	Adjusted Remedial Action Objectives (RAOs)		42116-MIPS-4A[-9]			
			2138500003			
			04/21/16		12:20	
	Clay	Sandy Silt	Clay (ug/Kg)			
ANALYTE_NAME	(TOC=1.5%)	(TOC=2.0%)	RESULT	Q	RL	MDL
1,1,1-Trichloroethane	1,140	1,520	36.1	U	36.1	7.9
1,1,2,2-Tetrachloroethane			36.1	U	36.1	12.3
1,1,2-Trichloroethane			36.1	U	36.1	11.9
1,1-Dichloroethane	225	300	53		36.1	10.1
1,1-Dichloroethene			36.1	U	36.1	10.5
1,2,3-Trichlorobenzene			72.3	U	72.3	33.6
1,2,4-Trichlorobenzene			72.3	U	72.3	29.6
1,2-Dibromo-3-chloropropane			253	U	253	54.2
1,2-Dibromoethane			36.1	U	36.1	10.1
1,2-Dichlorobenzene			36.1	U	36.1	13.7
1,2-Dichloroethane			36.1	U	36.1	11.6
1,2-Dichloropropane			36.1	U	36.1	8.7
1,3-Dichlorobenzene			36.1	U	36.1	9
1,4-Dichlorobenzene			36.1	U	36.1	9.8
1,4-Dioxane			11,600	U	11,600	2,130
2-Butanone			361	U	361	65
2-Hexanone			181	U	181	47
4-Methyl-2-Pentanone(MIBK)			181	U	181	54.2
Acetone			361	U	361	112
Benzene			36.1	U	36.1	8.3
Bromochloromethane			36.1	U	36.1	11.6
Bromodichloromethane			36.1	U	36.1	9.8
Bromoform			36.1	U	36.1	14.5
Bromomethane			36.1	U	36.1	14.1
Carbon Disulfide			36.1	U	36.1	8.3
Carbon Tetrachloride			36.1	U	36.1	11.2
Chlorobenzene			36.1	U	36.1	6.9
Chlorodibromomethane			36.1	U	36.1	16.3
Chloroethane			36.1	U	36.1	11.9
Chloroform			36.1	U	36.1	7.6
Chloromethane			36.1	U	36.1	11.2
cis-1,2-Dichloroethene	105	140	36.1	U	36.1	11.6
cis-1,3-Dichloropropene			36.1	U	36.1	11.2
Cyclohexane			36.1	U	36.1	10.5
Dichlorodifluoromethane			36.1	U	36.1	11.9
Ethylbenzene	8,250	11,000	36.1	U	36.1	12.3
Freon 113			36.1	U	36.1	9.4
Isopropylbenzene			36.1	U	36.1	7.9
Methyl acetate			72.3	U	72.3	11.6
Methyl cyclohexane			36.1	U	36.1	10.8
Methyl t-Butyl Ether			36.1	U	36.1	11.9
Methylene Chloride	158	210	36.1	U	36.1	16.3
mp-Xylene			72.3	U	72.3	18.8
o-Xylene			36.1	U	36.1	11.9
Styrene			36.1	U	36.1	8.7
Tetrachloroethene			36.1	U	36.1	12.6
Toluene	2,250	3,000	36.1	U	36.1	8.3
Total Xylenes	1,800	2,400	108	U	108	23.8
trans-1,2-Dichloroethene			36.1	U	36.1	9.4
trans-1,3-Dichloropropene			36.1	U	36.1	10.5
Trichloroethene	945	1,260	334		36.1	11.9
Trichlorofluoromethane			36.1	U	36.1	8.7
Vinyl Chloride	171	228	36.1	U	36.1	10.8
Total BTEX				U		
Total PCE, TCE, DCE and VC			334			
Total Chorinated Ethanes			53			

Refer to Laboratory reports for qualifier notes

APPENDIX D

LABORATORY REPORTS

ALS Environmental

34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

April 20, 2016

Mr. Daniel Slywka
EnergySolutions, Inc.
984 Southford Rd Suite 8
Middlebury, CT 06762

Certificate of Analysis

Project Name:	**VOC testing**	Workorder:	**2137348**
Purchase Order:		Workorder ID:	**Leica**

Dear Mr. Slywka:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, April 19, 2016.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2137348 Leica

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2137348001	41816-MIPS-3E-8'	Solid	4/18/2016 09:15	4/19/2016 08:52	Collected by Client
2137348002	41816-MIPS-3D-8'	Solid	4/18/2016 10:20	4/19/2016 08:52	Collected by Client
2137348003	41816-MIPS-3B-11'	Solid	4/18/2016 13:30	4/19/2016 08:52	Collected by Client
2137348004	41816-MIPS-3C-10'	Solid	4/18/2016 13:50	4/19/2016 08:52	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

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ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348001** Date Collected: 4/18/2016 09:15 Matrix: Solid

Sample ID: **41816-MIPS-3E-8'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	554	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Benzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Bromochloromethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Bromodichloromethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Bromoform	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Bromomethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
2-Butanone	ND		ug/kg	554	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Carbon Disulfide	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Carbon Tetrachloride	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Chlorobenzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Chlorodibromomethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Chloroethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Chloroform	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Chloromethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Cyclohexane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2-Dibromo-3-chloropropane	ND		ug/kg	388	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2-Dibromoethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2-Dichlorobenzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,3-Dichlorobenzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,4-Dichlorobenzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Dichlorodifluoromethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,1-Dichloroethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2-Dichloroethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,1-Dichloroethene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
cis-1,2-Dichloroethene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
trans-1,2-Dichloroethene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2-Dichloropropane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
cis-1,3-Dichloropropene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
trans-1,3-Dichloropropene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,4-Dioxane	ND		ug/kg	17700	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Ethylbenzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Freon 113	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
2-Hexanone	ND		ug/kg	277	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Isopropylbenzene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Methyl acetate	ND		ug/kg	111	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Methyl cyclohexane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348001** Date Collected: 4/18/2016 09:15 Matrix: Solid

Sample ID: **41816-MIPS-3E-8'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	277	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Methylene Chloride	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Styrene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,1,2,2-Tetrachloroethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Tetrachloroethene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Toluene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Total Xylenes	ND		ug/kg	166	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2,3-Trichlorobenzene	ND		ug/kg	111	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,2,4-Trichlorobenzene	ND		ug/kg	111	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,1,1-Trichloroethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
1,1,2-Trichloroethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Trichloroethene	251		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Trichlorofluoromethane	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Vinyl Chloride	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
o-Xylene	ND		ug/kg	55.4	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
mp-Xylene	ND		ug/kg	111	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	146		%	71 - 146	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
4-Bromofluorobenzene (S)	155	3	%	46 - 138	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Dibromofluoromethane (S)	146	1	%	42 - 143	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
Toluene-d8 (S)	165	2	%	54 - 141	SW846 8260C	4/18/16 09:15	SYB	4/20/16 08:06	SYB	C
WET CHEMISTRY										
Moisture	12.8		%	0.1	S2540G-11			4/19/16 10:30	KAM	D
Total Solids	87.2		%	0.1	S2540G-11			4/19/16 10:30	KAM	D

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348002** Date Collected: 4/18/2016 10:20 Matrix: Solid

Sample ID: **41816-MIPS-3D-8'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	470	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Benzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Bromochloromethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Bromodichloromethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Bromoform	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Bromomethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
2-Butanone	ND		ug/kg	470	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Carbon Disulfide	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Carbon Tetrachloride	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Chlorobenzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Chlorodibromomethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Chloroethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Chloroform	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Chloromethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Cyclohexane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2-Dibromo-3-chloropropane	ND		ug/kg	329	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2-Dibromoethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2-Dichlorobenzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,3-Dichlorobenzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,4-Dichlorobenzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Dichlorodifluoromethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,1-Dichloroethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2-Dichloroethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,1-Dichloroethene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
cis-1,2-Dichloroethene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
trans-1,2-Dichloroethene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2-Dichloropropane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
cis-1,3-Dichloropropene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
trans-1,3-Dichloropropene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,4-Dioxane	ND		ug/kg	15000	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Ethylbenzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Freon 113	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
2-Hexanone	ND		ug/kg	235	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Isopropylbenzene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Methyl acetate	ND		ug/kg	93.9	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Methyl cyclohexane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348002** Date Collected: 4/18/2016 10:20 Matrix: Solid

Sample ID: **41816-MIPS-3D-8'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	235	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Methylene Chloride	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Styrene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,1,2,2-Tetrachloroethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Tetrachloroethene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Toluene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Total Xylenes	164		ug/kg	141	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2,3-Trichlorobenzene	ND		ug/kg	93.9	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,2,4-Trichlorobenzene	ND		ug/kg	93.9	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,1,1-Trichloroethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
1,1,2-Trichloroethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Trichloroethene	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Trichlorofluoromethane	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Vinyl Chloride	ND		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
o-Xylene	92.6		ug/kg	47.0	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
mp-Xylene	ND		ug/kg	93.9	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	109		%	71 - 146	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
4-Bromofluorobenzene (S)	118		%	46 - 138	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Dibromofluoromethane (S)	107		%	42 - 143	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
Toluene-d8 (S)	127		%	54 - 141	SW846 8260C	4/18/16 10:20	SYB	4/20/16 08:29	SYB	C
WET CHEMISTRY										
Moisture	12.9		%	0.1	S2540G-11			4/19/16 10:30	KAM	D
Total Solids	87.1		%	0.1	S2540G-11			4/19/16 10:30	KAM	D

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348003** Date Collected: 4/18/2016 13:30 Matrix: Solid

Sample ID: **41816-MIPS-3B-11'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	ND		ug/kg	3740	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Benzene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Bromochloromethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Bromodichloromethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Bromoform	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Bromomethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
2-Butanone	ND		ug/kg	3740	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Carbon Disulfide	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Carbon Tetrachloride	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Chlorobenzene	1040		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Chlorodibromomethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Chloroethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Chloroform	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Chloromethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Cyclohexane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,2-Dibromo-3-chloropropane	ND		ug/kg	2620	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,2-Dibromoethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,2-Dichlorobenzene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,3-Dichlorobenzene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,4-Dichlorobenzene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Dichlorodifluoromethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,1-Dichloroethane	1020		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,2-Dichloroethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,1-Dichloroethene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
cis-1,2-Dichloroethene	6020		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
trans-1,2-Dichloroethene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,2-Dichloropropane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
cis-1,3-Dichloropropene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
trans-1,3-Dichloropropene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,4-Dioxane	ND		ug/kg	120000	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Ethylbenzene	206000		ug/kg	18700	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
Freon 113	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
2-Hexanone	ND		ug/kg	1870	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Isopropylbenzene	15200		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Methyl acetate	ND		ug/kg	747	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Methyl cyclohexane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348003** Date Collected: 4/18/2016 13:30 Matrix: Solid

Sample ID: **41816-MIPS-3B-11'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	1870	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Methylene Chloride	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Styrene	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,1,2,2-Tetrachloroethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Tetrachloroethene	1780		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Toluene	36000		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Total Xylenes	2670000		ug/kg	56100	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
1,2,3-Trichlorobenzene	ND		ug/kg	747	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,2,4-Trichlorobenzene	ND		ug/kg	747	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,1,1-Trichloroethane	7730		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
1,1,2-Trichloroethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Trichloroethene	30900		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Trichlorofluoromethane	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Vinyl Chloride	ND		ug/kg	374	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
o-Xylene	527000		ug/kg	18700	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
mp-Xylene	2150000		ug/kg	37400	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	104		%	71 - 146	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
1,2-Dichloroethane-d4 (S)	110		%	71 - 146	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
4-Bromofluorobenzene (S)	106		%	46 - 138	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
4-Bromofluorobenzene (S)	123		%	46 - 138	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Dibromofluoromethane (S)	109		%	42 - 143	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
Dibromofluoromethane (S)	98		%	42 - 143	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
Toluene-d8 (S)	99.5		%	54 - 141	SW846 8260C	4/18/16 12:20	CPK	4/20/16 10:48	SYB	C
Toluene-d8 (S)	114		%	54 - 141	SW846 8260C	4/18/16 12:20	SYB	4/20/16 09:15	SYB	C
WET CHEMISTRY										
Moisture	12.8		%	0.1	S2540G-11			4/19/16 10:30	KAM	D
Total Solids	87.2		%	0.1	S2540G-11			4/19/16 10:30	KAM	D

Vicki Forney

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348004** Date Collected: 4/18/2016 13:50 Matrix: Solid

Sample ID: **41816-MIPS-3C-10'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	452	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Benzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Bromochloromethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Bromodichloromethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Bromoform	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Bromomethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
2-Butanone	ND		ug/kg	452	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Carbon Disulfide	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Carbon Tetrachloride	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Chlorobenzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Chlorodibromomethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Chloroethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Chloroform	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Chloromethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Cyclohexane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2-Dibromo-3-chloropropane	ND		ug/kg	316	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2-Dibromoethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2-Dichlorobenzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,3-Dichlorobenzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,4-Dichlorobenzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Dichlorodifluoromethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,1-Dichloroethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2-Dichloroethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,1-Dichloroethene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
cis-1,2-Dichloroethene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
trans-1,2-Dichloroethene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2-Dichloropropane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
cis-1,3-Dichloropropene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
trans-1,3-Dichloropropene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,4-Dioxane	ND		ug/kg	14500	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Ethylbenzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Freon 113	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
2-Hexanone	ND		ug/kg	226	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Isopropylbenzene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Methyl acetate	ND		ug/kg	90.3	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Methyl cyclohexane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C

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ANALYTICAL RESULTS

Workorder: 2137348 Leica

Lab ID: **2137348004** Date Collected: 4/18/2016 13:50 Matrix: Solid

Sample ID: **41816-MIPS-3C-10'** Date Received: 4/19/2016 08:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Methyl t-Butyl Ether	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	226	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Methylene Chloride	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Styrene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,1,2,2-Tetrachloroethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Tetrachloroethene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Toluene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Total Xylenes	ND		ug/kg	135	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2,3-Trichlorobenzene	ND		ug/kg	90.3	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,2,4-Trichlorobenzene	ND		ug/kg	90.3	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,1,1-Trichloroethane	96.8		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
1,1,2-Trichloroethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Trichloroethene	478		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Trichlorofluoromethane	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Vinyl Chloride	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
o-Xylene	ND		ug/kg	45.2	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
mp-Xylene	ND		ug/kg	90.3	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.9		%	71 - 146	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
4-Bromofluorobenzene (S)	109		%	46 - 138	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Dibromofluoromethane (S)	95.8		%	42 - 143	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
Toluene-d8 (S)	112		%	54 - 141	SW846 8260C	4/18/16 13:30	SYB	4/20/16 08:52	SYB	C
WET CHEMISTRY										
Moisture	21.6		%	0.1	S2540G-11			4/19/16 10:30	KAM	D
Total Solids	78.4		%	0.1	S2540G-11			4/19/16 10:30	KAM	D

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2137348001	1	41816-MIPS-3E-8'	SW846 8260C	Dibromofluoromethane

The surrogate Dibromofluoromethane for method SW846 8260C was outside of control limits. The % Recovery was reported as 146 and the control limits were 42 to 143. This result was reported at a dilution of 50.

2137348001	2	41816-MIPS-3E-8'	SW846 8260C	Toluene-d8

The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 165 and the control limits were 54 to 141. This result was reported at a dilution of 50.

2137348001	3	41816-MIPS-3E-8'	SW846 8260C	4-Bromofluorobenzene

The surrogate 4-Bromofluorobenzene for method SW846 8260C was outside of control limits. The % Recovery was reported as 155 and the control limits were 46 to 138. This result was reported at a dilution of 50.

QUALITY CONTROL DATA

Workorder: 2137348 Leica

QC Batch: VOMS/39224 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 5035

Associated Lab Samples: 2137348001, 2137348002, 2137348003, 2137348004

METHOD BLANK: 2327569

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Dichlorodifluoromethane	ND	ug/kg	50.0	
Chloromethane	ND	ug/kg	50.0	
Vinyl Chloride	ND	ug/kg	50.0	
Bromomethane	ND	ug/kg	50.0	
Chloroethane	ND	ug/kg	50.0	
Trichlorofluoromethane	ND	ug/kg	50.0	
Acetone	ND	ug/kg	500	
1,1-Dichloroethene	ND	ug/kg	50.0	
Methylene Chloride	ND	ug/kg	50.0	
Methyl acetate	ND	ug/kg	100	
Freon 113	ND	ug/kg	50.0	
Carbon Disulfide	ND	ug/kg	50.0	
trans-1,2-Dichloroethene	ND	ug/kg	50.0	
Methyl t-Butyl Ether	ND	ug/kg	50.0	
1,1-Dichloroethane	ND	ug/kg	50.0	
2-Butanone	ND	ug/kg	500	
cis-1,2-Dichloroethene	ND	ug/kg	50.0	
Bromochloromethane	ND	ug/kg	50.0	
Chloroform	ND	ug/kg	50.0	
1,2-Dichloroethane	ND	ug/kg	50.0	
1,1,1-Trichloroethane	ND	ug/kg	50.0	
Cyclohexane	ND	ug/kg	50.0	
Carbon Tetrachloride	ND	ug/kg	50.0	
Benzene	ND	ug/kg	50.0	
1,2-Dichloropropane	ND	ug/kg	50.0	
Trichloroethene	ND	ug/kg	50.0	
Bromodichloromethane	ND	ug/kg	50.0	
1,4-Dioxane	ND	ug/kg	16000	
Methyl cyclohexane	ND	ug/kg	50.0	
cis-1,3-Dichloropropene	ND	ug/kg	50.0	
4-Methyl-2-Pentanone(MIBK)	ND	ug/kg	250	
trans-1,3-Dichloropropene	ND	ug/kg	50.0	
1,1,2-Trichloroethane	ND	ug/kg	50.0	
Toluene	ND	ug/kg	50.0	
2-Hexanone	ND	ug/kg	250	
Chlorodibromomethane	ND	ug/kg	50.0	
1,2-Dibromoethane	ND	ug/kg	50.0	

QUALITY CONTROL DATA

Workorder: 2137348 Leica

Tetrachloroethene	ND	ug/kg	50.0
Chlorobenzene	ND	ug/kg	50.0
Ethylbenzene	ND	ug/kg	50.0
mp-Xylene	ND	ug/kg	100
Bromoform	ND	ug/kg	50.0
Styrene	ND	ug/kg	50.0
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0
o-Xylene	ND	ug/kg	50.0
Total Xylenes	ND	ug/kg	150
Isopropylbenzene	ND	ug/kg	50.0
1,3-Dichlorobenzene	ND	ug/kg	50.0
1,4-Dichlorobenzene	ND	ug/kg	50.0
1,2-Dichlorobenzene	ND	ug/kg	50.0
1,2-Dibromo-3-chloropropane	ND	ug/kg	350
1,2,4-Trichlorobenzene	ND	ug/kg	100
1,2,3-Trichlorobenzene	ND	ug/kg	100
Dibromofluoromethane (S)	112	%	42 - 143
4-Bromofluorobenzene (S)	112	%	46 - 138
Toluene-d8 (S)	128	%	54 - 141
1,2-Dichloroethane-d4 (S)	110	%	71 - 146

LABORATORY CONTROL SAMPLE: 2327570

Parameter	Spike Conc.	Units	LCS Result	LCS % Rec	% Rec Limit	Qualifiers
Dichlorodifluoromethane	1000	ug/kg	928	92.8	10 - 180	
Chloromethane	1000	ug/kg	1170	117	31 - 167	
Vinyl Chloride	1000	ug/kg	909	90.9	5 - 200	
Bromomethane	1000	ug/kg	952	95.2	41 - 143	
Chloroethane	1000	ug/kg	712	71.2	14 - 152	
Trichlorofluoromethane	1000	ug/kg	482	48.2	27 - 121	
Acetone	5000	ug/kg	4150	83.1	42 - 154	
1,1-Dichloroethene	1000	ug/kg	882	88.2	62 - 135	
Methylene Chloride	1000	ug/kg	1040	104	73 - 129	
Methyl acetate	1000	ug/kg	1290	129	70 - 130	
Freon 113	1000	ug/kg	938	93.8	42 - 109	
Carbon Disulfide	1000	ug/kg	772	77.2	48 - 145	
trans-1,2-Dichloroethene	1000	ug/kg	927	92.7	69 - 130	
Methyl t-Butyl Ether	1000	ug/kg	975	97.5	65 - 120	
1,1-Dichloroethane	1000	ug/kg	940	94	68 - 137	
2-Butanone	5000	ug/kg	5500	110	51 - 151	
cis-1,2-Dichloroethene	1000	ug/kg	938	93.8	68 - 137	
Bromochloromethane	1000	ug/kg	947	94.7	70 - 124	
Chloroform	1000	ug/kg	970	97	75 - 127	
1,2-Dichloroethane	1000	ug/kg	938	93.8	62 - 139	

QUALITY CONTROL DATA

Workorder: 2137348 Leica

1,1,1-Trichloroethane	1000	ug/kg	916	91.6	69 - 136
Cyclohexane	1000	ug/kg	1050	105	63 - 151
Carbon Tetrachloride	1000	ug/kg	813	81.3	64 - 139
Benzene	1000	ug/kg	905	90.5	77 - 134
1,2-Dichloropropane	1000	ug/kg	957	95.7	77 - 133
Trichloroethene	1000	ug/kg	935	93.5	77 - 134
Bromodichloromethane	1000	ug/kg	819	81.9	73 - 133
1,4-Dioxane	25000	ug/kg	28000	112	8 - 243
Methyl cyclohexane	1000	ug/kg	996	99.6	70 - 130
cis-1,3-Dichloropropene	1000	ug/kg	962	96.2	70 - 129
4-Methyl-2-Pentanone(MIBK)	5000	ug/kg	5160	103	70 - 130
trans-1,3-Dichloropropene	1000	ug/kg	931	93.1	67 - 129
1,1,2-Trichloroethane	1000	ug/kg	940	94	70 - 128
Toluene	1000	ug/kg	958	95.8	73 - 134
2-Hexanone	5000	ug/kg	4760	95.2	66 - 133
Chlorodibromomethane	1000	ug/kg	805	80.5	69 - 122
1,2-Dibromoethane	1000	ug/kg	976	97.6	69 - 130
Tetrachloroethene	1000	ug/kg	1000	100	73 - 134
Chlorobenzene	1000	ug/kg	926	92.6	76 - 130
Ethylbenzene	1000	ug/kg	953	95.3	76 - 136
mp-Xylene	2000	ug/kg	1960	97.9	75 - 137
Bromoform	1000	ug/kg	738	73.8	62 - 118
Styrene	1000	ug/kg	1000	100	72 - 134
1,1,2,2-Tetrachloroethane	1000	ug/kg	958	95.8	69 - 125
o-Xylene	1000	ug/kg	962	96.2	74 - 135
Total Xylenes	3000	ug/kg	2920	97.3	75 - 136
Isopropylbenzene	1000	ug/kg	962	96.2	72 - 137
1,3-Dichlorobenzene	1000	ug/kg	933	93.3	73 - 130
1,4-Dichlorobenzene	1000	ug/kg	969	96.9	74 - 127
1,2-Dichlorobenzene	1000	ug/kg	924	92.4	73 - 127
1,2-Dibromo-3-chloropropane	1000	ug/kg	897	89.7	37 - 131
1,2,4-Trichlorobenzene	1000	ug/kg	1060	106	61 - 134
1,2,3-Trichlorobenzene	1000	ug/kg	1070	107	41 - 143
1,2-Dichloroethane-d4 (S)		%		114	71 - 146
4-Bromofluorobenzene (S)		%		115	46 - 138
Dibromofluoromethane (S)		%		123	42 - 143
Toluene-d8 (S)		%		128	54 - 141

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2137348 Leica

QC Batch: WETC/168885 **Analysis Method:** S2540G-11

QC Batch Method: S2540G-11

Associated Lab Samples: 2137348001, 2137348002, 2137348003, 2137348004

SAMPLE DUPLICATE: 2327211 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	12.8	1.4	10	
Total Solids		%	87.2	.2	5	

SAMPLE DUPLICATE: 2327212 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	44.2	.59	10	
Total Solids		%	55.8	.47	5	

SAMPLE DUPLICATE: 2327213 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	10.1	26.4	10	
Total Solids		%	89.9	3.47	5	

SAMPLE DUPLICATE: 2327214 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	7.5	7.16	10	
Total Solids		%	92.5	.56	5	

SAMPLE DUPLICATE: 2327215 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	14.4	.76	10	
Total Solids		%	85.6	.13	5	

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QUALITY CONTROL DATA

Workorder: 2137348 Leica

SAMPLE DUPLICATE: 2327216 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	9.6	16.1	10	
Total Solids		%	90.4	1.58	5	

SAMPLE DUPLICATE: 2327217 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	16.3	2.41	10	
Total Solids		%	83.7	.46	5	

SAMPLE DUPLICATE: 2327218 ORIGINAL: 2137348003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	12.8	%	11.4	11.6	10	
Total Solids	87.2	%	88.6	1.59	5	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2137348 Leica

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2137348001	41816-MIPS-3E-8'			S2540G-11	WETC/168885
2137348002	41816-MIPS-3D-8'			S2540G-11	WETC/168885
2137348003	41816-MIPS-3B-11'			S2540G-11	WETC/168885
2137348004	41816-MIPS-3C-10'			S2540G-11	WETC/168885
2137348001	41816-MIPS-3E-8'	SW846 5035	VOMS/39224	SW846 8260C	VOMS/39227
2137348002	41816-MIPS-3D-8'	SW846 5035	VOMS/39224	SW846 8260C	VOMS/39227
2137348003	41816-MIPS-3B-11'	SW846 5035	VOMS/39224	SW846 8260C	VOMS/39227
2137348004	41816-MIPS-3C-10'	SW846 5035	VOMS/39224	SW846 8260C	VOMS/39227

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

ALS Environmental
1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1

* 2 1 3 7 3 4 8 *

Project Name: Leica	Project Number: 137015
Project Manager: Bob McPeak	Report CC: DAN SLYWKA
Company/Address: Energy Solutions 984 Southford Rd Middlebury CT 06762	
Phone #: 8013031092	Email: RMcPeak@energysolutions.com
Sampler's Signature:	Sampler's Printed Name: DAN SLYWKA

ANALYSIS REQUESTED (Include Method Number and Container)

PRESERVATIVE

NUMBER OF CONTAINERS

GC/MS VOAs • 8260 • 624 • CLP | GC/MS SVOAs • 8270 • 625 | GC VOAs • 8021 • 601/602 | PESTICIDES • 8081 • 608 | PCBs • 8082 • 608 | METALS, TOTAL (List in comments below) | METALS, DISSOLVED (List in comments below)

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other ____

REMARKS/ ALTERNATE DESCRIPTION

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs • 8260 • 624 • CLP	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
41816-MIPS-3E-8'		4/18/16	915	S	4	X							
41816-MIPS-3D-8'			1020										
41816-MIPS-2B-9'			1220										
41816-MIPS-3D-11'			1330										void
41816-MIPS-3C-10'			1350										not receive
41816-MIPS-3A-													

DS DS

	Y	N	Initials
Custody Seals Present?	✓		
(if present) Seals Intact?	✓		
Received on Ice?	✓		
COC/Lbls Complete	✓		
Cont in Good Cond?	✓		
Correct Containers?	✓		
Correct Samp Vol?	✓		
Correct Preservation?	✓		
Headspace/Volatiles?			

Cooler Temp: ____ °C
Cooler #: ____
Therm ID: IR-352
Ship Carrier: (FedEx) UPS DHL
Tracking #: 8088 4808 7983

AS 4/19/16

SPECIAL INSTRUCTIONS/COMMENTS
Metals
* 24 hr TAT *

See QAPP ☐

TURNAROUND REQUIREMENTS
__ RUSH (SURCHARGES APPLY)
__ 1 day __ 2 day __ 3 day
__ 4 day __ 5 day
REQUESTED REPORT DATE

REPORT REQUIREMENTS
__ I. Results Only
__ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
__ III. Results + QC and Calibration Summaries
__ IV. Data Validation Report with Raw Data
Edata __ Yes __ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	FEDEX				
Printed Name: DAN SLYWKA					
Firm: Energy Solutions					
Date/Time: 4/18/16 1630			Firm: ALS Date/Time: 4-19-16 0852		

Distribution: White - Lab Copy; Yellow - Return to Originator

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April 28, 2016

Mr. Daniel Slywka
EnergySolutions, Inc.
984 Southford Rd Suite 8
Middlebury, CT 06762

Certificate of Analysis

Project Name:	**VOC testing**	Workorder:	**2138500**
Purchase Order:		Workorder ID:	**Leica**

Dear Mr. Slywka:

Enclosed are the analytical results for samples received by the laboratory on Friday, April 22, 2016.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2138500 Leica

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2138500001	42016-MIPS-6C-7.5'	Solid	4/20/2016 17:20	4/22/2016 08:48	Collected by Client
2138500002	42116-MIPS-5A	Solid	4/21/2016 11:00	4/22/2016 08:48	Collected by Client
2138500003	42116-MIPS-4A	Solid	4/21/2016 12:20	4/22/2016 08:48	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

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ANALYTICAL RESULTS

Workorder: 2138500 Leica

Lab ID: **2138500001** Date Collected: 4/20/2016 17:20 Matrix: Solid

Sample ID: **42016-MIPS-6C-7.5'** Date Received: 4/22/2016 08:48

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	434	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Benzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Bromochloromethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Bromodichloromethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Bromoform	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Bromomethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
2-Butanone	ND		ug/kg	434	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Carbon Disulfide	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Carbon Tetrachloride	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Chlorobenzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Chlorodibromomethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Chloroethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Chloroform	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Chloromethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Cyclohexane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2-Dibromo-3-chloropropane	ND		ug/kg	304	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2-Dibromoethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2-Dichlorobenzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,3-Dichlorobenzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,4-Dichlorobenzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Dichlorodifluoromethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,1-Dichloroethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2-Dichloroethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,1-Dichloroethene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
cis-1,2-Dichloroethene	61.5		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
trans-1,2-Dichloroethene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2-Dichloropropane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
cis-1,3-Dichloropropene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
trans-1,3-Dichloropropene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,4-Dioxane	ND		ug/kg	13900	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Ethylbenzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Freon 113	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
2-Hexanone	ND		ug/kg	217	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Isopropylbenzene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Methyl acetate	ND		ug/kg	86.9	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Methyl cyclohexane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2138500 Leica

Lab ID: **2138500001** Date Collected: 4/20/2016 17:20 Matrix: Solid

Sample ID: **42016-MIPS-6C-7.5'** Date Received: 4/22/2016 08:48

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	217	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Methylene Chloride	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Styrene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,1,2,2-Tetrachloroethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Tetrachloroethene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Toluene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Total Xylenes	ND		ug/kg	130	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2,3-Trichlorobenzene	ND		ug/kg	86.9	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,2,4-Trichlorobenzene	ND		ug/kg	86.9	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,1,1-Trichloroethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
1,1,2-Trichloroethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Trichloroethene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Trichlorofluoromethane	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Vinyl Chloride	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
o-Xylene	ND		ug/kg	43.4	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
mp-Xylene	ND		ug/kg	86.9	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	75		%	71 - 146	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
4-Bromofluorobenzene (S)	84.1		%	46 - 138	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Dibromofluoromethane (S)	71.4		%	42 - 143	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
Toluene-d8 (S)	91.6		%	54 - 141	SW846 8260C	4/20/16 17:20	CJG	4/27/16 03:17	CJG	A
WET CHEMISTRY										
Moisture	14.5		%	0.1	S2540G-11			4/27/16 17:31	SLC	D
Total Solids	85.5		%	0.1	S2540G-11			4/27/16 17:31	SLC	D

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2138500 Leica

Lab ID: **2138500002** Date Collected: 4/21/2016 11:00 Matrix: Solid

Sample ID: **42116-MIPS-5A** Date Received: 4/22/2016 08:48

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	370	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Benzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Bromochloromethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Bromodichloromethane	ND	4	ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Bromoform	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Bromomethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
2-Butanone	ND		ug/kg	370	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Carbon Disulfide	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Carbon Tetrachloride	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Chlorobenzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Chlorodibromomethane	ND	5	ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Chloroethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Chloroform	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Chloromethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Cyclohexane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2-Dibromo-3-chloropropane	ND		ug/kg	259	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2-Dibromoethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2-Dichlorobenzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,3-Dichlorobenzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,4-Dichlorobenzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Dichlorodifluoromethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,1-Dichloroethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2-Dichloroethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,1-Dichloroethene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
cis-1,2-Dichloroethene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
trans-1,2-Dichloroethene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2-Dichloropropane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
cis-1,3-Dichloropropene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
trans-1,3-Dichloropropene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,4-Dioxane	ND		ug/kg	11800	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Ethylbenzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Freon 113	ND	2	ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
2-Hexanone	ND		ug/kg	185	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Isopropylbenzene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Methyl acetate	ND		ug/kg	73.9	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Methyl cyclohexane	ND	1	ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A

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ANALYTICAL RESULTS

Workorder: 2138500 Leica

Lab ID: **2138500002** Date Collected: 4/21/2016 11:00 Matrix: Solid

Sample ID: **42116-MIPS-5A** Date Received: 4/22/2016 08:48

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	185	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Methylene Chloride	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Styrene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,1,2,2-Tetrachloroethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Tetrachloroethene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Toluene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Total Xylenes	ND		ug/kg	111	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2,3-Trichlorobenzene	ND		ug/kg	73.9	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,2,4-Trichlorobenzene	ND		ug/kg	73.9	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,1,1-Trichloroethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
1,1,2-Trichloroethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Trichloroethene	676	3	ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Trichlorofluoromethane	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Vinyl Chloride	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
o-Xylene	ND		ug/kg	37.0	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
mp-Xylene	ND	6	ug/kg	73.9	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	86.1		%	71 - 146	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
4-Bromofluorobenzene (S)	97.5		%	46 - 138	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Dibromofluoromethane (S)	81.5		%	42 - 143	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
Toluene-d8 (S)	106		%	54 - 141	SW846 8260C	4/20/16 11:00	CJG	4/27/16 03:39	CJG	A
WET CHEMISTRY										
Moisture	12.7		%	0.1	S2540G-11			4/27/16 17:31	SLC	D
Total Solids	87.3		%	0.1	S2540G-11			4/27/16 17:31	SLC	D

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2138500 Leica

Lab ID: **2138500003** Date Collected: 4/21/2016 12:20 Matrix: Solid

Sample ID: **42116-MIPS-4A** Date Received: 4/22/2016 08:48

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	361	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Benzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Bromochloromethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Bromodichloromethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Bromoform	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Bromomethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
2-Butanone	ND		ug/kg	361	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Carbon Disulfide	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Carbon Tetrachloride	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Chlorobenzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Chlorodibromomethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Chloroethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Chloroform	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Chloromethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Cyclohexane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2-Dibromo-3-chloropropane	ND		ug/kg	253	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2-Dibromoethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2-Dichlorobenzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,3-Dichlorobenzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,4-Dichlorobenzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Dichlorodifluoromethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,1-Dichloroethane	53.0		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2-Dichloroethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,1-Dichloroethene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
cis-1,2-Dichloroethene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
trans-1,2-Dichloroethene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2-Dichloropropane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
cis-1,3-Dichloropropene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
trans-1,3-Dichloropropene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,4-Dioxane	ND		ug/kg	11600	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Ethylbenzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Freon 113	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
2-Hexanone	ND		ug/kg	181	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Isopropylbenzene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Methyl acetate	ND		ug/kg	72.3	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Methyl cyclohexane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A

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ANALYTICAL RESULTS

Workorder: 2138500 Leica

Lab ID: **2138500003** Date Collected: 4/21/2016 12:20 Matrix: Solid

Sample ID: **42116-MIPS-4A** Date Received: 4/22/2016 08:48

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Methyl t-Butyl Ether	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	181	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Methylene Chloride	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Styrene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,1,2,2-Tetrachloroethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Tetrachloroethene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Toluene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Total Xylenes	ND		ug/kg	108	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2,3-Trichlorobenzene	ND		ug/kg	72.3	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,2,4-Trichlorobenzene	ND		ug/kg	72.3	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,1,1-Trichloroethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
1,1,2-Trichloroethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Trichloroethene	334		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Trichlorofluoromethane	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Vinyl Chloride	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
o-Xylene	ND		ug/kg	36.1	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
mp-Xylene	ND		ug/kg	72.3	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.6		%	71 - 146	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
4-Bromofluorobenzene (S)	102		%	46 - 138	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Dibromofluoromethane (S)	91.5		%	42 - 143	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
Toluene-d8 (S)	115		%	54 - 141	SW846 8260C	4/21/16 12:20	CJG	4/27/16 04:02	CJG	A
WET CHEMISTRY										
Moisture	11.1		%	0.1	S2540G-11			4/27/16 17:31	SLC	D
Total Solids	88.9		%	0.1	S2540G-11			4/27/16 17:31	SLC	D

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2138500002	1	42116-MIPS-5A	SW846 8260C	Methyl cyclohexane
The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Methyl cyclohexane. The % Recovery was reported as 141 and the control limits were 70 to 130.				
2138500002	2	42116-MIPS-5A	SW846 8260C	Freon 113
The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Freon 113. The % Recovery was reported as 118 and the control limits were 42 to 109.				
2138500002	3	42116-MIPS-5A	SW846 8260C	Trichloroethene
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Trichloroethene. The % Recovery was reported as 76.9 and the control limits were 77 to 134.				
2138500002	4	42116-MIPS-5A	SW846 8260C	Bromodichloromethane
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Bromodichloromethane. The % Recovery was reported as 72 and the control limits were 73 to 133.				
2138500002	5	42116-MIPS-5A	SW846 8260C	Chlorodibromomethane
The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Chlorodibromomethane. The % Recovery was reported as 68 and the control limits were 69 to 122.				
2138500002	6	42116-MIPS-5A	SW846 8260C	mp-Xylene
The QC sample type MS for method SW846 8260C was outside the control limits for the analyte mp-Xylene. The % Recovery was reported as 139 and the control limits were 75 to 137.				

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QUALITY CONTROL DATA

Workorder: 2138500 Leica

QC Batch: VOMS/39307 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 5035

Associated Lab Samples: 2138500001, 2138500002, 2138500003

METHOD BLANK: 2331372

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Dichlorodifluoromethane	ND	ug/kg	50.0	
Chloromethane	ND	ug/kg	50.0	
Vinyl Chloride	ND	ug/kg	50.0	
Bromomethane	ND	ug/kg	50.0	
Chloroethane	ND	ug/kg	50.0	
Trichlorofluoromethane	ND	ug/kg	50.0	
Acetone	ND	ug/kg	500	
1,1-Dichloroethene	ND	ug/kg	50.0	
Methylene Chloride	ND	ug/kg	50.0	
Methyl acetate	ND	ug/kg	100	
Freon 113	ND	ug/kg	50.0	
Carbon Disulfide	ND	ug/kg	50.0	
trans-1,2-Dichloroethene	ND	ug/kg	50.0	
Methyl t-Butyl Ether	ND	ug/kg	50.0	
1,1-Dichloroethane	ND	ug/kg	50.0	
2-Butanone	ND	ug/kg	500	
cis-1,2-Dichloroethene	ND	ug/kg	50.0	
Bromochloromethane	ND	ug/kg	50.0	
Chloroform	ND	ug/kg	50.0	
1,2-Dichloroethane	ND	ug/kg	50.0	
1,1,1-Trichloroethane	ND	ug/kg	50.0	
Cyclohexane	ND	ug/kg	50.0	
Carbon Tetrachloride	ND	ug/kg	50.0	
Benzene	ND	ug/kg	50.0	
1,2-Dichloropropane	ND	ug/kg	50.0	
Trichloroethene	ND	ug/kg	50.0	
Bromodichloromethane	ND	ug/kg	50.0	
1,4-Dioxane	ND	ug/kg	16000	
Methyl cyclohexane	ND	ug/kg	50.0	
cis-1,3-Dichloropropene	ND	ug/kg	50.0	
4-Methyl-2-Pentanone(MIBK)	ND	ug/kg	250	
trans-1,3-Dichloropropene	ND	ug/kg	50.0	
1,1,2-Trichloroethane	ND	ug/kg	50.0	
Toluene	ND	ug/kg	50.0	
2-Hexanone	ND	ug/kg	250	
Chlorodibromomethane	ND	ug/kg	50.0	
1,2-Dibromoethane	ND	ug/kg	50.0	

QUALITY CONTROL DATA

Workorder: 2138500 Leica

Tetrachloroethene	ND	ug/kg	50.0	
Chlorobenzene	ND	ug/kg	50.0	
Ethylbenzene	ND	ug/kg	50.0	
mp-Xylene	ND	ug/kg	100	
Bromoform	ND	ug/kg	50.0	
Styrene	ND	ug/kg	50.0	
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0	
o-Xylene	ND	ug/kg	50.0	
Total Xylenes	ND	ug/kg	150	
Isopropylbenzene	ND	ug/kg	50.0	
1,3-Dichlorobenzene	ND	ug/kg	50.0	
1,4-Dichlorobenzene	ND	ug/kg	50.0	
1,2-Dichlorobenzene	ND	ug/kg	50.0	
1,2-Dibromo-3-chloropropane	ND	ug/kg	350	
1,2,4-Trichlorobenzene	105	ug/kg	100	*
1,2,3-Trichlorobenzene	135	ug/kg	100	*
Dibromofluoromethane (S)	103	%	42 - 143	
4-Bromofluorobenzene (S)	110	%	46 - 138	
Toluene-d8 (S)	126	%	54 - 141	
1,2-Dichloroethane-d4 (S)	104	%	71 - 146	

LABORATORY CONTROL SAMPLE: 2331373

Parameter	Spike Conc.	Units	LCS Result	LCS % Rec	% Rec Limit	Qualifiers
Dichlorodifluoromethane	1000	ug/kg	678	67.8	10 - 180	
Chloromethane	1000	ug/kg	1030	103	31 - 167	
Vinyl Chloride	1000	ug/kg	861	86.1	5 - 200	
Bromomethane	1000	ug/kg	776	77.6	41 - 143	
Chloroethane	1000	ug/kg	689	68.9	14 - 152	
Trichlorofluoromethane	1000	ug/kg	728	72.8	27 - 121	
Acetone	5000	ug/kg	4770	95.3	42 - 154	
1,1-Dichloroethene	1000	ug/kg	1020	102	62 - 135	
Methylene Chloride	1000	ug/kg	1120	112	73 - 129	
Methyl acetate	1000	ug/kg	1270	127	70 - 130	
Freon 113	1000	ug/kg	1090	109	42 - 109	
Carbon Disulfide	1000	ug/kg	924	92.4	48 - 145	
trans-1,2-Dichloroethene	1000	ug/kg	1110	111	69 - 130	
Methyl t-Butyl Ether	1000	ug/kg	949	94.9	65 - 120	
1,1-Dichloroethane	1000	ug/kg	1010	101	68 - 137	
2-Butanone	5000	ug/kg	5050	101	51 - 151	
cis-1,2-Dichloroethene	1000	ug/kg	1050	105	68 - 137	
Bromochloromethane	1000	ug/kg	1020	102	70 - 124	
Chloroform	1000	ug/kg	1020	102	75 - 127	
1,2-Dichloroethane	1000	ug/kg	971	97.1	62 - 139	

QUALITY CONTROL DATA

Workorder: 2138500 Leica

1,1,1-Trichloroethane	1000	ug/kg	1040	104	69 - 136
Cyclohexane	1000	ug/kg	1140	114	63 - 151
Carbon Tetrachloride	1000	ug/kg	963	96.3	64 - 139
Benzene	1000	ug/kg	1020	102	77 - 134
1,2-Dichloropropane	1000	ug/kg	1080	108	77 - 133
Trichloroethene	1000	ug/kg	1000	100	77 - 134
Bromodichloromethane	1000	ug/kg	890	89	73 - 133
1,4-Dioxane	25000	ug/kg	22600	90.5	8 - 243
Methyl cyclohexane	1000	ug/kg	1120	112	70 - 130
cis-1,3-Dichloropropene	1000	ug/kg	925	92.5	70 - 129
4-Methyl-2-Pentanone(MIBK)	5000	ug/kg	4320	86.3	70 - 130
trans-1,3-Dichloropropene	1000	ug/kg	946	94.6	67 - 129
1,1,2-Trichloroethane	1000	ug/kg	1010	101	70 - 128
Toluene	1000	ug/kg	1080	108	73 - 134
2-Hexanone	5000	ug/kg	4260	85.3	66 - 133
Chlorodibromomethane	1000	ug/kg	823	82.3	69 - 122
1,2-Dibromoethane	1000	ug/kg	1050	105	69 - 130
Tetrachloroethene	1000	ug/kg	1010	101	73 - 134
Chlorobenzene	1000	ug/kg	989	98.9	76 - 130
Ethylbenzene	1000	ug/kg	1050	105	76 - 136
mp-Xylene	2000	ug/kg	2150	107	75 - 137
Bromoform	1000	ug/kg	752	75.2	62 - 118
Styrene	1000	ug/kg	995	99.5	72 - 134
1,1,2,2-Tetrachloroethane	1000	ug/kg	993	99.3	69 - 125
o-Xylene	1000	ug/kg	1010	101	74 - 135
Total Xylenes	3000	ug/kg	3160	105	75 - 136
Isopropylbenzene	1000	ug/kg	1090	109	72 - 137
1,3-Dichlorobenzene	1000	ug/kg	993	99.3	73 - 130
1,4-Dichlorobenzene	1000	ug/kg	976	97.6	74 - 127
1,2-Dichlorobenzene	1000	ug/kg	995	99.5	73 - 127
1,2-Dibromo-3-chloropropane	1000	ug/kg	790	79	37 - 131
1,2,4-Trichlorobenzene	1000	ug/kg	1070	107	61 - 134
1,2,3-Trichlorobenzene	1000	ug/kg	1130	113	41 - 143
1,2-Dichloroethane-d4 (S)		%		108	71 - 146
4-Bromofluorobenzene (S)		%		111	46 - 138
Dibromofluoromethane (S)		%		114	42 - 143
Toluene-d8 (S)		%		126	54 - 141

MATRIX SPIKE: 2331475 DUPLICATE: 2331476 ORIGINAL: 2138500002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers

QUALITY CONTROL DATA

Workorder: 2138500 Leica

Dichlorodifluoromethane	ND	ug/kg	645	548	441	74.1	59.7	10 - 180	21.6	40
Chloromethane	ND	ug/kg	645	843	645	112	85.1	31 - 167	26.6	40
Vinyl Chloride	ND	ug/kg	645	794	615	107	83.1	5 - 200	25.5	40
Bromomethane	ND	ug/kg	645	541	463	70.9	60.4	41 - 143	15.5	40
Chloroethane	ND	ug/kg	645	557	427	75.4	57.8	14 - 152	26.5	40
Trichlorofluoromethane	ND	ug/kg	645	652	524	88.1	70.9	27 - 121	21.6	40
Acetone	ND	ug/kg	3230	3720	3570	101	96.6	42 - 154	4.13	40
1,1-Dichloroethene	ND	ug/kg	645	833	681	113	92.1	62 - 135	20.2	40
Methylene Chloride	ND	ug/kg	645	843	691	114	93.5	73 - 129	19.8	40
Methyl acetate	ND	ug/kg	645	955	927	129	125	70 - 130	3.04	40
Freon 113	ND	ug/kg	645	872	753	118	102	42 - 109	14.6	40
Carbon Disulfide	ND	ug/kg	645	792	625	107	84.5	48 - 145	23.6	40
trans-1,2-Dichloroethene	ND	ug/kg	645	887	704	120	95.3	69 - 130	22.9	40
Methyl t-Butyl Ether	ND	ug/kg	645	728	627	98.4	84.8	65 - 120	14.8	40
1,1-Dichloroethane	ND	ug/kg	645	840	665	110	86.2	68 - 137	23.2	40
2-Butanone	ND	ug/kg	3230	3750	3780	101	102	51 - 151	.81	40
cis-1,2-Dichloroethene	ND	ug/kg	645	840	670	112	89.3	68 - 137	22.5	40
Bromochloromethane	ND	ug/kg	645	780	615	106	83.1	70 - 124	23.7	40
Chloroform	ND	ug/kg	645	790	630	104	82.5	75 - 127	22.5	40
1,2-Dichloroethane	ND	ug/kg	645	733	595	99.1	80.5	62 - 139	20.7	40
1,1,1-Trichloroethane	ND	ug/kg	645	818	672	111	90.9	69 - 136	19.6	40
Cyclohexane	ND	ug/kg	645	950	864	128	117	63 - 151	9.42	40
Carbon Tetrachloride	ND	ug/kg	645	667	618	90.2	83.5	64 - 139	7.63	40
Benzene	ND	ug/kg	645	810	653	110	88.4	77 - 134	21.4	40
1,2-Dichloropropane	ND	ug/kg	645	833	680	113	92	77 - 133	20.2	40
Trichloroethene	676	ug/kg	645	1520	1240	114	76.9	77 - 134	19.8	40
Bromodichloromethane	ND	ug/kg	645	671	532	90.8	72	73 - 133	23	40
1,4-Dioxane	ND	ug/kg	16100	17200	19000	93.1	103	8 - 243	10	40
Methyl cyclohexane	ND	ug/kg	645	1050	935	141	126	70 - 130	11.2	40
cis-1,3-Dichloropropene	ND	ug/kg	645	728	572	98.5	77.4	70 - 129	24	40
4-Methyl-2-Pentanone(MIBK)	ND	ug/kg	3230	3430	3280	92.7	88.8	70 - 130	4.23	40
trans-1,3-Dichloropropene	ND	ug/kg	645	712	584	96.4	79	67 - 129	19.8	40
1,1,2-Trichloroethane	ND	ug/kg	645	816	682	110	92.3	70 - 128	17.9	40
Toluene	ND	ug/kg	645	870	713	118	96.4	73 - 134	19.9	40
2-Hexanone	ND	ug/kg	3230	3260	3250	88.2	87.9	66 - 133	.4	40
Chlorodibromomethane	ND	ug/kg	645	607	503	82.2	68	69 - 122	18.8	40
1,2-Dibromoethane	ND	ug/kg	645	805	674	109	91.2	69 - 130	17.7	40
Tetrachloroethene	ND	ug/kg	645	834	718	113	97.1	73 - 134	15	40
Chlorobenzene	ND	ug/kg	645	782	633	106	85.6	76 - 130	21.1	40
Ethylbenzene	ND	ug/kg	645	897	703	121	95.1	76 - 136	24.2	40
mp-Xylene	ND	ug/kg	1290	2050	1480	139	99.9	75 - 137	32.5	40
Bromoform	ND	ug/kg	645	559	479	75.6	64.8	62 - 118	15.4	40
Styrene	ND	ug/kg	645	804	620	109	83.9	72 - 134	25.8	40
1,1,2,2-Tetrachloroethane	ND	ug/kg	645	788	713	107	96.4	69 - 125	10	40
o-Xylene	ND	ug/kg	645	916	684	124	92.6	74 - 135	28.9	40
Total Xylenes	ND	ug/kg	1940	2970	2160	134	97.4	75 - 136	31.4	40

QUALITY CONTROL DATA

Workorder: 2138500 Leica

Isopropylbenzene	ND	ug/kg	645	903	761	122	103	72 - 137	17	40
1,3-Dichlorobenzene	ND	ug/kg	645	773	619	104	83.8	73 - 130	22	40
1,4-Dichlorobenzene	ND	ug/kg	645	770	614	104	83.1	74 - 127	22.5	40
1,2-Dichlorobenzene	ND	ug/kg	645	780	632	106	85.5	73 - 127	21	40
1,2-Dibromo-3-chloropropane	ND	ug/kg	645	549	599	74.2	81	37 - 131	8.76	40
1,2,4-Trichlorobenzene	ND	ug/kg	645	851	718	115	97.1	61 - 134	17	40
1,2,3-Trichlorobenzene	ND	ug/kg	645	892	855	121	116	41 - 143	4.19	40
Toluene-d8 (S)	106	%				109	88.9	54 - 141	19.9	
1,2-Dichloroethane-d4 (S)	86.1	%				89.2	73.9	71 - 146	18.7	
Dibromofluoromethane (S)	81.5	%				95.2	76.7	42 - 143	21.5	
4-Bromofluorobenzene (S)	97.5	%				96.8	77.1	46 - 138	22.6	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2138500 Leica

QC Batch: WETC/169307 **Analysis Method:** S2540G-11

QC Batch Method: S2540G-11

Associated Lab Samples: 2138500001, 2138500002, 2138500003

SAMPLE DUPLICATE: 2332030 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	11.1	5.9	10	
Total Solids		%	88.9	.71	5	

SAMPLE DUPLICATE: 2332031 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	0.6	144	10	
Total Solids		%	99.4	2.96	5	

SAMPLE DUPLICATE: 2332032 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	12.5	21.9	10	
Total Solids		%	87.5	2.79	5	

SAMPLE DUPLICATE: 2332033 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	76.2	.59	10	
Total Solids		%	23.8	1.87	5	

SAMPLE DUPLICATE: 2332034 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	15.6	5.07	10	
Total Solids		%	84.4	.97	5	

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QUALITY CONTROL DATA

Workorder: 2138500 Leica

SAMPLE DUPLICATE: 2332035 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	13.8	4.71	10	
Total Solids		%	86.2	.78	5	

SAMPLE DUPLICATE: 2332036 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	21.4	.009	10	
Total Solids		%	78.6	.003	5	

SAMPLE DUPLICATE: 2332037 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	9.9	19.8	10	
Total Solids		%	90.1	2.46	5	

SAMPLE DUPLICATE: 2332038 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	87.4	.21	10	
Total Solids		%	12.6	1.44	5	

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA QUALIFIERS

Workorder: 2138500 Leica

QUALITY CONTROL PARAMETER QUALIFIERS

Lab ID	#	Sample Type	Analytical Method	Analyte
2331372	1	Method Blank	SW846 8260C	1,2,3-Trichlorobenzene
The Method Blank for method SW846 8260C reported a value greater than the reporting level for the analyte 1,2,3-Trichlorobenzene.				
2331372	2	Method Blank	SW846 8260C	1,2,4-Trichlorobenzene
The Method Blank for method SW846 8260C reported a value greater than the reporting level for the analyte 1,2,4-Trichlorobenzene.				

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2138500 Leica

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2138500001	42016-MIPS-6C-7.5'	SW846 5035	VOMS/39307	SW846 8260C	VOMS/39308
2138500002	42116-MIPS-5A	SW846 5035	VOMS/39307	SW846 8260C	VOMS/39308
2138500003	42116-MIPS-4A	SW846 5035	VOMS/39307	SW846 8260C	VOMS/39308
2138500001	42016-MIPS-6C-7.5'			S2540G-11	WETC/169307
2138500002	42116-MIPS-5A			S2540G-11	WETC/169307
2138500003	42116-MIPS-4A			S2540G-11	WETC/169307

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

ALS Environmental

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★2138500★

Project Name: Leica	Project Number: 137015
Project Manager: Bob McPeak	Report CC: Dan Slywka
Company/Address: Energy Solutions 984 Southford Rd Middlebury CT 06762	
Phone #: 8073031092	Email: Rmcpeak@energysolutions.com
Sampler's Signature:	Sampler's Printed Name: Dan Slywka

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
42016-mips-6C-75'		4/20/16	1720	S	4	X							
42116-mips-5A		4/21/16	1100	S	4	X							
42116-mips-4A		4/4/16	1220	S	4	X							

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other ____

	Y	N	Initials
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?	✓		AS
COC/Lbls Complete	✓		
Cont in Good Cond?	✓		
Correct Containers?	✓		
Correct Samp Vol?	✓		
Correct Preservation?	✓		
Headspace/Volatiles?			

Cooler Temp: ____ °C
Cooler #: ____
Therm ID: ~~IR350~~
Ship Carrier: (FedEx) UPS DHL ____
Tracking #: 809393097616

AS 4/22/16

SPECIAL INSTRUCTIONS/COMMENTS
Metals

★ 5 DAY TAT ★

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day (5 day)

REQUESTED REPORT DATE ____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO # ____
BILL TO: ____

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature: Fedex	Signature	Signature	Signature	Signature
Printed Name: Dan Slywka	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Energy Solutions	Firm	Firm	Firm: ALS	Firm	Firm
Date/Time: 4/21/16 13:00	Date/Time	Date/Time	Date/Time: 4/22/16 0845	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

26756 500

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Project Name: Leica	Project Number: 137015
Project Manager: Bob McPeak	Report CC: Dan Slywka
Company/Address: Energy Solutions 984 Southford Rd Middlebury CT 06762	
Phone #: 8013031092	Email: Rmcpeak@energysoluti
Sampler's Signature:	Sampler's Printed Name: Dan Slywka

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs 8260 • 624 • CLP	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)									REMARKS/ ALTERNATE DESCRIPTION
42016-mips-GC-7.5'		4/20/16	1720	S	4	X															
42116-mips-5A		4/21/16	1100	S	4	X															AT 1
42116-mips-4A		4/21/16	1220	S	4	X															
																					TH350

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals
* 5 DAY TAT *

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day (X) 5 day
REQUESTED REPORT DATE

REPORT REQUIREMENTS
_____ I. Results Only
_____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Fedex				
Printed Name: Dan Slywka					
Firm: Energy Solutions					
Date/Time: 4/21/16 13:00			Signature		
			Printed Name		
			Firm: ALS		
			Date/Time: 4/22/16 08:15		

Distribution: White - Lab Copy; Yellow - Return to Originator