AECOM
257 West Genesee Street, Suite 400
Buffalo, New York 14202

716-856-5636 tel
716-856-2545 fax

January 11, 2018

Submitted Via Email

Mr. Brian Sadowski
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Subject: Former Carborundum Facility
2040 Cory Drive, Sanborn, NY
NYSDEC Site No. 932102
PW-3 Injection Pilot Study Work Plan

Dear Mr. Sadowski,

On behalf of Elm Holdings Inc., AECOM Technical Services, Inc. (AECOM) is pleased to provide this PW-3 Injection Pilot Study Work Plan (Work Plan) for completing a pilot study to evaluate enhancements to the groundwater control and extraction and treatment program at the former Carborundum Facility located at 2040 Cory Drive in the Village of Sanborn, Town of Wheatfield, New York (Site), New York State Department of Environmental Conservation (NYSDEC) Site No. 932102.

The pilot study will be performed to determine if an injectate (sodium permanganate) can help reduce remnant volatile organic compound (VOC) concentrations at select areas of the Site. In addition, the pilot study will be used to estimate parameters required to apply this enhancement approach as part of ongoing remedial efforts at the Site.

This work plan provides the following information:

- A brief summary of the Site background, including Site history, previous investigation and remediation activities, remedial action objectives (RAOs), and Site geology/hydrogeology;
- A summary of the recently completed membrane interface probe / hydraulic profiling tool (MIP/HPT) study completed at the Site;
- A detailed scope of work for the proposed injection pilot study including information on the injectate; and,
- A description of upcoming Site-related activities and a proposed groundwater sampling and reporting plan to monitor the effectiveness of the injection pilot study.

I. SITE BACKGROUND

The following summary presents a brief description of Site history, previous investigation and remediation activities, Site RAOs, and Site geology and hydrogeology.

Figure 1 shows the Project Location Plan and Figure 2 shows the Site Plan. The Site property is comprised of four parcels totaling approximately 40 acres. Currently, there are two manufacturing buildings (Pyrotek, Inc. doing business as Pyrotek and a subsidiary business Metaullics, Inc.) and associated administrative buildings on the property. Construction of the most recent addition to the

manufacturing facilities on the northernmost parcel was completed in November 2011. The majority of land immediately adjacent to the property is used for agricultural purposes. Private residences border the property along the western boundary of the Site. Surface topography generally slopes to the south toward the Niagara River. Surface water from the paved areas of the Site is collected by Metaullics' sewer system.

VOCs, including primarily trichloroethene (TCE), were previously released to the environment during operations at the manufacturing facility, are being addressed under the direction of NYSDEC under a 1991 Order on Consent and associated modifications. TCE and its primary breakdown constituents, cis-1,2 dichloroethene (DCE) and vinyl chloride (VC), are present at select locations in the groundwater.

The 1991 Record of Decision (ROD) selected soil vapor extraction for overburden soil and permitted groundwater recovery and treatment for bedrock groundwater. The recovery and treatment systems are operated with the goal of preventing offsite migration of dissolved VOCs.

The groundwater recovery system (GRS) began operation in mid-1993 and treats groundwater using air stripping technology and an activated carbon polish. The GRS is operated with goals to provide onsite hydraulic containment and to prevent offsite migration of groundwater containing dissolved VOCs. Post-treatment water is discharged via a NYSDEC permitted State Pollutant Discharge Elimination System (SPDES) outfall to Cayuga Creek. Weekly discharge compliance samples are collected and analyzed in compliance with the SPDES permit.

A soil vapor extraction system was operated in conjunction with the GRS until 2001 and was subsequently decommissioned by 2007. In 2001, per discussions with NYSDEC, the bedrock groundwater recovery wells were reconfigured to extract groundwater from a shallower depth, focusing on the zones immediately at the top of bedrock and below the top of bedrock (Zone 1). Additional deeper bedrock Zones 2, 3, 4, and 5 were found to be less impacted and suitable for monitored natural attenuation (MNA). This reconfiguration reduced the volume of bedrock groundwater extracted, reduced flow through the GRS, and focused capture of groundwater in the source area(s) and allowed deeper, less contaminated zones to be monitored for natural attenuation.

Sumps contained within three vaults in the Metaullics facility were connected to the GRS in 2012. The vault water collection and conveyance (VWCC) system was brought online on June 12, 2012.

Figure 2 shows the location of Site purge wells (P- and PW-series wells) and monitoring wells (B-series wells). Attachment 1 presents the location of the purge wells and the three vaults in the Metaullics facility.

Quarterly groundwater sampling began in 1988. In October 2005, NYSDEC agreed to revise the groundwater sampling program and reduce the number of groundwater samples collected on an annual basis. In February 2016, NYSDEC requested that an updated groundwater monitoring program be developed. In October 2016, an updated groundwater monitoring program including transition to a semi-annual program was presented to NYSDEC. The proposed program was conditionally approved in November 2016 and was initiated in December 2016.

Site Geology/Hydrogeology

Overburden

The native soils underlying the Site generally consist of unconsolidated glacial lake sediment and till, including interbedded silts and clays with discontinuous sporadic fine sand lenses (shallow overburden). A thin coarse-grained layer is located above the bedrock (deep overburden). Based

on information presented in the Remedial Investigation, the average thickness of the overburden is approximately 21 feet bgs; ranging from seven feet in the northern portion of the site to 26 feet in the southern portion.

Overburden groundwater is first encountered as a discontinuous perched zone approximately three to five feet below grade. A more continuous water-bearing zone is encountered at the overburden bedrock interface (known as the "top of rock" zone). The natural flow of groundwater at the bedrock interface is to the south-southeast.

Chlorinated organics in deep overburden soils may be introduced to the bedrock aquifer from fluctuations of bedrock groundwater which periodically penetrate the soil on a seasonal basis. South and southwest of the Site, groundwater is restricted to the bedrock throughout the year. While the overburden on Site is occasionally affected by higher levels of bedrock groundwater, its hydraulic conductivity is so low that it does not transmit significant amounts of groundwater laterally and is classified as an aquitard. The zone at the overburden-bedrock interface is considered "top of rock" and is considered bedrock groundwater.

Bedrock

Overburden at the site is underlain by the Lockport Dolomite. The Lockport Group has been described as a massive- to medium-bedded, argillaceous dolomite with minor amounts of dolomite and shale. The upper 10 to 25 feet of this unit can be heavily weathered and often contains abundant bedding planes and vertical fractures enlarged by dissolution and glacial scour.

As noted above, a number of laterally definable fracture zones have been identified at the Site, including top of rock (at the overburden interface), and zones 1, 2, 3, 4, and 5. The top of rock zone and zone 1 are the bedrock groundwater recovery zones on which the GRS is focused. The deeper bedrock zones 2, 3, 4, and 5 show limited VOC impact. Bedrock groundwater flow is primarily to the south, with a southwesterly component toward a rock quarry located west-southwest of the Site

Attachment 2 presents top of rock and zone 1 groundwater elevation contour figures developed using data collected December 18, 2017, figures presenting VOC concentrations in the top of rock zone and zone 1 for Spring 2017 and Fall 2017, and time-series plots for PW-3, B-8M, and B-18M (located within the PW-3 pilot study area).

II. Fall 2017 MIP/HPT Study

A MIP/HPT study was completed to provide additional data to support evaluation of enhancement of groundwater control and treatment. A letter work plan was submitted to NYSDEC on August 31, 2017 and was approved by NYSDEC on September 18, 2017.

The MIP/HPT study was performed during the week of September 18, 2017 in accordance with the approved work plan. The study focused on the area of PW-3 and PW-1. A total of 13 investigation points were completed in the area of PW-1 and 17 investigation points were completed in the area of PW-3. Attachment 3 contains the MIP/HPT logs for the PW-1 and PW-3 areas; logs with an 'A' suffix were performed in the PW-3 area. The MIP/HPT logs present direct-reading, continuous screening using the following sensors[1]:

[1] Note that the MIP/HPT logs presented in Attachment 3 contain a log labeled "NA"; this channel was an "open" or unused channel on the MIP sensor and therefore the profile presented in that channel is "noise" and not a subsurface reading. This channel can be ignored when reviewing the logs.

- PID – Photoionization Detector (detects general VOCs);
- FID – Flame Ionization Detector (detects general VOCs; greater ionization potential than PID);
- XSD – Halogen Specific Detector (detects chlorinated VOCs);
- EC – Electrical Conductivity Detector – Conductivity of soils to help determine soil composition (cohesive materials show higher response; granular materials show lesser response); and,
- HPT – Flow and pressure measurements are produced to estimated hydraulic conductivity values and to help confirm soil composition.

Investigation points for the PW-3 area are shown on Figure 3[2]. Table 1 presents a summary of MIP/HPT boring details for the PW-3 area.

The MIP/HPT study confirmed prior site investigation summaries indicating the shallow overburden up to approximately five feet below grade is not impacted by bedrock groundwater-related VOCs. The MIP logs show VOC impacts related to bedrock groundwater increases with depth and peaks at the overburden-top of rock interface. The HPT logs show limited hydraulic conductivity in the glacial overburden soils with a sharp increase in hydraulic conductivity at the overburden-bedrock interface.

The increase in VOC impacts near top of rock and the increased hydraulic conductivity at the top of rock are conditions considered favorable for implementation of an injection-related technology to reduce VOC concentrations and enhance control of VOCs in the bedrock zones of interest.

MIP/HPT cross-sections are presented in Attachment 4. The cross-sections present XSD response (halogenated organics) on a log scale; a greater response indicates potential for greater presence of halogenated organics. The cross-sections show lesser response west of PW-3, along the east-west line north of PW-3, and along the east-west line north of the east-west oriented driveway. A greater response is seen east of PW-3 extending to the north-south oriented driveway. This is the basis for the location of the pilot study area.

III. SCOPE OF WORK

A pilot study is proposed in the area of PW-3 to evaluate the performance of an injectate (sodium permanganate) to enhance control of VOC-impacted groundwater. The pilot study area comprises an approximately 6,000 square foot area east of PW-3 and north of the Metaullics manufacturing building. The pilot study area is shown on Figure 4.

Objectives

The injection pilot study will be performed to determine the effectiveness of VOC mass reduction within the treatment zone. The objectives of the pilot study include the following:

- Evaluate the reduction of VOC concentrations following pilot study injections;
- Assess the distribution and persistence of VOCs post-injections; and,

[2] The focus of this Work Plan is PW-3 area. Discussion of PW-1 area MIP/HPT points will be presented in a future work plan for pilot study in that area, if determined feasible following the PW-3 area pilot study. The logs are provided here for information, only.

- Evaluate the longer-term response of Site geochemistry post-injections

Approach

Injectate will be delivered to the subsurface using a series of direct-push technology (DPT) injection points. The injection points will be spaced approximately 15 feet center-to-center and advanced to the top of bedrock. It is anticipated that a total of 24 injection points will be advanced in the pilot study area. Assuming a treatment area of approximately 6,000 square feet and a target thickness of two feet of weathered top of bedrock zone, approximately 15, 000 pounds of sodium permanganate will be injected into the pilot study area. The injectate will be mixed at approximately 15 percent weight percent solution, resulting in 10,800 gallons of blended injectate solution. Each injection point will initially be planned to receive approximately 450 gallons of injectate solution, targeting the top of rock interface and up to 2 feet above the top of rock (i.e., if top of rock is 10 feet below grade, injection interval will be 8 to 10 feet below grade). Figure 4 shows the location of the planned injection points.

Injectate Background

Chemical oxidation technology is based on the oxidative power of specific chemicals. Through the process of oxidation, groundwater contaminants are ultimately broken down into carbon dioxide and water. In-situ oxidation is currently recognized by the U.S. Environmental Protection Agency (EPA) as “a viable remediation technology for mass reduction in source areas as well as for plume treatment” (Remediation Technologies Screening Matrix and Reference Guide, Version 4.0. U.S. Environmental Protection Agency, Federal Remediation Technologies Roundtable).

Two common forms of in situ oxidation agents are potassium permanganate ($KMnO_4$) and sodium permanganate ($NaMnO_4$). $NaMnO_4$ can be supplied as a concentrated liquid (up to 40%) but is usually diluted on site and applied at lower concentrations. The potential for higher concentrations of sodium permanganate solutions gives more flexibility in the design of the injection volume and, because it is in liquid form, the dusting hazards associated with dry $KMnO_4$ solids are eliminated. Oxidation of sorbed and non-aqueous phase liquid chlorinated ethenes has been demonstrated with permanganate at various sites. These oxidation reactions occur in the dissolved aqueous phase after the contaminants desorb from the media and/or dissolve from the free phase. It can be used over a wide range of pH values and does not require a catalyst.

For the degradation of chlorinated organic compounds, the oxidation involves direct electron transfer rather than free radical processes that characterize oxidation by persulfate, hydrogen peroxide, or ozone. As an illustration, the stoichiometric reactions of $KMnO_4$ with the various species of chlorinated ethenes are summarized below (Interstate Technology Regulatory Council, *Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater* [2005]):

Perchloroethene (PCE)

$$4KMnO_4 + 3C_2Cl_4 + 4H_2O \rightarrow 6CO_2 + 4MnO_2(s) + 4K^+ + 12Cl^- + 8H^+$$

Trichloroethene (TCE)

$$2KMnO_4 + C_2HCl_3 \rightarrow 2CO_2 + 2MnO_2(s) + 3Cl^- + H^+ + 2K^+$$

Dichloroethene (DCE)

$$8KMnO_4 + 3C_2H_2Cl_2 + 2H^+ \rightarrow 6CO_2 + 8MnO_2(s) + 8K^+ + 6Cl^- + 4H_2O$$

Vinyl chloride (VC)

$$10KMnO_4 + 3C_2H_3Cl \rightarrow 6CO_2 + 10MnO_2(s) + 10K^+ + 3Cl^- + 7OH^- + H_2O$$

Permanganate tends to remain in the subsurface for a long time, allowing for more contaminant contact and the potential of reducing rebound.

IV. Pilot Study Injection Plan

Health and Safety

The approved Site-specific health and safety plan (HASP) will be updated to include task-specific health and safety concerns associated with subsurface drilling and injections. The Site-specific HASP will be updated and reviewed by the project team prior to initiating work described in this work plan. The update will include addition of the Material Safety Data Sheet (MSDS) for the injectate (sodium permanganate) acquired; a typical MSDS is provided in Attachment 5.

Pre-Mobilization

A United States Environmental Protection Agency (EPA) Region 2 Underground Injection Control (UIC) Permit is not required for Class V Remediation Wells; however, notification for inventory is required. Attachment 6 presents a sample EPA Region 2 UIC Notification Form (accessed at https://www.epa.gov/uic/underground-injection-control-reporting-forms-owners-or-operators). The notification form will be completed and submitted EPA Region 2 prior to implementing the pilot study; see https://www.epa.gov/uic/underground-injection-control-epa-region-2-nj-ny-pr-and-vi for submittal information). A copy of the completed form will be provided to NYSDEC prior to mobilizing to the Site.

Mobilization

Prior to beginning any intrusive activities, the drilling subcontractor will contact the Underground Facilities Protection Organization (UFPO) to markout utilities in proposed investigation areas. The intended drilling locations will be marked with spray paint or flagging and an independent utility mark out subcontractor will be called out to locate utilities in drilling areas not covered by the UFPO. In addition, Pyrotek Inc. will be contacted to provide available utility information to assist in locating on-site underground utilities. If necessary based on utility locations, drilling locations will be moved to avoid potential utilities.

Geophysical surveys will be conducted to obtain information on subsurface conditions or features, including utilities or obstructions. It is anticipated that ground-penetrating radar (GPR) will be the method utilized in this investigation. GPR utilizes high frequency radio waves to acquire subsurface information. From a small antenna, which is moved slowly across the ground surface, energy is radiated downward into the subsurface. This energy is then reflected back to the receiving antenna, where variations in the return signal are continuously recorded. This produces a continuous cross-section of the shallow subsurface conditions. Radar responds well to the different electrical properties between rock units, soils, groundwater, and most importantly for this application, buried pipes, utilities, and foundations.

At the start of intrusive fieldwork, clearance of underground utilities will be performed using non-mechanical means. An air knife and vacuum or equivalent will be utilized to advance each boring from the ground surface to approximately five feet to prevent disruption of any potential underground utilities. Disturbed soils will be managed in accordance with the Soil Management Plan (Revised May 2016).

Injections

The proposed pilot study will consist of 24 injection locations performed at the locations shown on Figure 4. The locations have been determined based on review of historical data and the results of the MIP/HPT study.

Due to the proximity of the injection locations to PW-3, it is proposed that PW-3 be turned off during the performance of the injections and throughout the performance monitoring period. Hydraulic control will continue to be achieved by PW-1, PW-4, P-2, P-3, and P-4 during this period.

Injectate

The injectate selected for application at the Site is sodium permanganate. The product has proven effective addressing similar VOCs at similar concentrations as are present at this Site. The injectate solution will be prepared on site as described below.

Injection Procedures

The injectate solution will be applied to the subsurface via DPT injection, targeting the bottom two feet of overburden and top of rock interface. An appropriately sized DPT rig will be used to advance temporary injection points. Injection of the solution will be performed at a 2-foot increment starting from the bottom of the borehole and working upwards, using 1.5-inch diameter drill rods. Injectate solution will be applied to the subsurface at a target volume of approximately 450 gallons per injection point however this volume may be adjusted based on conditions encountered during field activities. Injection flow rates for this type of injection typically range from 2 to 10 gallons per minute at injection pressures ranging from 20 to 60 psi. Injections will be conducted at the lowest pressure practical which yields an acceptable flow rate. If the injectate delivery to the desired depth interval is not successful, the injectate volume not delivered to that interval will be added to an adjacent boring. Table 3 presents a summary of the planned injection points.

After the injection is completed, the injection point (borehole) will be filled with bentonite chips and hydrated in order to minimize the potential for short circuiting of injection fluids from adjacent injection points.

The following data, associated with delivery hydraulics, will be collected during the injection process.

- Injection location;
- Injection interval;
- Injection solution flow rate;
- Injection pressure;
- Temperature, pH, and specific conductance of the injection solution; and,
- Cumulative volume of injection solution delivered to the injection point.

Attachment 7 contains an example injection log sheet that will be used to record data during injection activities.

A critical component of the pilot study will be groundwater monitoring to monitor performance. The performance monitoring program will include laboratory analysis and field measurement of selected parameters during performance monitoring events. The groundwater monitoring program established for the field test consists of three components:

- Baseline groundwater monitoring;
- Injection monitoring; and,
- Post-injection monitoring (process and performance).

Each component of the monitoring program is described in further detail below. Table 3 summarizes the monitoring program for the pilot study.

V. Groundwater Monitoring

Baseline Groundwater Monitoring

Baseline groundwater monitoring will be conducted prior to the initiation of injection activities. Results obtained during this sampling will serve as the basis for evaluating the overall efficacy of the pilot study. Baseline samples will be collected from well locations B-8M and PW-3 in the top of rock and zone 1 intervals, and B-18M in the zone 3 interval due to its location within the pilot study area.

Two new temporary observation wells screened in the top of rock are proposed (PS-1 and PS-2) to monitor conditions outside and down gradient of the pilot study area (see Figure 4). The observation well borings will be advanced to the top of rock using the DPT rig and a temporary observation well constructed of 2-inch inside diameter PVC will be installed. A two-foot long, 0.010-inch slotted screen will be installed at the top of rock. The annular space from top of rock to approximately five feet below grade will be backfilled with a No. 0 sand pack. A one-foot thick layer of bentonite chips will be placed on top of the sand pack and the remainder of the annular space will be filled with bentonite slurry. A temporary flush mount cover will be installed to protect the casing. The temporary observation wells will be developed to less than 50 nephelometric turbidity units using a Waterra-style pump to remove particulates introduced during drilling. Purge water will be containerized for transport to the onsite groundwater treatment system.

Each baseline monitoring well will be sampled using low-flow ground water sampling procedures as described in the current monitoring and maintenance plan for the site. The proposed monitoring plan is specific to the objectives of the study and includes the following parameters:

- Static water level elevations;
- Field parameters including temperature, pH, specific conductance, oxidation-reduction potential (ORP), and dissolved oxygen (DO); and,
- Site-specific VOCs (EPA 8260B).

Microbiology (polymerase chain reaction (qPCR) for Dehalobacter spp., Dehalococcoides spp., and known dechlorination linked functional genes) is not proposed for this study as prior sampling has indicated low to very low populations.

Following collection, groundwater samples will be placed in laboratory supplied containers, packaged on ice, and shipped to the laboratories for analysis of the parameters specified above.

Injection Monitoring

Water levels will be measured periodically at PW-3, B-8M, PS-1, and PS-2. Water levels will be obtained using an electronic water level indicator. Vertically discrete down-hole water quality field parameters (temperature, pH, specific conductance, DO, and ORP) will be monitored during the injection event in B-8M, PW-3, PS-1, and PS-2.

Positive values of ORP and increases in DO concentrations reflect oxidizing conditions and generally coincide with the oxidant movement. Increases in groundwater temperature are often detected immediately after injection of oxidizing compounds. Slight increases in specific conductance may be observed following oxidant injections and may be useful tracking of oxidant dispersion.

A down-hole water quality meter (e.g., YSI Model 556 or equivalent) will be lowered into the well to the screened interval (i.e., approximately two feet above bottom of well) a minimum of four times per day (at the start of work, late morning, early afternoon, at the conclusion of work) to determine if injection solution may be influencing water quality criteria at that location. Readings will be recorded in the field notebook or on a dedicated log sheet for that well location.

Post-Injection Monitoring

Post-Injection monitoring will be conducted to evaluate the performance of the applied treatment with regards to shifts in conditions and response to injectate (i.e., contaminant reduction). Post-injection monitoring events will be conducted at intervals corresponding to approximately 30, 90, and 180 days after the completion of injections. During these monitoring events, B-8M, B-18M, PW-3, PS-1 and PS-2 will be sampled using low-flow groundwater sampling procedures. Post-Injection monitoring will include the following parameters:

- Static water level elevations;
- Field parameters including temperature, pH, specific conductance, ORP, and DO; and
- VOCs (EPA 8260B).

Following collection, groundwater samples will be placed in laboratory supplied containers, packaged on ice, and shipped to the laboratories for analysis of the parameters specified above.

VI. REPORTING

Data obtained during the pilot study will be utilized in real-time to evaluate the performance monitoring program, and evaluate the need for follow-up injections, if appropriate. Monitoring data will be tabulated, reviewed, and interpreted to evaluate the effectiveness of the pilot study injections in terms of distribution, trending of aquifer geochemical conditions (i.e., field parameter data), and contaminant reduction. If necessary, adjustments will be made to the monitoring program based on the results of the previous sampling round.

The results of the pilot study will be used to further refine the site conceptual model and if successful develop a plan to evaluate additional pilot studies in the areas of PW-1 and PW-4. The Pilot Study Report will contain, at a minimum, the following information;

- Statement of the pilot study objective and purpose,
- Summary of the pilot study field activities including any deviations from the approved work plan,
- Summary and interpretation of the pilot study results, and
- Subsequent recommendations whether or not to move forward with additional studies.

The report appendices will include relevant boring logs, injection logs, sample collection logs or field notes, and analytical data reports.

VII. SCHEDULE

Following approval of this work plan, the injection pilot study will be performed. AECOM is tentatively scheduled to begin this work in early spring 2018. It is anticipated that the geophysical survey will require one day to complete; mobilization of materials and equipment will be completed immediately prior to implementation of the pilot study; and, the pilot study field program will require 7 to 10 working days to complete. NYSDEC will be notified at least two weeks in advance of any planned field activities.

If you have any questions regarding this submission, please do not hesitate to contact me at (716) 923-1300 or via email at james.kaczor@aecom.com.

Sincerely yours,

James L. Kaczor, PG
Sanborn Site Task Manager
James.kaczor@aecom.com

cc: Glenn May, NYSDEC

Tables

Table 1

MIP/HPT Summary
Former Carborundum Facility
2040 Cory Drive, Sanborn, NY
NYSDEC Site No. 932102

Boring ID	Date Completed	Time Started	Time Finished	Depth to Refusal (ft)	Notes
B-1A	9/19/2017	3:30 PM	4:00 PM	9.5	
B-2A	9/21/2017	9:30 AM	9:39 AM	9	
B-3A	9/21/2017	10:15 AM	10:30 AM	11	
B-4A	9/21/2017	11:05 AM	11:19 AM	11	
B -5A	9/19/2017	2:10 PM	2:45 PM	9.5	
B-6A	9/20/2017	8:51 AM	9:10 AM	9.5	
B-7A	9/20/2017	10:47 AM	11:17 AM	9	
B-8A2	9/21/2017	2:30 PM	2:42 PM	10	
B-9A	9/19/2017	1:00 PM	1:30 PM	9.7	Elevated response
B-10 A	9/20/2017	8:10 AM	8:28 AM	8.75	Elevated response
B-11A	9/20/2017	9:22 AM	10:12 AM	11	
B-12A	9/21/2017	3:30 PM	3:40 PM	10.5	
B-13A	9/22/2017	9:15 AM	9:30 AM	11	
B-14A	9/22/2017	8:20 AM	8:38 AM	13	
B-15A	9/22/2017	7:30 AM	7:50 AM	10	
B-16A	9/21/2017	4:45 PM	4:59 PM	11	
B-17A	9/22/2017	12:30 PM	12:43 PM	12.6	Elevated response; PID spike

Table 2

PW-3 Injection Pilot Study Proposed Injection Summary
Former Carborundum Facility
2040 Cory Drive, Sanborn, NY
NYSDEC Site No. 932102

Injection Identification		Target Injection Depth (Feet)	Target Injection Volume (Gallons)	Target Injection Pressure (psi)	Injectate Concentration (wt%)
1	E2	11	450	20 - 60	15
2	E3	11	450	20 - 60	15
3	D2	12	450	20 - 60	15
4	D3	11	450	20 - 60	15
5	D4	11	450	20 - 60	15
6	D5	12	450	20 - 60	15
7	D6	11	450	20 - 60	15
8	D7	11	450	20 - 60	15
9	D8	11	450	20 - 60	15
10	D9	11	450	20 - 60	15
11	C2	12	450	20 - 60	15
12	C3	11	450	20 - 60	15
13	C4	11	450	20 - 60	15
14	C5	12	450	20 - 60	15
15	C6	13	450	20 - 60	15
16	C7	13	450	20 - 60	15
17	C8	12	450	20 - 60	15
18	C9	11	450	20 - 60	15
19	B3	11	450	20 - 60	15
20	B4	12	450	20 - 60	15
21	B5	13	450	20 - 60	15
22	B6	13	450	20 - 60	15
23	B7	13	450	20 - 60	15
24	B8	13	450	20 - 60	15

Table 3

PW-3 Injection Pilot Study Monitoring Program
Former Carborundum Facility
2040 Cory Drive, Sanborn, NY
NYSDEC Site No. 932102

Location	Matrix	Field Paramaters [1]	Analytical Testing VOCs [3]	No. of Locations	No. of Events
Baseline Monitoring					
Observation Wells: PS-1 and PS-2	Water	1[1]	1	2	1
Monitor Wells: B-8M and PW-3	Water	1[1]	1	2	1
Injection Monitoring					
Observation Wells: PS-1 and PS-2	Water	1[2]	--	2	Daily during injections
Monitor Wells: B-8M and PW-3	Water	1[2]	--	2	Daily during injections
Post-Injection Performance Monitoring					
Observation Wells: PS-1 and PS-2	Water	1[1]	1	2	3
Monitor Wells: B-8M, B-18M, and PW-3	Water	1[1]	1	3	3
Total Number of Analyses for Pilot Study		**NA**	**19**	**NA**	**NA**

NA - Not Applicable

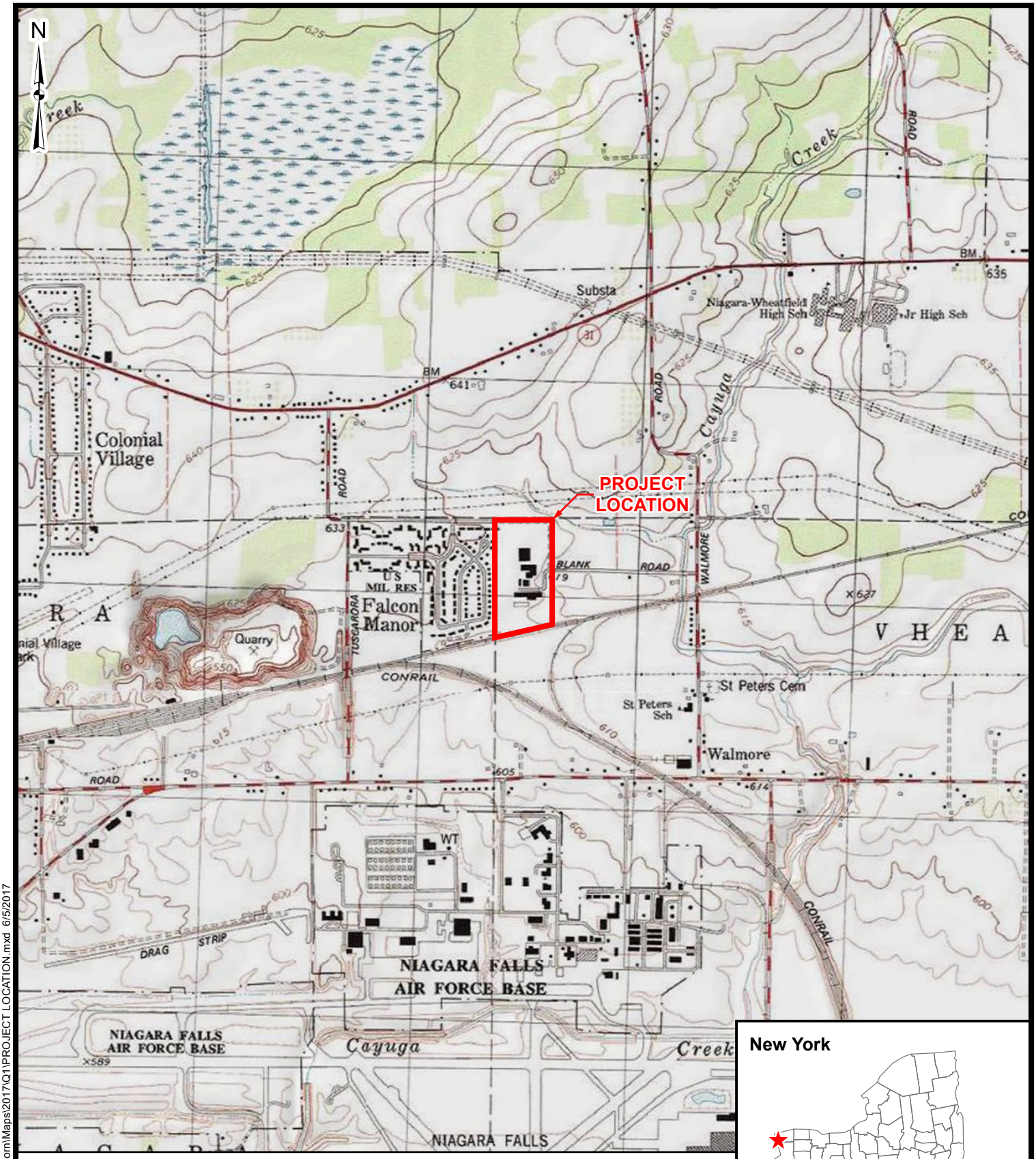
Notes:

(1) Temperature, pH, specific conductivity, ORP, DO, water level

(2) Temperature, specific conductivity, ORP, DO, water level

(3) Site-Specific VOCs - Method 8260B

Figures



Source: USA Topo Maps, ESRI Map Service;
1:24,000-scale USGS Topographic Map,
Ransomville, 1996
Tonawanda West, 1996

2,000 0 2,000 Feet

AECOM

FORMER CARBORUNDUM FACILITY
SANBORN, NEW YORK
PROJECT LOCATION PLAN

FIGURE 1

J:\Projects\60481767_BPIP\MISC\GIS\Sanborn\Maps\2017\Q1\PROJECT LOCATION.mxd 6/5/2017

Legend

- Monitoring Well
- Monitoring Well (Abandoned)
- Recovery Well
- Recovery Well (Abandoned)

Source: ESRI World Imagery

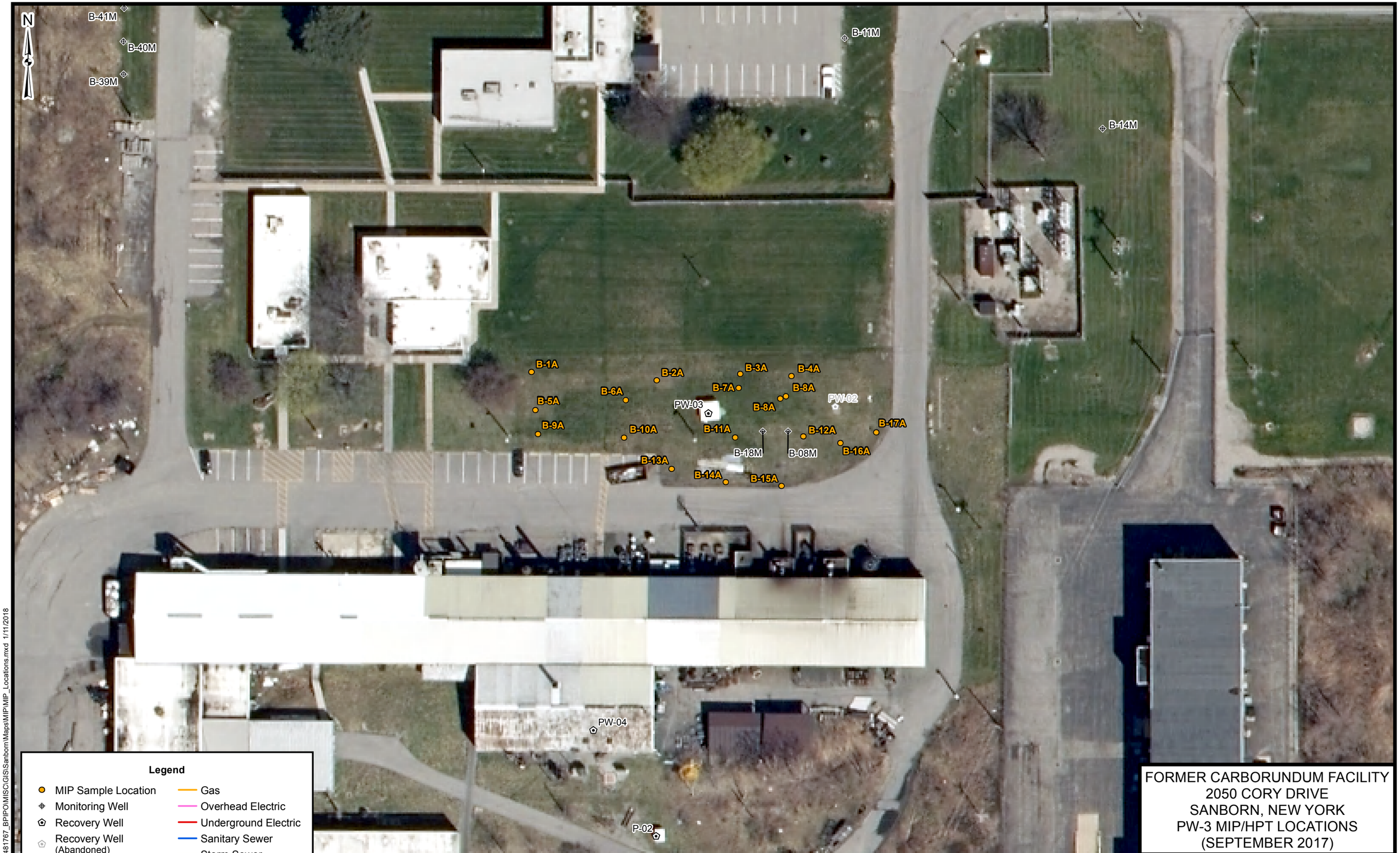
500 0 500 Feet

FORMER CARBORUNDUM FACILITY
SANBORN, NEW YORK
SITE PLAN

AECOM

FIGURE 2

J:\Projects\60481767_BPIPO\MtSC\GIS\Sanborn\Maps\2017\Q1\SITE PLAN.mxd 6/5/2017



J:\Projects\60481767_BPIPO\MISC\GIS\Sanborn\Maps\MIP\MIP_Locations.mxd 1/11/2018

FORMER CARBORUNDUM FACILITY
2050 CORY DRIVE
SANBORN, NEW YORK
PW-3 MIP/HPT LOCATIONS
(SEPTEMBER 2017)

AECOM

FIGURE 3

N

F
E
D
C
B
A

1 2 3 4 5 6 7 8 9 10

B-2A
B-3A
B-4A
B-7A
B-6A
B-8A
B-8A
PW-02
PW-03
B-18M
B-08M
B-10A
B-11A
B-12A
B-17A
B-16A
B-13A
B-14A
B-15A
PS-02
PS-01

Legend

- MIP Sample Location
- Monitoring Well
- Recovery Well
- Recovery Well (Abandoned)
- Proposed Injection Location
- Proposed Temporary Well
- Gas
- Overhead Electric
- Underground Electric
- Sanitary Sewer
- Storm Sewer
- Water Line

Source: ESRI World Imagery

20 0 20 Feet

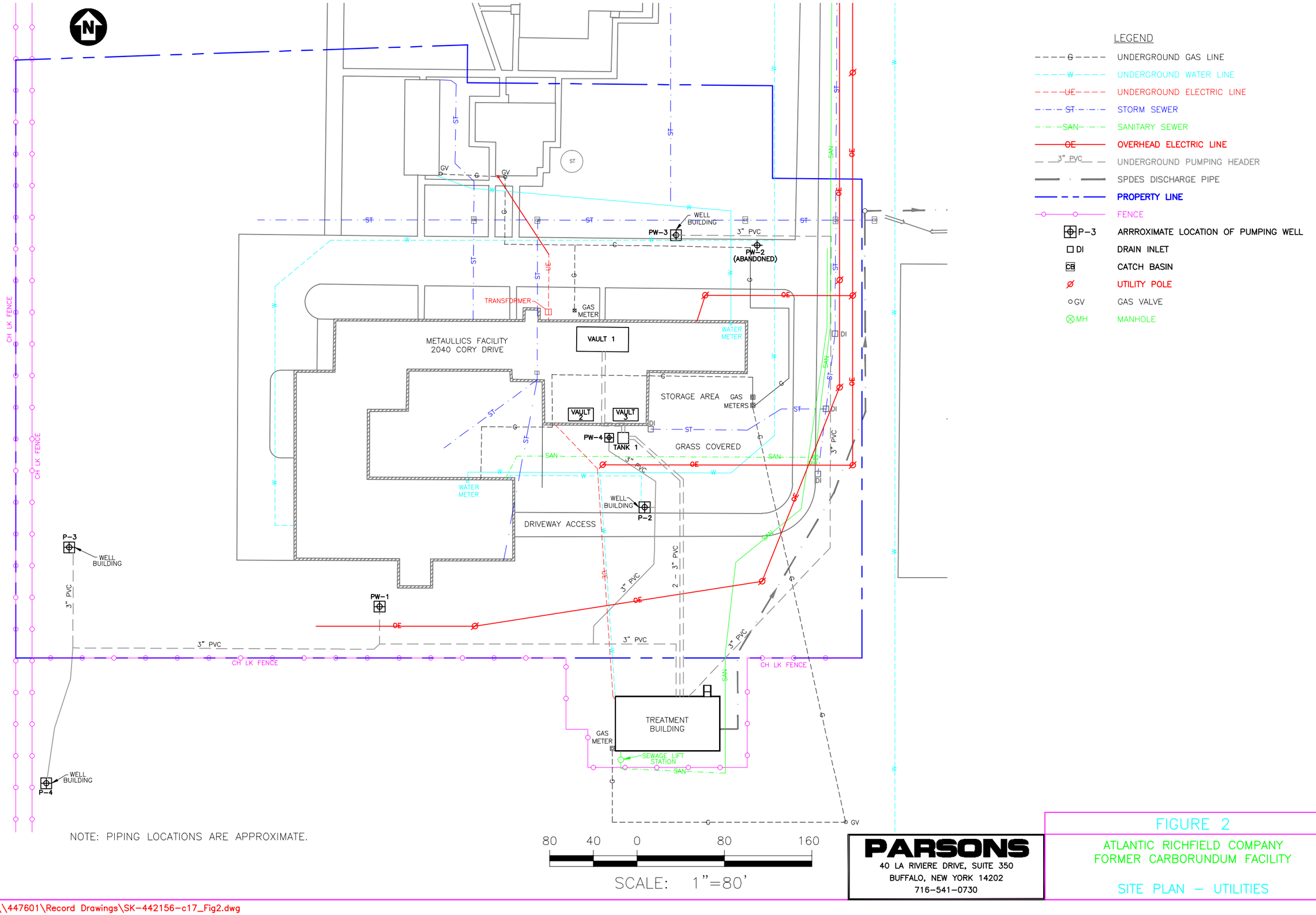
FORMER CARBORUNDUM FACILITY
2050 CORY DRIVE
SANBORN, NEW YORK
PW-3 PILOT STUDY INJECTION POINTS

AECOM

FIGURE 4

J:\Projects\60481767_BP\PO\MISC\GIS\Sanborn\Maps\MIP\MIP_Sample_Grid.mxd 1/11/2018

Attachment 1



PARSONS
40 LA RIVIERE DRIVE, SUITE 350
BUFFALO, NEW YORK 14202
716-541-0730

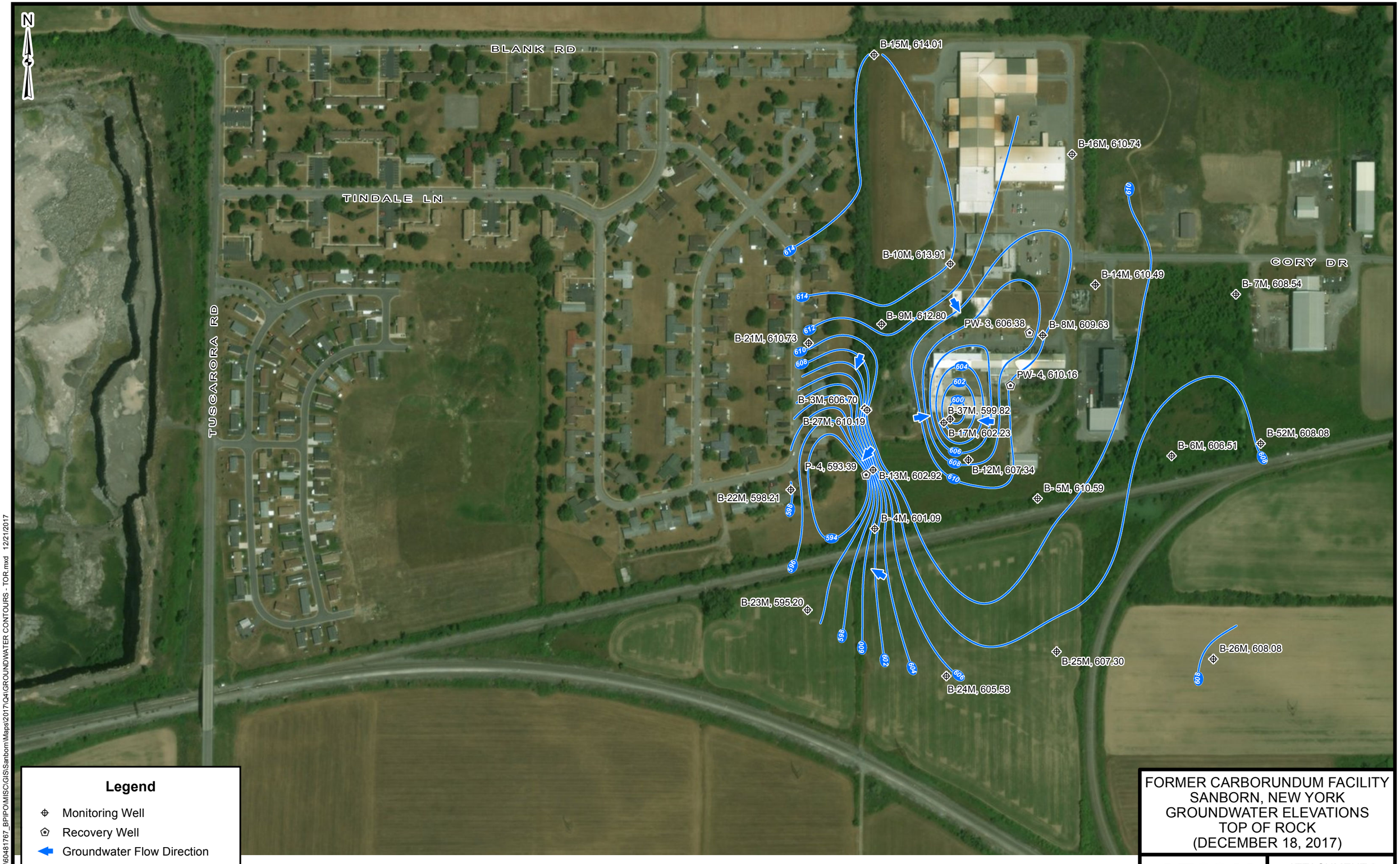
FIGURE 2

ATLANTIC RICHFIELD COMPANY
FORMER CARBORUNDUM FACILITY

SITE PLAN – UTILITIES

P:\Sanborn\\447601\Record Drawings\SK-442156-c17_Fig2.dwg
No XREFs

Attachment 2


N
BLANK RD
TINDALE LN
TUSCARORA RD
CORY DR
B-15M, 614.01
B-16M, 610.74
B-10M, 613.91
B-14M, 610.49
B-7M, 608.54
B- 9M, 612.80
PW- 3, 606.38
B- 8M, 609.63
B-21M, 610.73
PW- 4, 610.16
B- 3M, 606.70
B-37M, 599.82
B-27M, 610.19
B-17M, 602.23
B-52M, 608.08
B- 6M, 606.51
P- 4, 593.39
B-13M, 602.92
B-12M, 607.34
B- 5M, 610.59
B-22M, 598.21
B- 4M, 601.09
B-23M, 595.20
B-26M, 608.08
B-25M, 607.30
B-24M, 605.58
614
612
610
608
604
602
600
606
608
610
598
594
596
598
600
602
604
606
610
608
Legend
Monitoring Well
Recovery Well
Groundwater Flow Direction
Groundwater Elevation Contour
Source: ESRI World Imagery
300
0
300 Feet
FORMER CARBORUNDUM FACILITY
SANBORN, NEW YORK
GROUNDWATER ELEVATIONS
TOP OF ROCK
(DECEMBER 18, 2017)
AECOM
ATTACHMENT 2
FIGURE 1
J:\Projects\60481767_BPIPO\MISC\GIS\Sanborn\Maps\2017\Q4\GROUNDWATER CONTOURS - TOR.mxd 12/21/2017

N

BLANK RD

TINDALE LN

TUSCARORA RD

CORY DR

B-15M, 614.01
B-67M, NM
B-63M, 611.25
B-16M, 610.74
B-10M, 613.91
B-11M, 608.90
B- 8M, 609.63
B-21M, 610.73
PW- 4, 610.16
P- 2, 596.93
B-27M, 610.19
P- 3, 599.59
PW- 1, 597.54
B-17M, 602.23
B-52M, 608.08
B- 6M, 606.51
P- 4, 593.39
B-13M, 602.92
B-28M, 599.15
B-22M, 598.21
B-23M, 595.20
B-29M, 591.64
B-26M, 608.08
B-24M, 605.58
B-38M, 582.06
B-32M, 587.68
B-33M, 591.60
B-45M, 592.41

610
605
600
595
590
585

Legend

- Monitoring Well
- Recovery Well
- Groundwater Flow Direction
- Groundwater Elevation Contour

Source: ESRI World Imagery

NM - Not Monitored

300 0 300 Feet

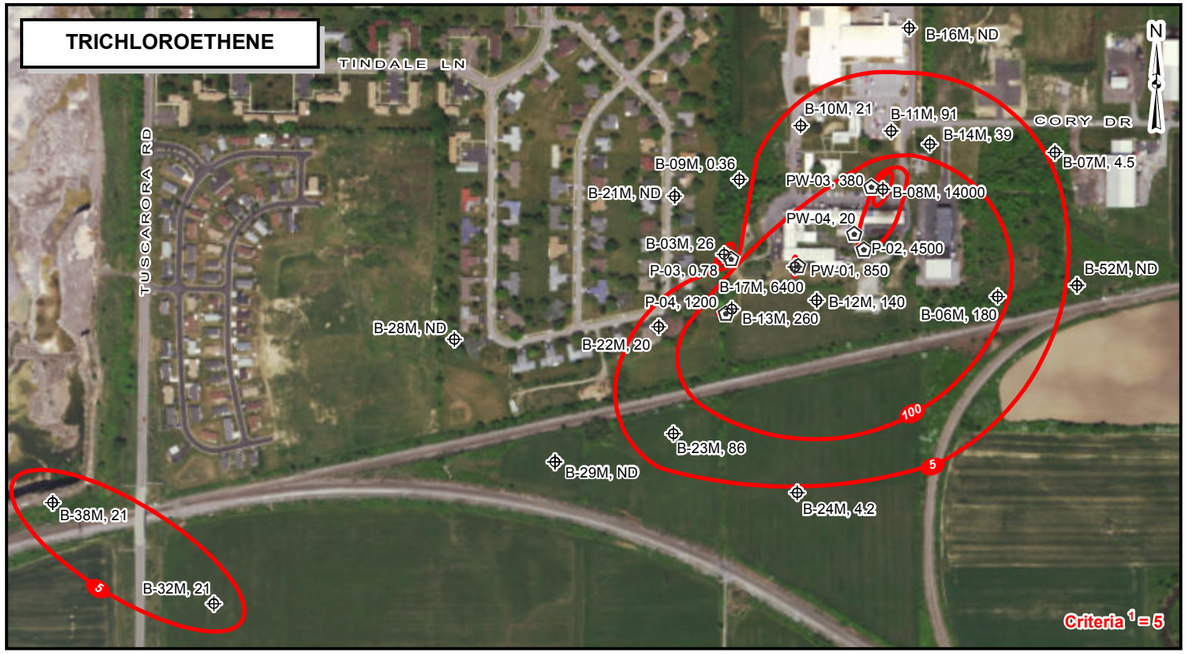
FORMER CARBORUNDUM FACILITY
SANBORN, NEW YORK
GROUNDWATER ELEVATIONS
ZONE 1
(DECEMBER 12, 2017)

AECOM

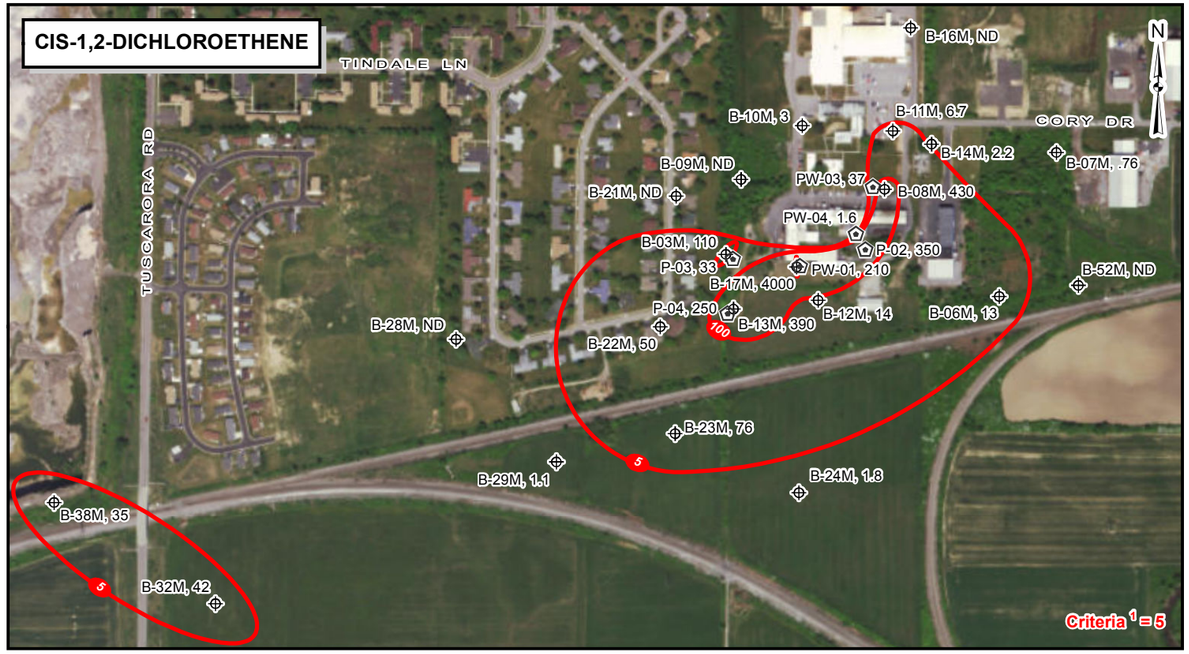
ATTACHMENT 2
FIGURE 2

J:\Projects\60481767_BPIPO\MISC\GIS\Sanborn\Maps\2017\Q4\GROUNDWATER CONTOURS - Z1.mxd 12/20/2017

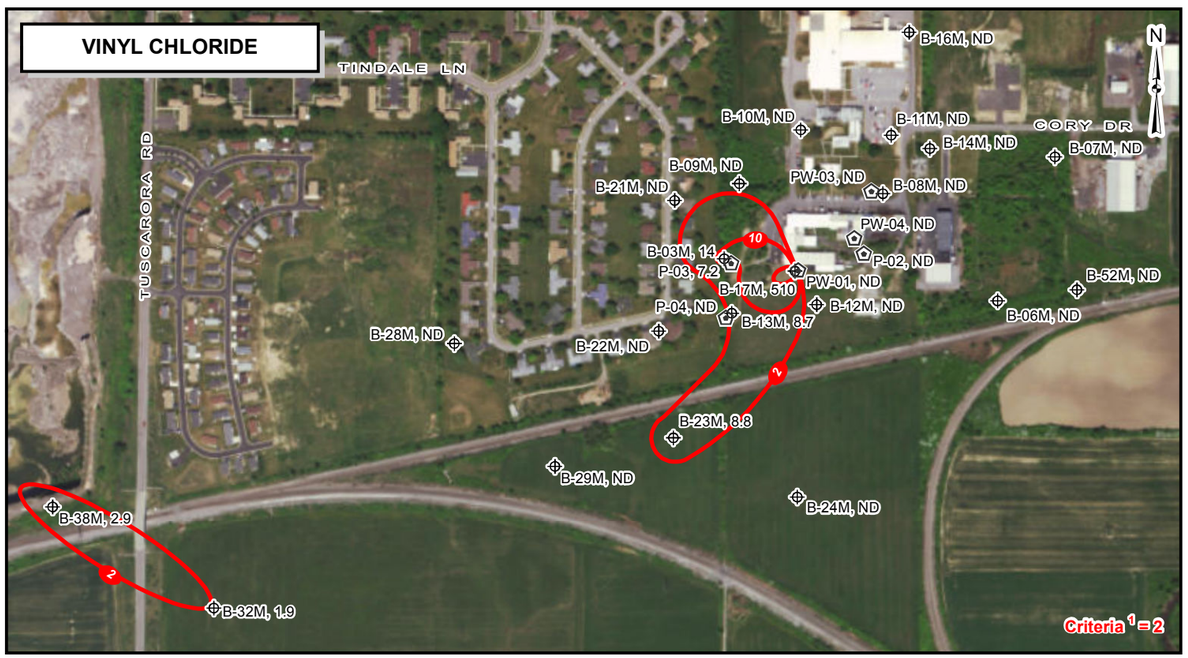
TRICHLOROETHENE



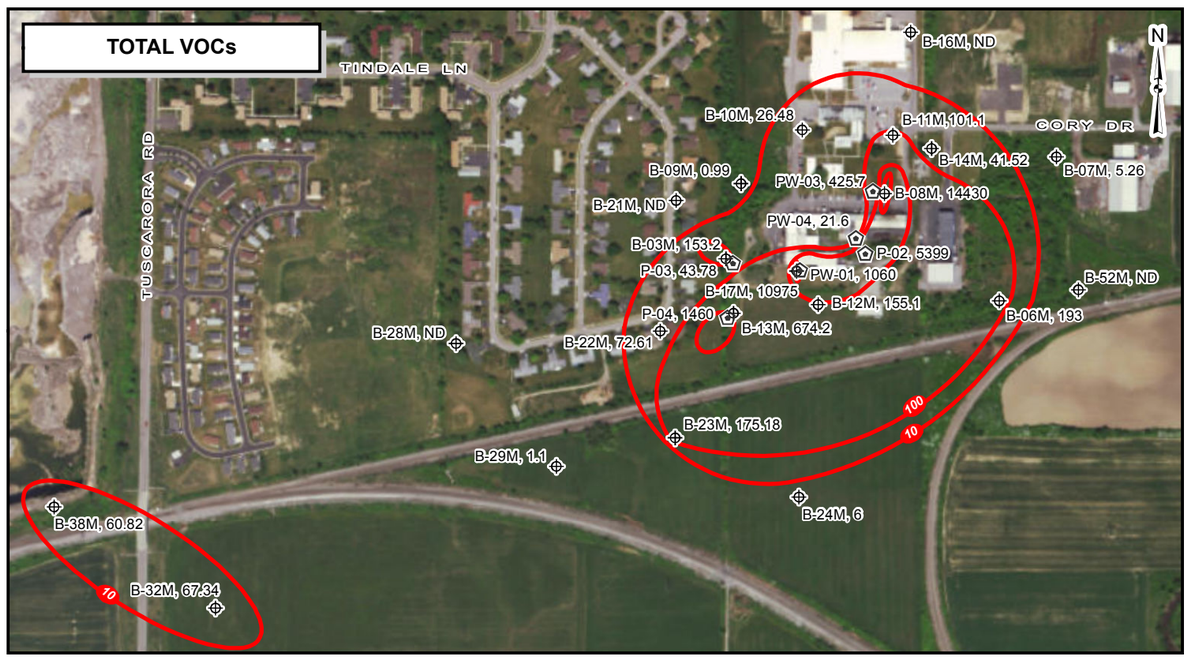
CIS-1,2-DICHLOROETHENE



VINYL CHLORIDE



TOTAL VOCs



Legend

- Monitoring Well
- Recovery Well
- Isoconcentration Contour

Notes:
1. Criteria = NYSDEC TOGS 1.1.1 Ambient Water Quality Standards, Class GA
2. Units are shown in µg/L
3. ND = Not Detected

Source:
ESRI World Imagery

600 0 600 Feet

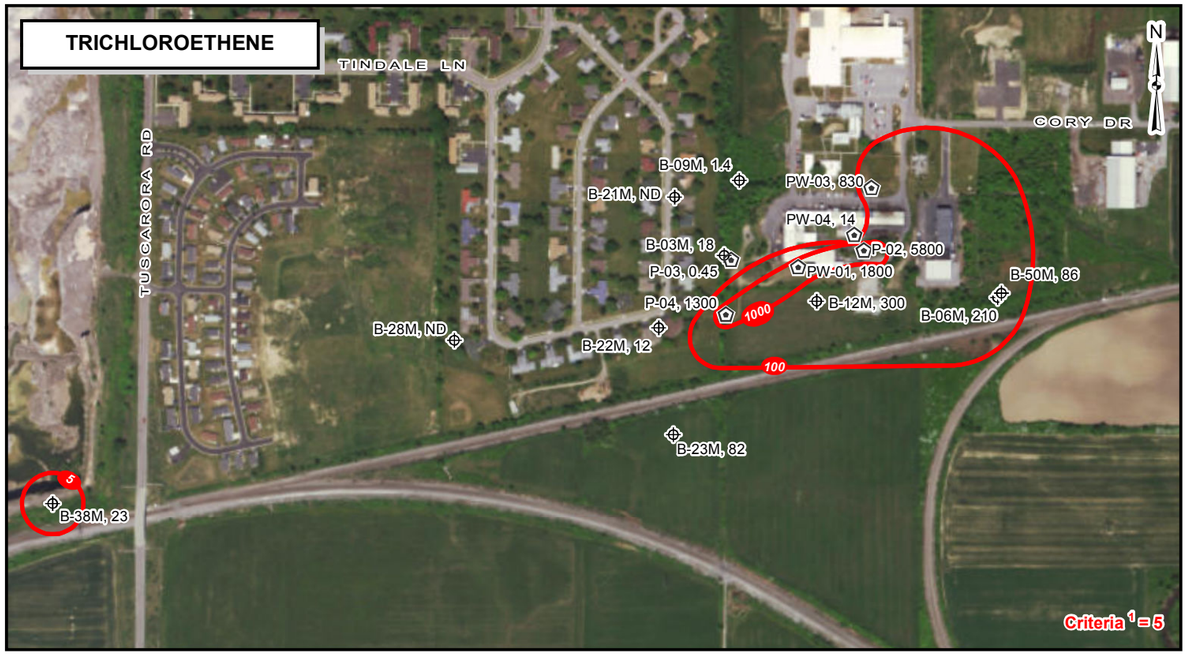
FORMER CARBORUNDUM FACILITY
SANBORN, NEW YORK
ISOCONTOURS IN TOP OF ROCK AND ZONE 1
(ANNUAL SAMPLING - SPRING 2017)

AECOM

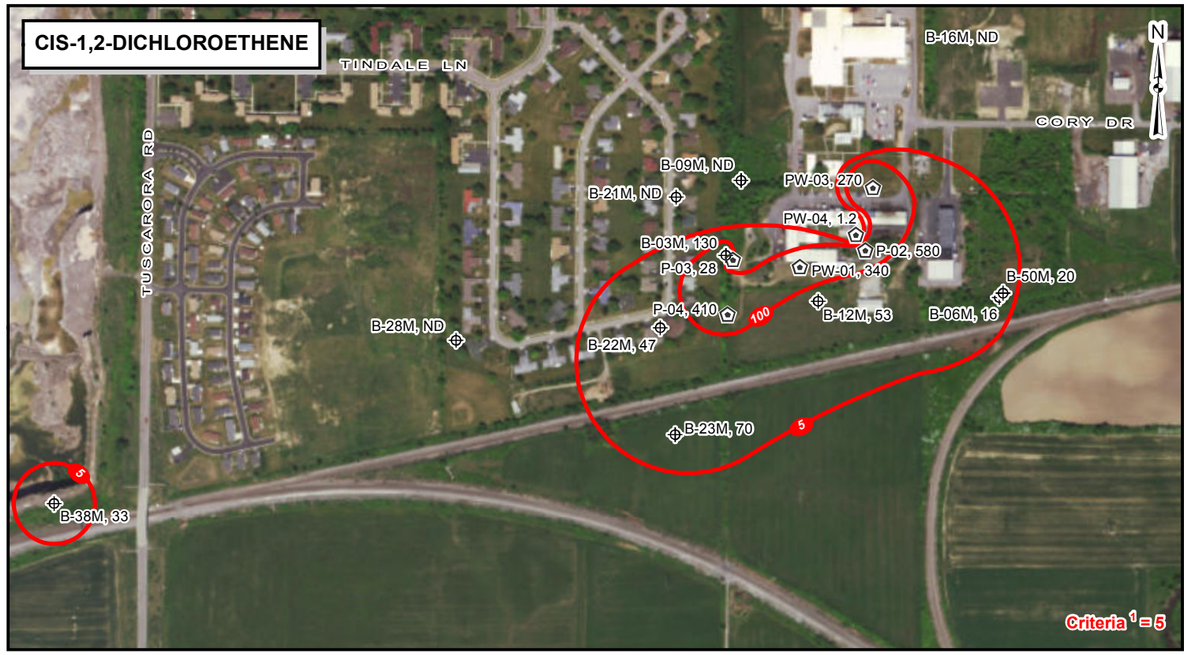
ATTACHMENT 2
FIGURE 3

J:\Projects\60481767_BPIPO\MISC\GIS\Sanborn\Maps\2017\Q1\ISOPLETHS - TOR & Z1.mxd 6/15/2017

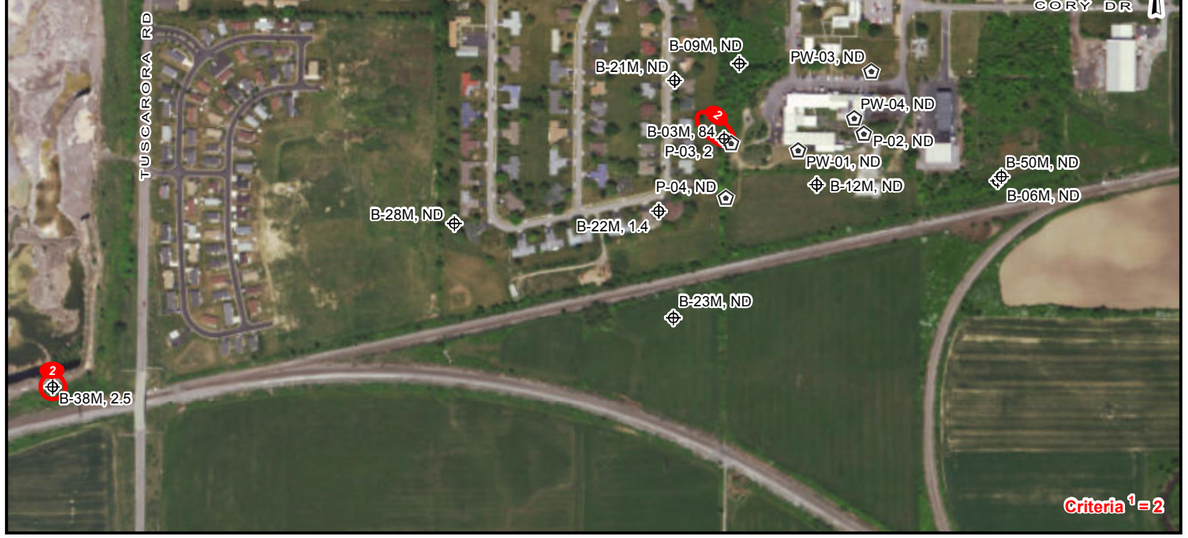
TRICHLOROETHENE



CIS-1,2-DICHLOROETHENE



VINYL CHLORIDE



TOTAL VOCs

Legend

- Monitoring Well
- Recovery Well
- Isoconcentration Contour

Notes:
1. Criteria = NYSDEC TOGS 1.1.1 Ambient Water Quality Standards, Class GA
2. Units are shown in µg/L
3. ND = Not Detected
4. B-50M is a Zone 2 Well

Source:
ESRI World Imagery

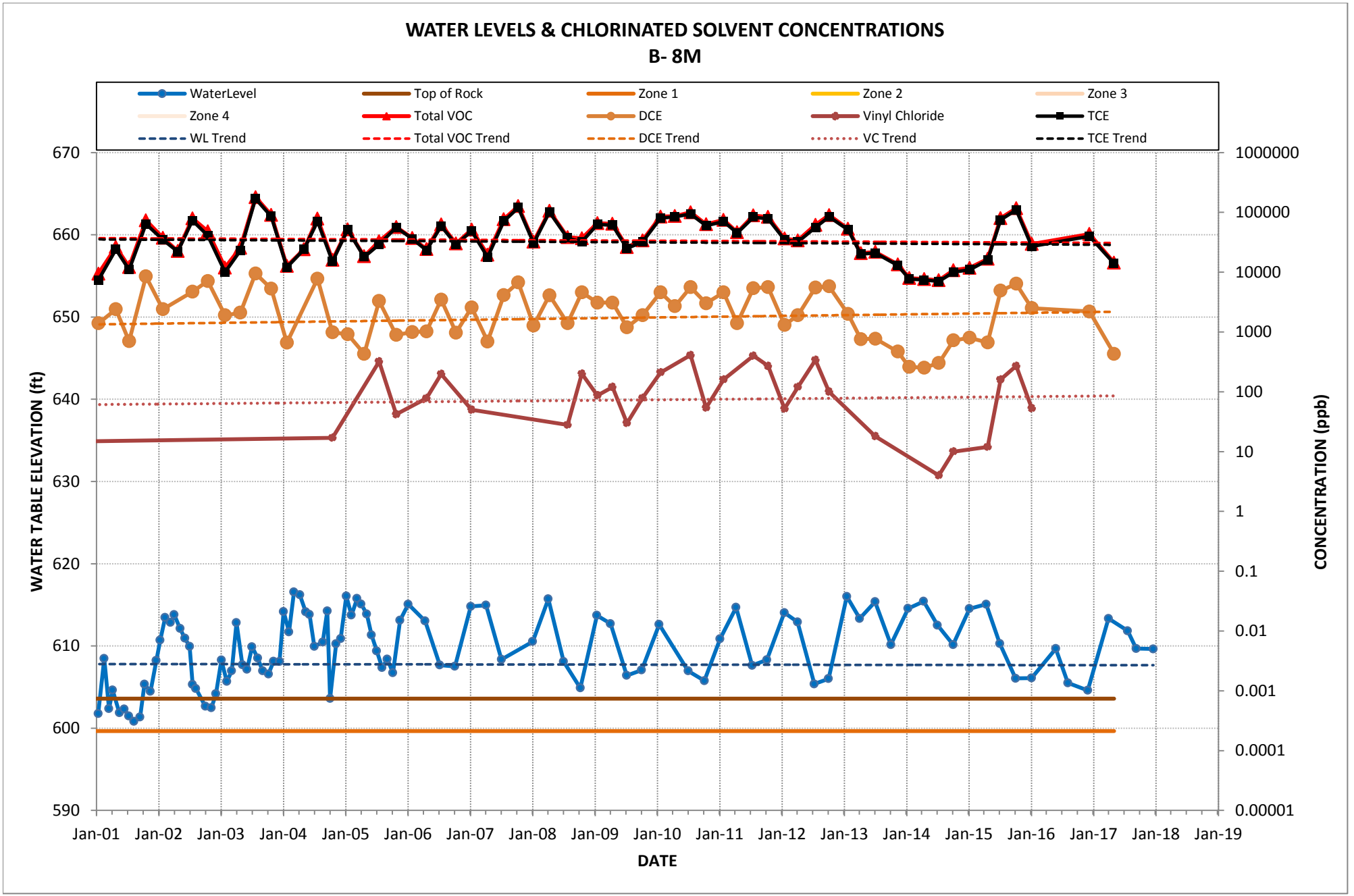
600 0 600 Feet

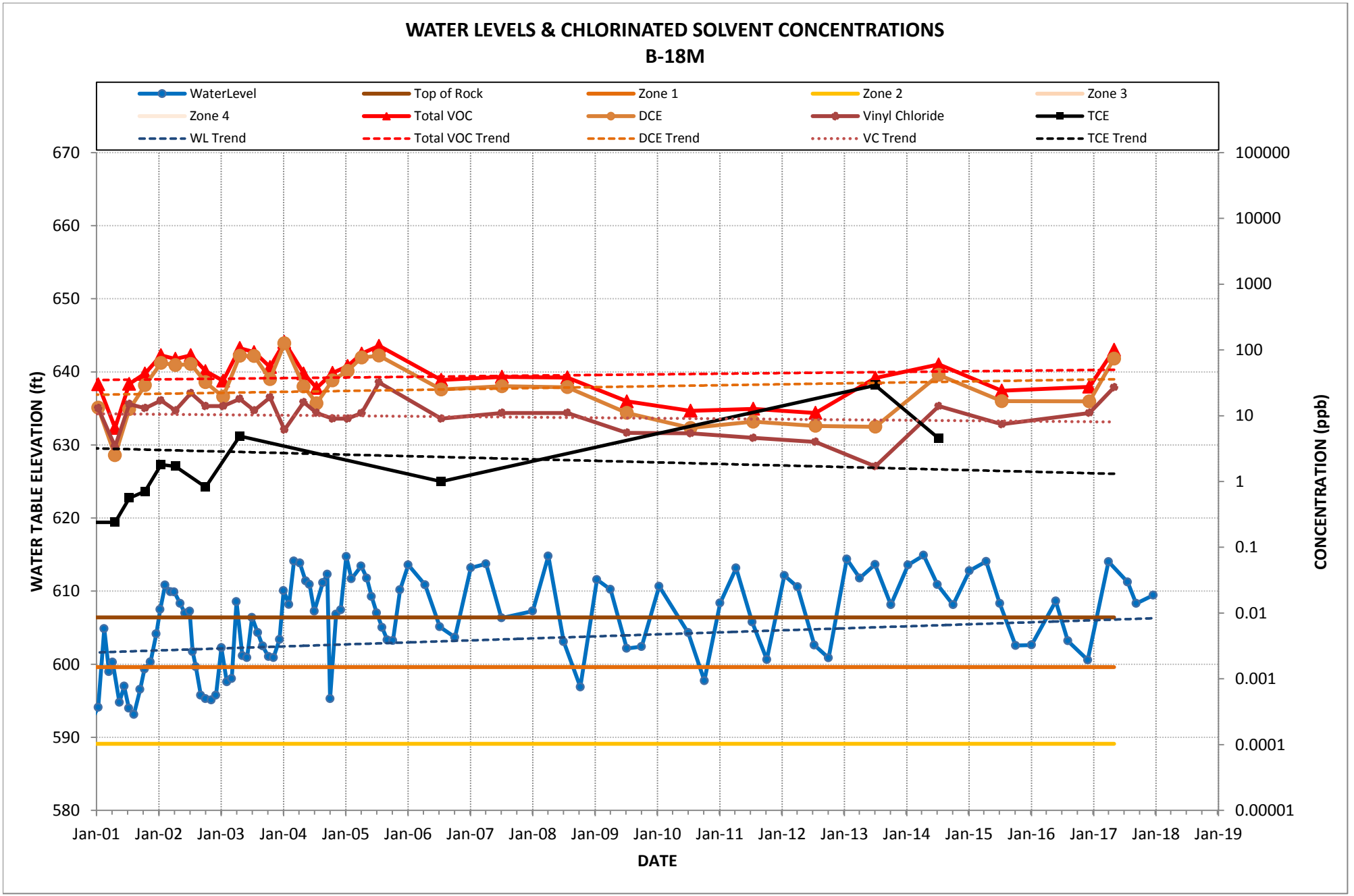
FORMER CARBORUNDUM FACILITY
SANBORN, NEW YORK
ISOCONTOURS IN TOP OF ROCK AND ZONE 1
(NOVEMBER 2017)

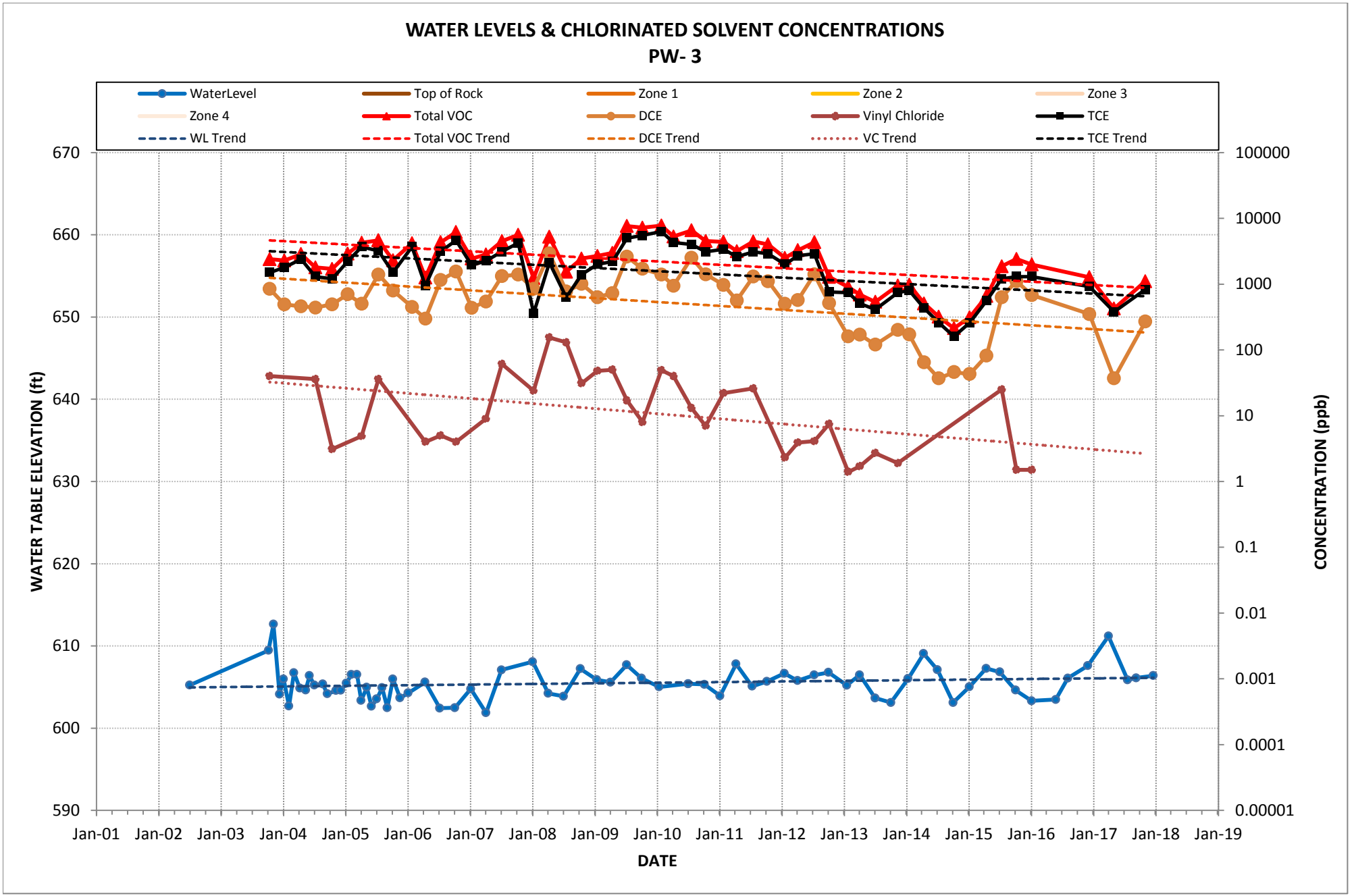
AECOM

ATTACHMENT 2
FIGURE 4

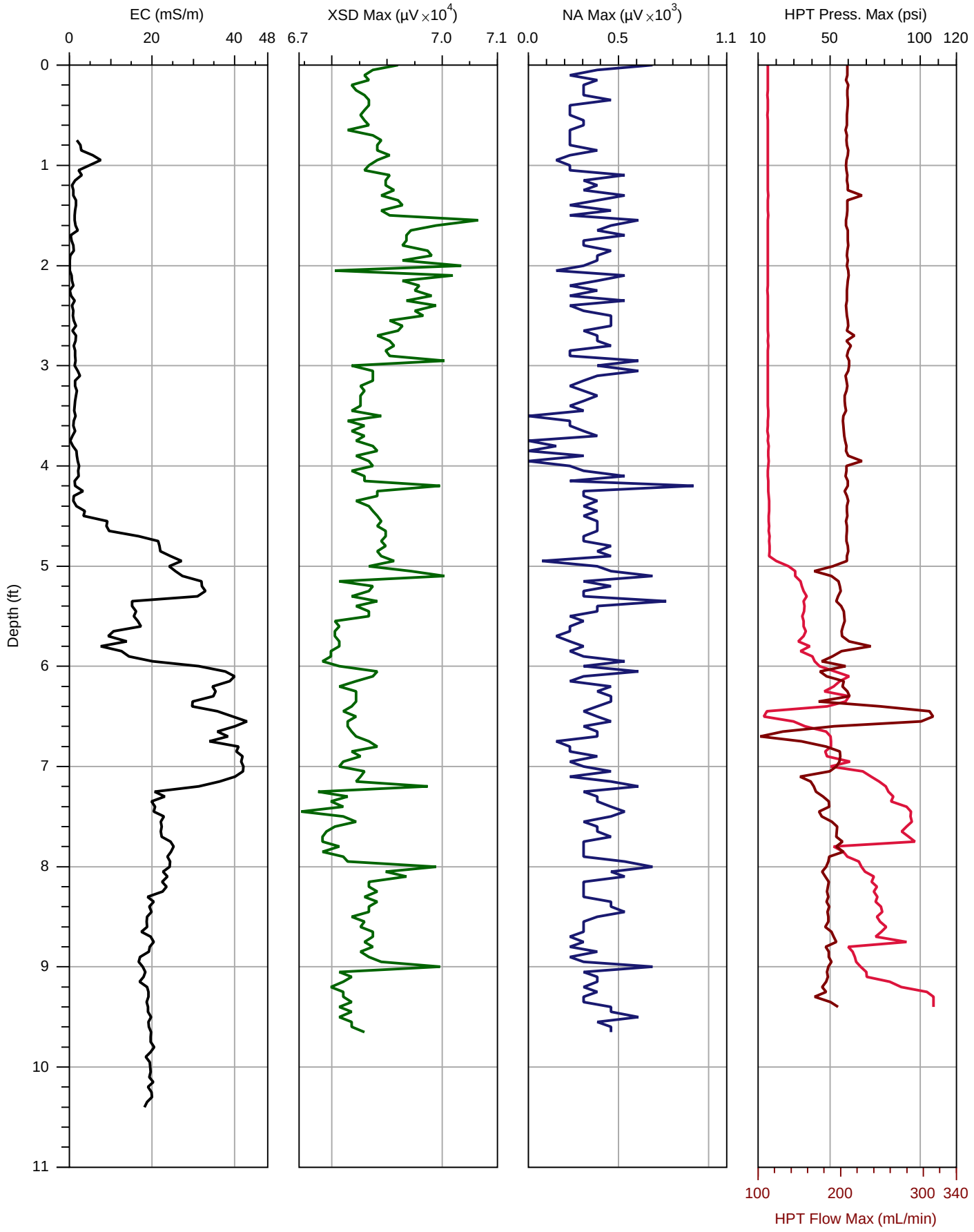
J:\Projects\60481767_BPIPO\MISC\GIS\Sanborn\Maps\2017\Q4\ISOPLETHS - TOR & Z1_V2.mxd 12/21/2017


WATER LEVELS & CHLORINATED SOLVENT CONCENTRATIONS
B- 8M
WaterLevel
Top of Rock
Zone 1
Zone 2
Zone 3
Zone 4
Total VOC
DCE
Vinyl Chloride
TCE
WL Trend
Total VOC Trend
DCE Trend
VC Trend
TCE Trend
WATER TABLE ELEVATION (ft)
CONCENTRATION (ppb)
DATE
670
660
650
640
630
620
610
600
590
1000000
100000
10000
1000
100
10
1
0.1
0.01
0.001
0.0001
0.00001
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19


WATER LEVELS & CHLORINATED SOLVENT CONCENTRATIONS
B-18M
WaterLevel
Top of Rock
Zone 1
Zone 2
Zone 3
Zone 4
Total VOC
DCE
Vinyl Chloride
TCE
WL Trend
Total VOC Trend
DCE Trend
VC Trend
TCE Trend
WATER TABLE ELEVATION (ft)
CONCENTRATION (ppb)
DATE
670
660
650
640
630
620
610
600
590
580
100000
10000
1000
100
10
1
0.1
0.01
0.001
0.0001
0.00001
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19

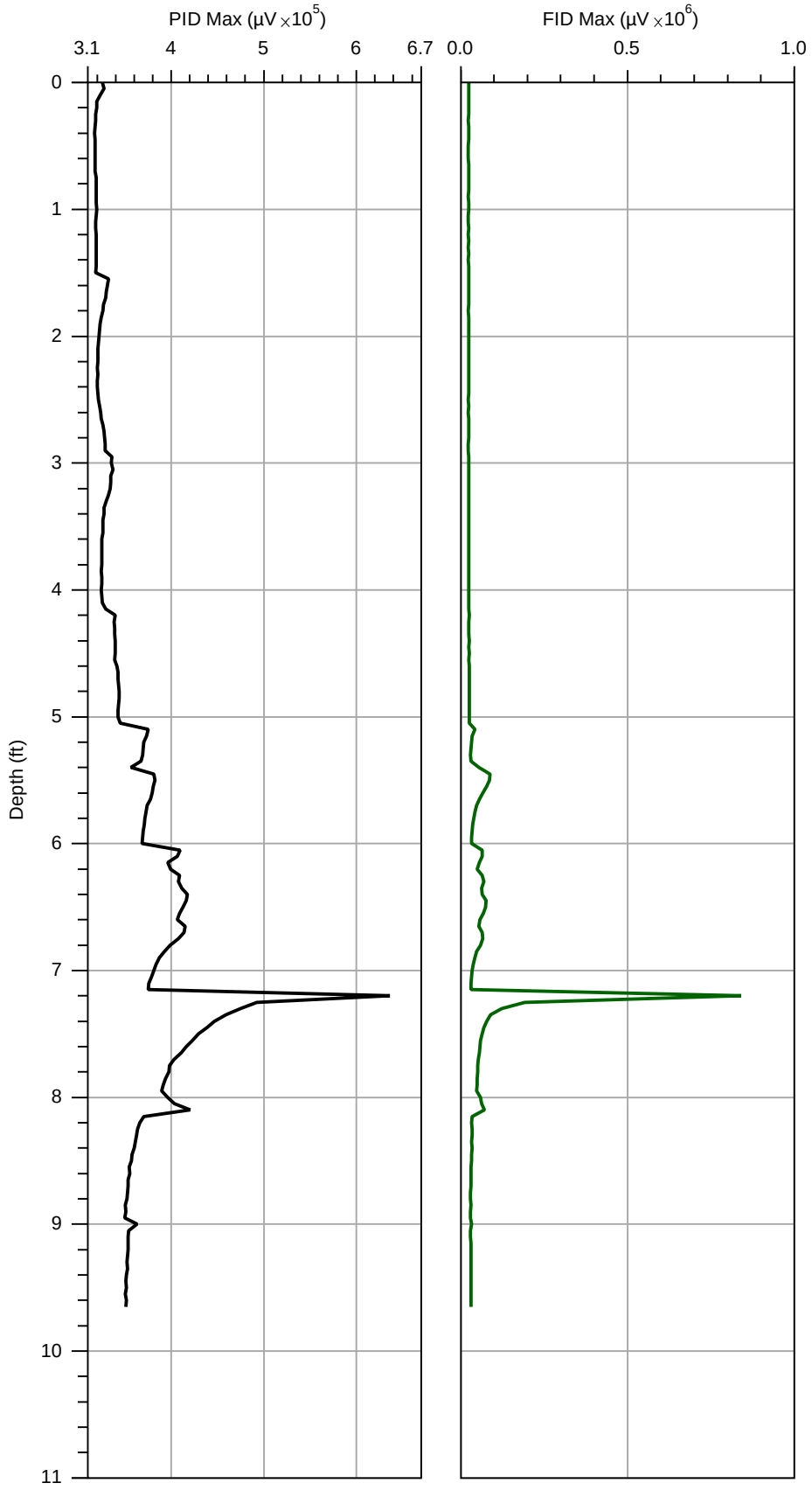

WATER LEVELS & CHLORINATED SOLVENT CONCENTRATIONS
PW- 3
WaterLevel
Top of Rock
Zone 1
Zone 2
Zone 3
Zone 4
Total VOC
DCE
Vinyl Chloride
TCE
WL Trend
Total VOC Trend
DCE Trend
VC Trend
TCE Trend
WATER TABLE ELEVATION (ft)
CONCENTRATION (ppb)
DATE
670
660
650
640
630
620
610
600
590
100000
10000
1000
100
10
1
0.1
0.01
0.001
0.0001
0.00001
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19

Attachment 3



Direct Image® By Geoprobe Systems®

		File: MIHPT B-1A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/19/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-1A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/19/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-1A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-B-5A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.3	2.4	PASS
High	290.0	302.8	4.4	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-B-5A.zip)

FILENAME: MiHPT B-1A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 15:52:04

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-B-5A.zip)

PRE TEST TIME: Tue Sep 19 2017 15:56:20

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.402	0.0	106.190
TOP with FLOW>0	15.833	209.0	109.170
BOTTOM with FLOW=0	15.191	0.0	104.740
BOTTOM with FLOW>0	15.768	207.4	108.720

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (42.9 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Tue Sep 19 2017 16:07:29

ATTENUATION CHANGES

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

LOG END DEPTH: 9.65 ft (2.941 m)
LOG END TIME: Tue Sep 19 2017 16:26:06

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-1A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 16:38:17

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Sep 19 2017 16:41:53

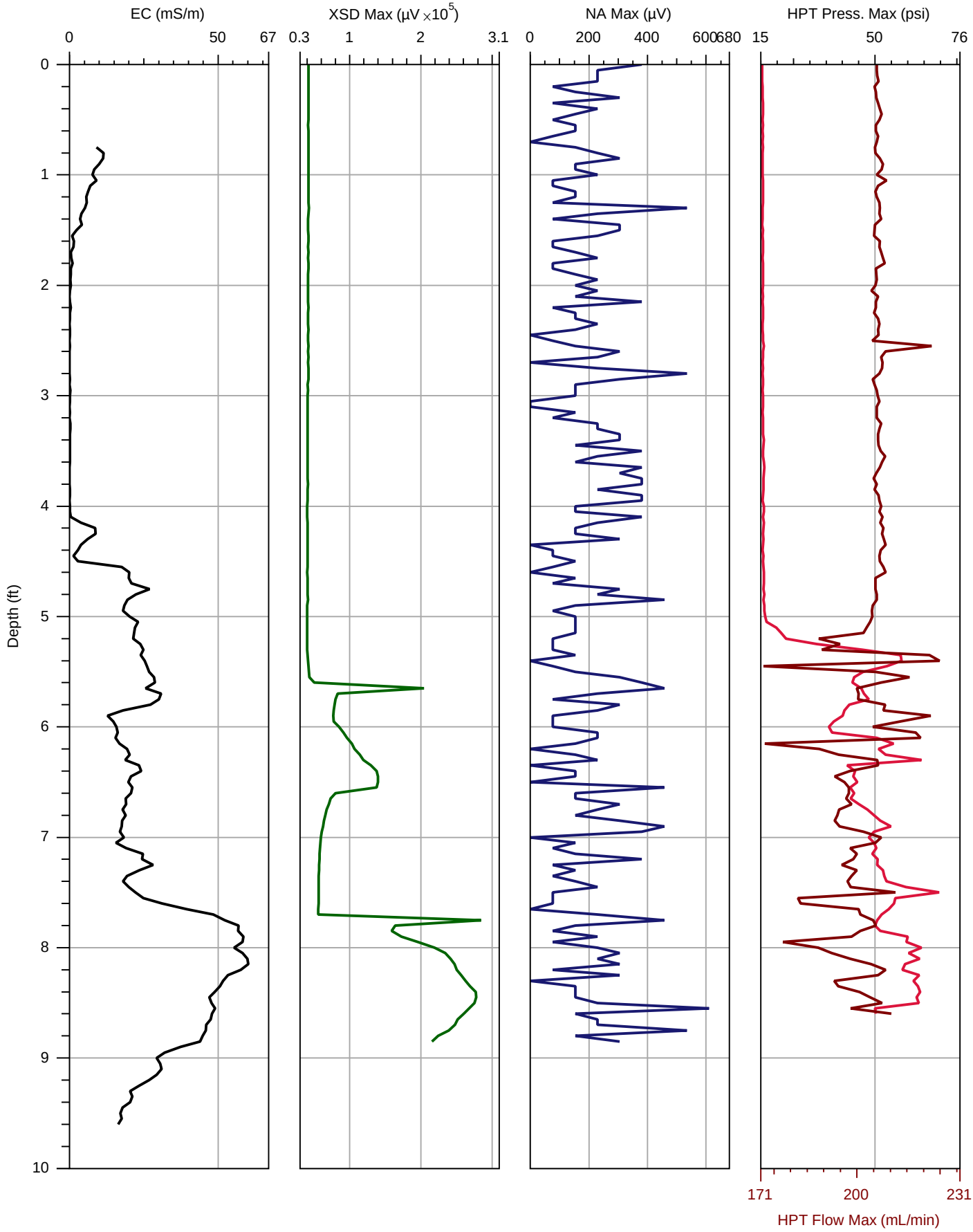
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.402	0.0	106.190
TOP with FLOW>0	15.788	206.4	108.850
BOTTOM with FLOW=0	15.186	0.0	104.710
BOTTOM with FLOW>0	15.655	205.0	107.930

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

TRANSDUCER TEST PASSED

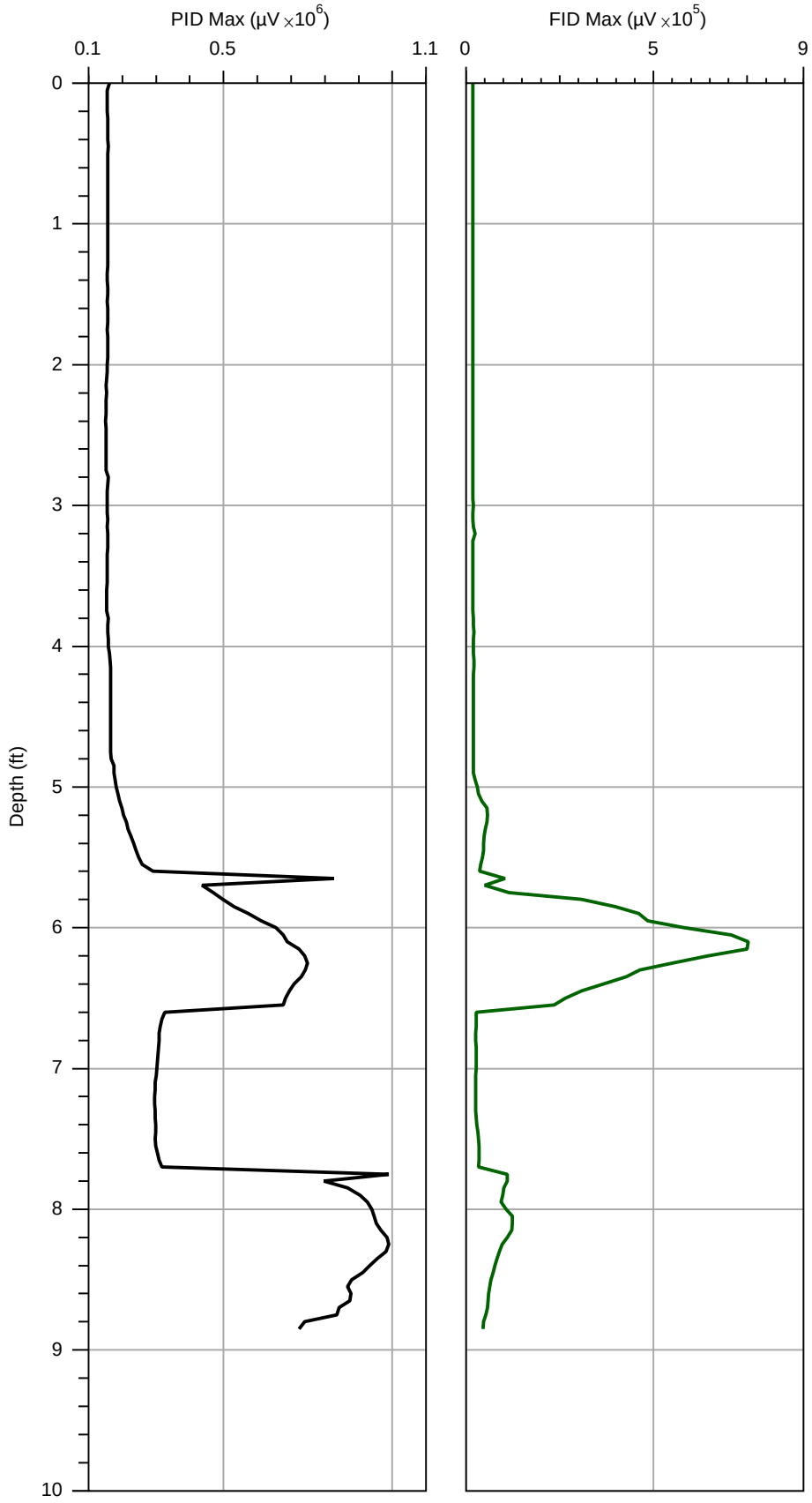
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.3	2.4	PASS
High	290.0	303.1	4.5	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-2A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-2A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-2A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-11.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	54.1	1.6	PASS
High	290.0	302.5	4.3	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-11.zip)

FILENAME: MiHPT B-2A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 08:54:00

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-11.zip)

PRE TEST TIME: Thu Sep 21 2017 08:57:25

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.452	0.0	106.540
TOP with FLOW>0	15.921	204.4	109.770
BOTTOM with FLOW=0	15.229	0.0	105.000
BOTTOM with FLOW>0	15.725	205.1	108.420

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (28.6 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 09:16:52

ATTENUATION CHANGES

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

LOG END DEPTH: 8.85 ft (2.697 m)
LOG END TIME: Thu Sep 21 2017 09:39:07

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-2A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 09:54:25

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 09:57:48

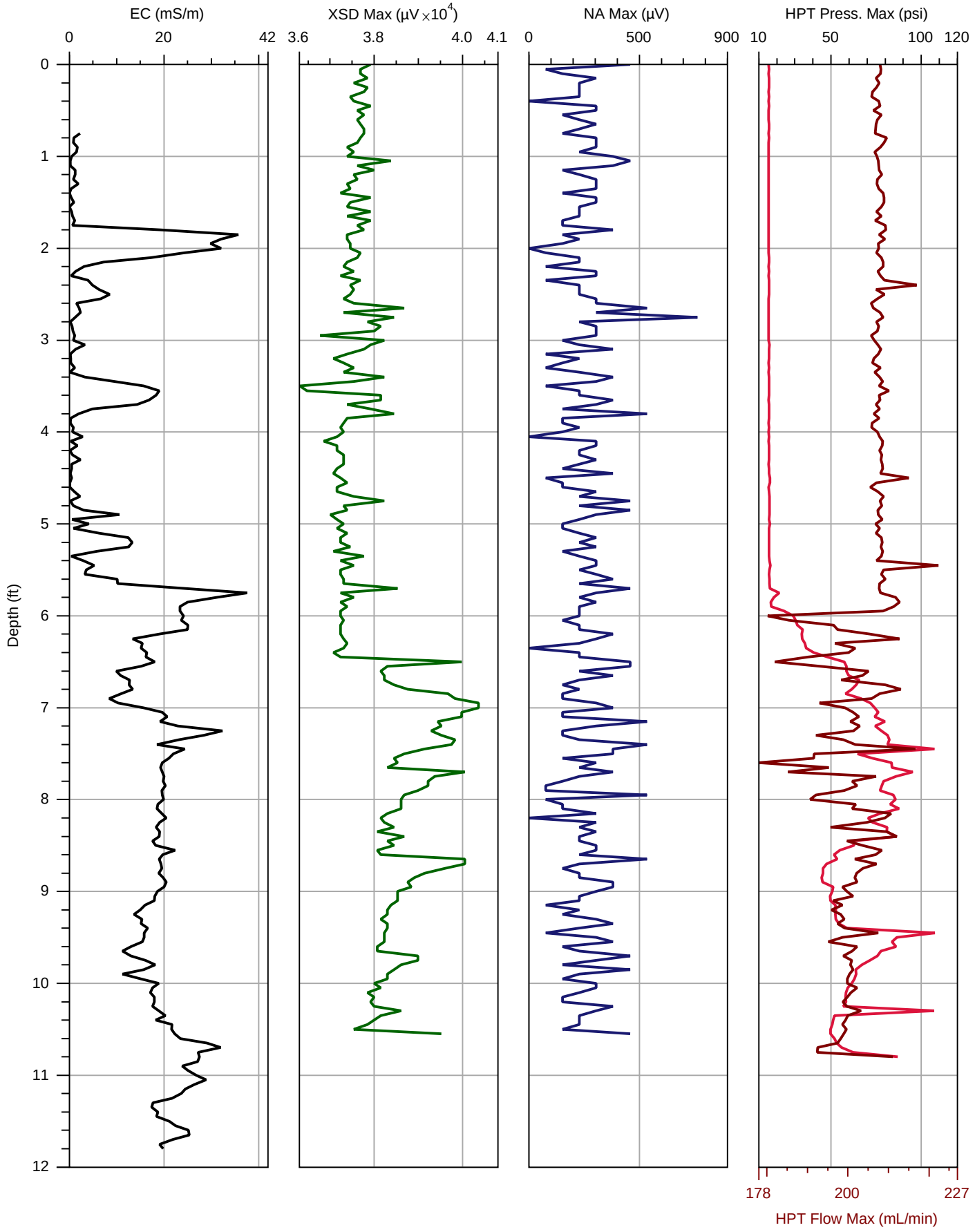
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.464	0.0	106.620
TOP with FLOW>0	15.867	205.4	109.400
BOTTOM with FLOW=0	15.249	0.0	105.140
BOTTOM with FLOW>0	15.682	206.0	108.120

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

TRANSDUCER TEST PASSED

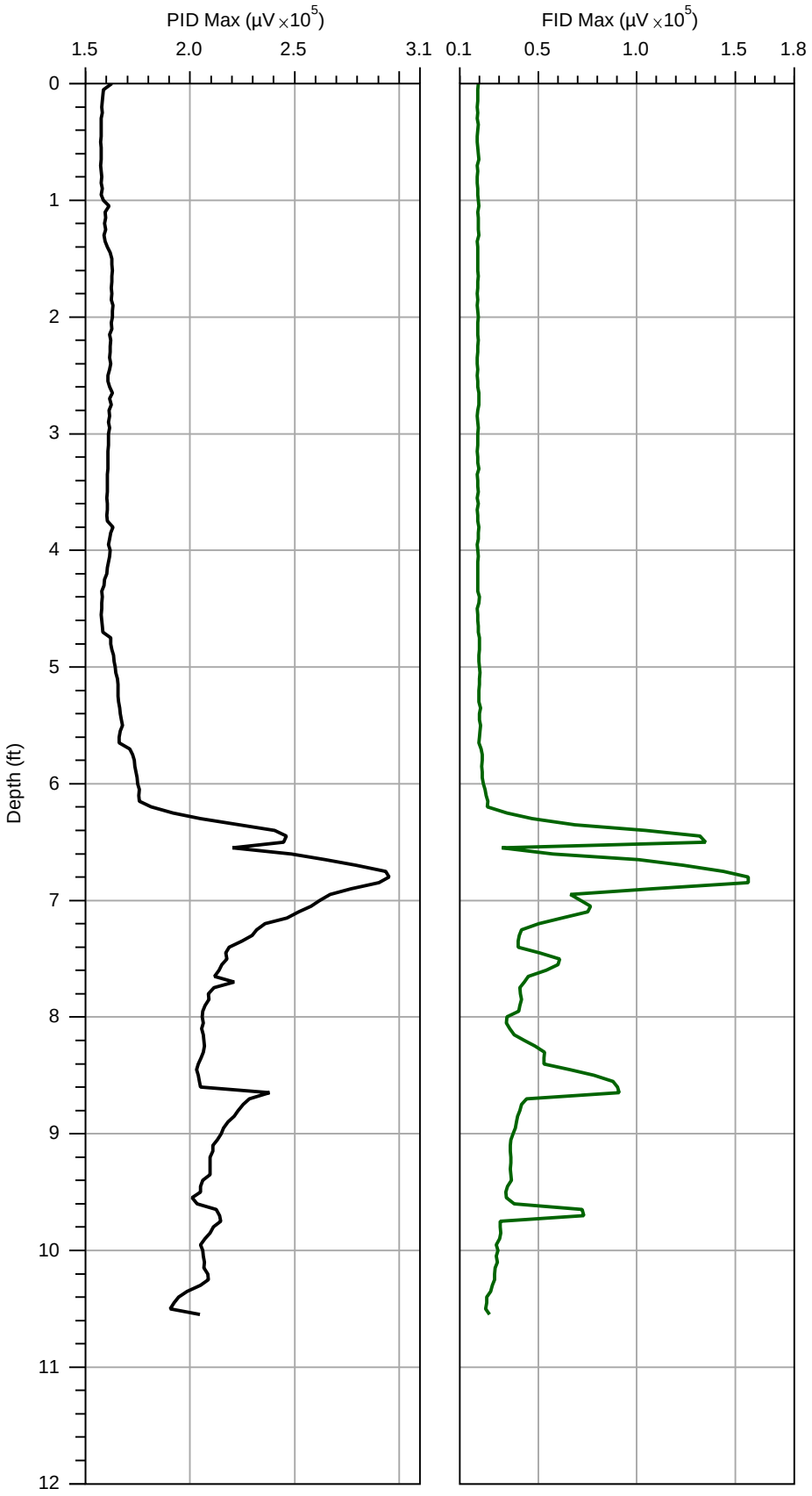
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.4	PASS
High	290.0	302.3	4.3	PASS



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		File: MIHPT B-3A.MHP
			Date: 9/21/2017
Project ID: 17101	Client: Aecom		Location: Sanborn, NY



		File: MIHPT B-3A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY

MiHPT B-3A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-2A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.4	PASS
High	290.0	302.3	4.3	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-2A.zip)

FILENAME: MiHPT B-3A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 09:54:25

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-2A.zip)

PRE TEST TIME: Thu Sep 21 2017 09:57:48

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.464	0.0	106.620
TOP with FLOW>0	15.867	205.4	109.400
BOTTOM with FLOW=0	15.249	0.0	105.140
BOTTOM with FLOW>0	15.682	206.0	108.120

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (34.7 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 10:09:55

ATTENUATION CHANGES

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

LOG END DEPTH: 11.05 ft (3.368 m)
LOG END TIME: Thu Sep 21 2017 10:30:18

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-3A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 10:43:18

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 10:48:11

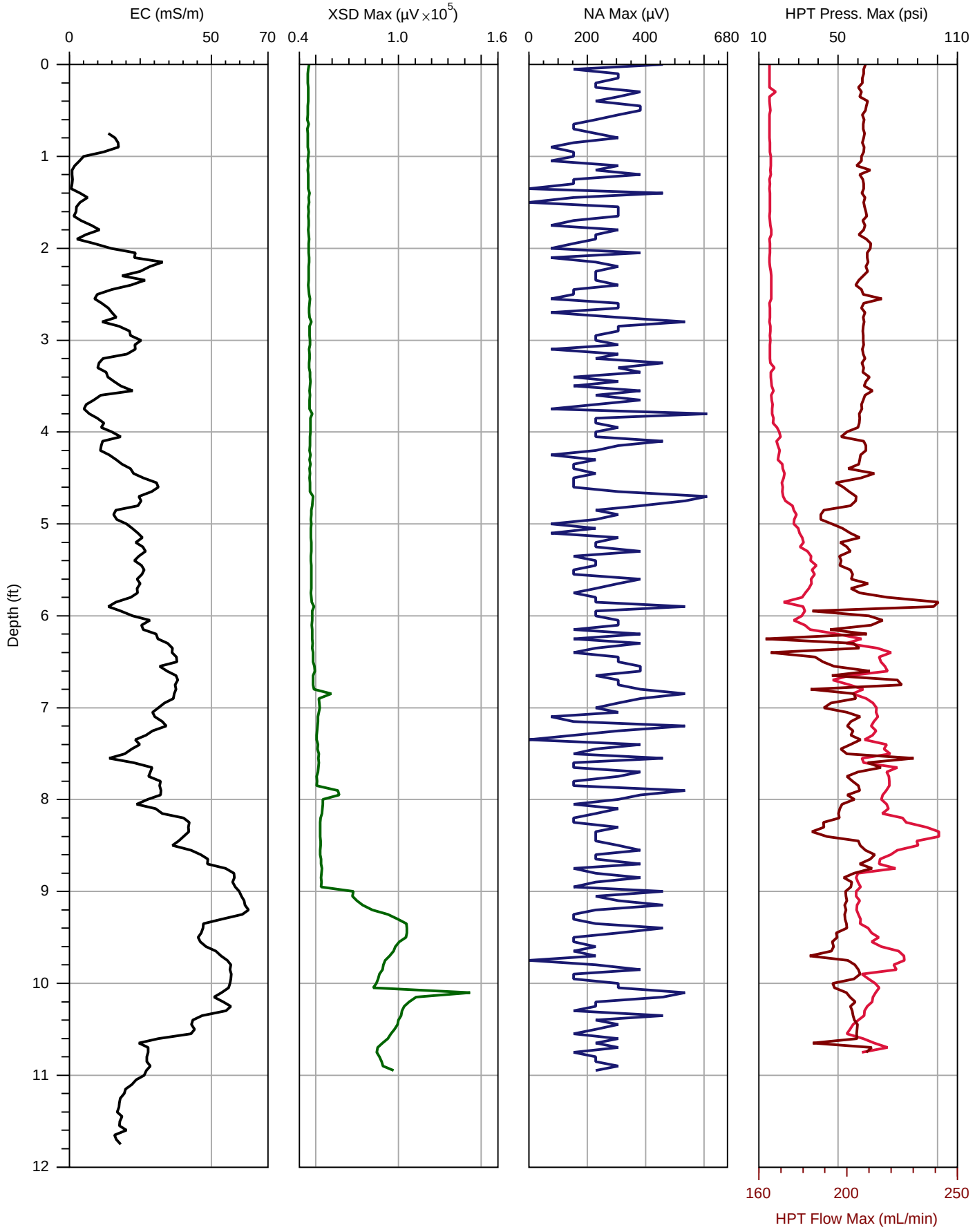
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.475	0.0	106.690
TOP with FLOW>0	15.862	208.0	109.370
BOTTOM with FLOW=0	15.259	0.0	105.210
BOTTOM with FLOW>0	15.775	206.9	108.770

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

TRANSDUCER TEST PASSED

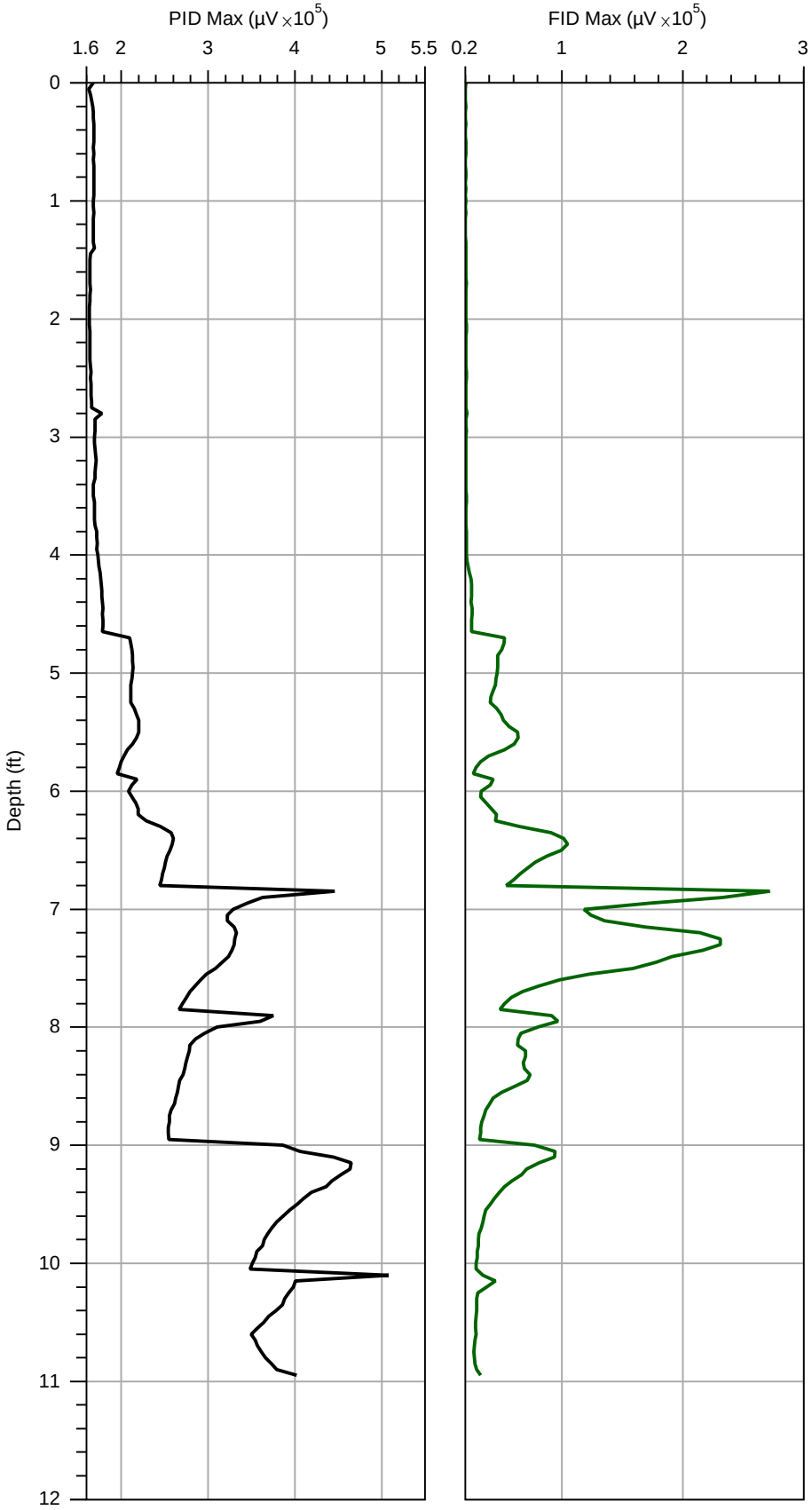
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.9	1.7	PASS
High	290.0	303.1	4.5	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-4A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



Direct Image® By Geoprobe Systems®

			File: MIHPT B-4A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-4A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-3A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.9	1.7	PASS
High	290.0	303.1	4.5	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-3A.zip)

FILENAME: MiHPT B-4A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 10:43:18

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-3A.zip)

PRE TEST TIME: Thu Sep 21 2017 10:48:11

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.475	0.0	106.690
TOP with FLOW>0	15.862	208.0	109.370
BOTTOM with FLOW=0	15.259	0.0	105.210
BOTTOM with FLOW>0	15.775	206.9	108.770

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (42.0 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 10:55:37

ATTENUATION CHANGES

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

LOG END DEPTH: 11.00 ft (3.353 m)
LOG END TIME: Thu Sep 21 2017 11:17:07

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-4A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 11:28:39

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 11:32:05

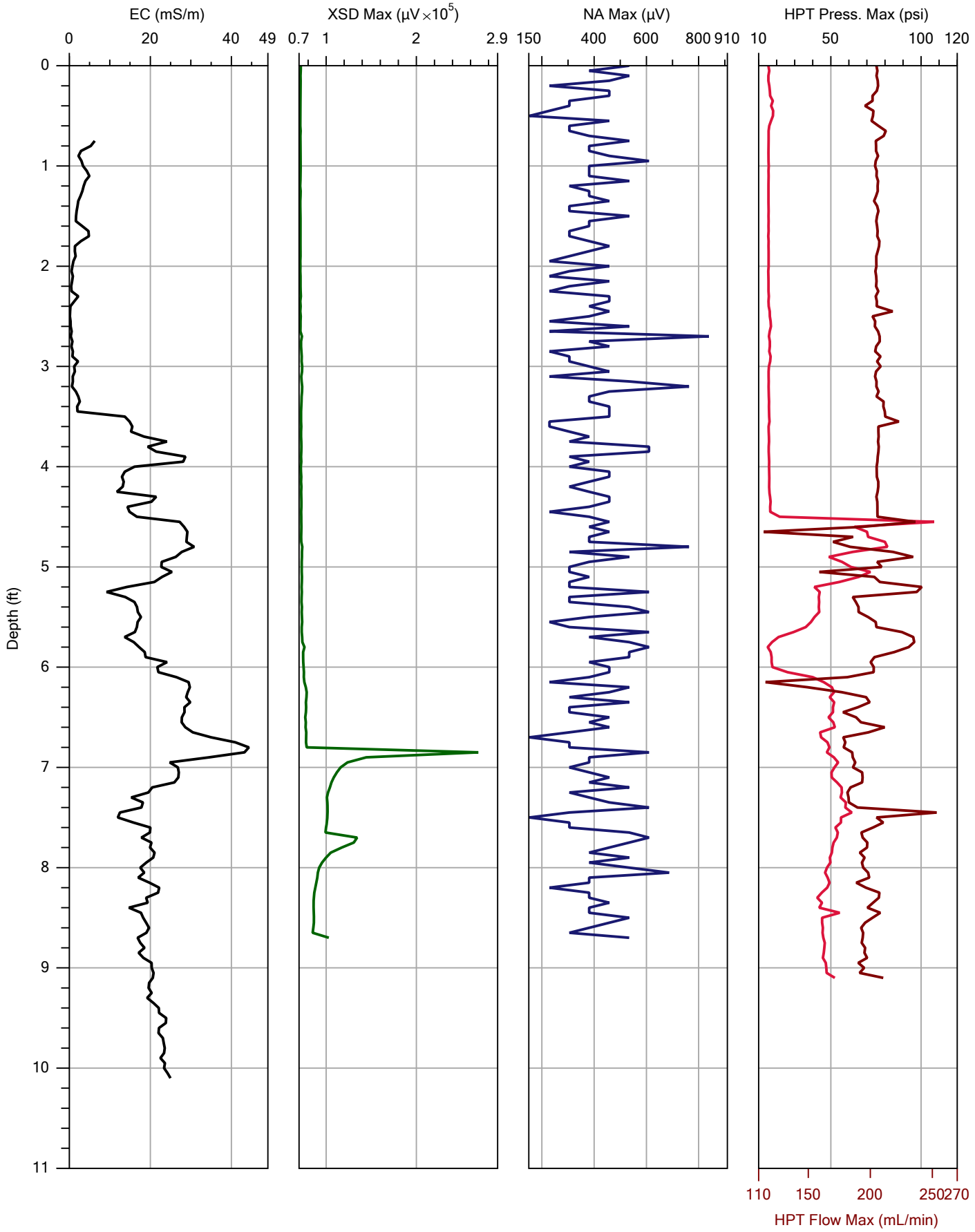
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.496	0.0	106.840
TOP with FLOW>0	15.845	207.4	109.240
BOTTOM with FLOW=0	15.282	0.0	105.360
BOTTOM with FLOW>0	15.690	208.3	108.180

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

TRANSDUCER TEST PASSED

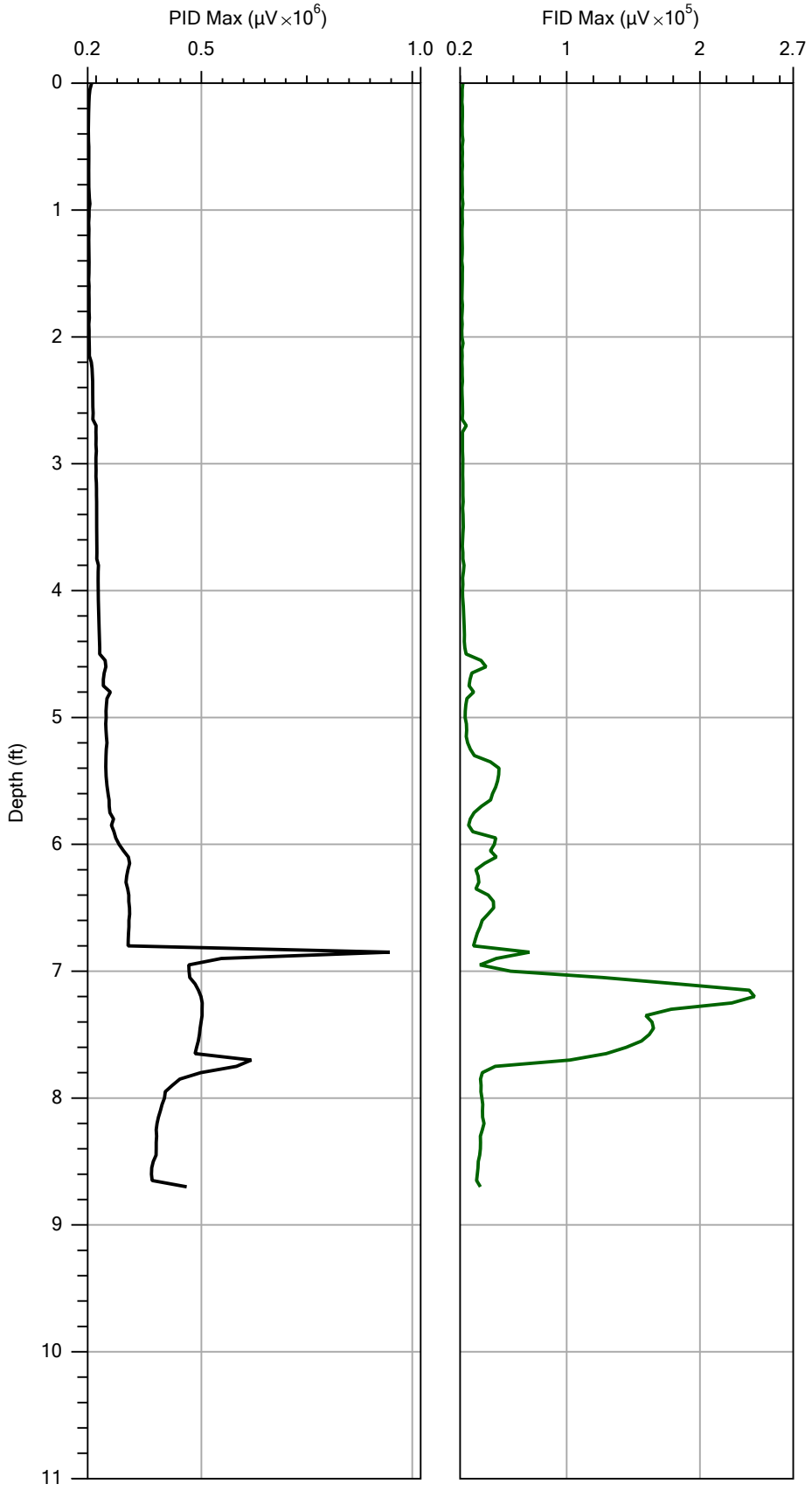
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	300.9	3.8	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT-B-5A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/19/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT-B-5A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		Date: 9/19/2017
Project ID: 17101	Client: Aecom		Location: Sanborn, NY

MiHPT-B-5A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-A2-1.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	302.2	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-A2-1.zip)

FILENAME: MiHPT-B-5A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 14:56:59

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-A2-1.zip)

PRE TEST TIME: Tue Sep 19 2017 15:01:36

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.414	0.0	106.270
TOP with FLOW>0	15.751	203.6	108.600
BOTTOM with FLOW=0	15.195	0.0	104.770
BOTTOM with FLOW>0	15.566	203.8	107.320

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (40.3 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Tue Sep 19 2017 15:14:47

ATTENUATION CHANGES

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

LOG END DEPTH: 9.35 ft (2.850 m)
LOG END TIME: Tue Sep 19 2017 15:36:31

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-B-5A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 15:52:04

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Sep 19 2017 15:56:20

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.402	0.0	106.190
TOP with FLOW>0	15.833	209.0	109.170
BOTTOM with FLOW=0	15.191	0.0	104.740
BOTTOM with FLOW>0	15.768	207.4	108.720

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

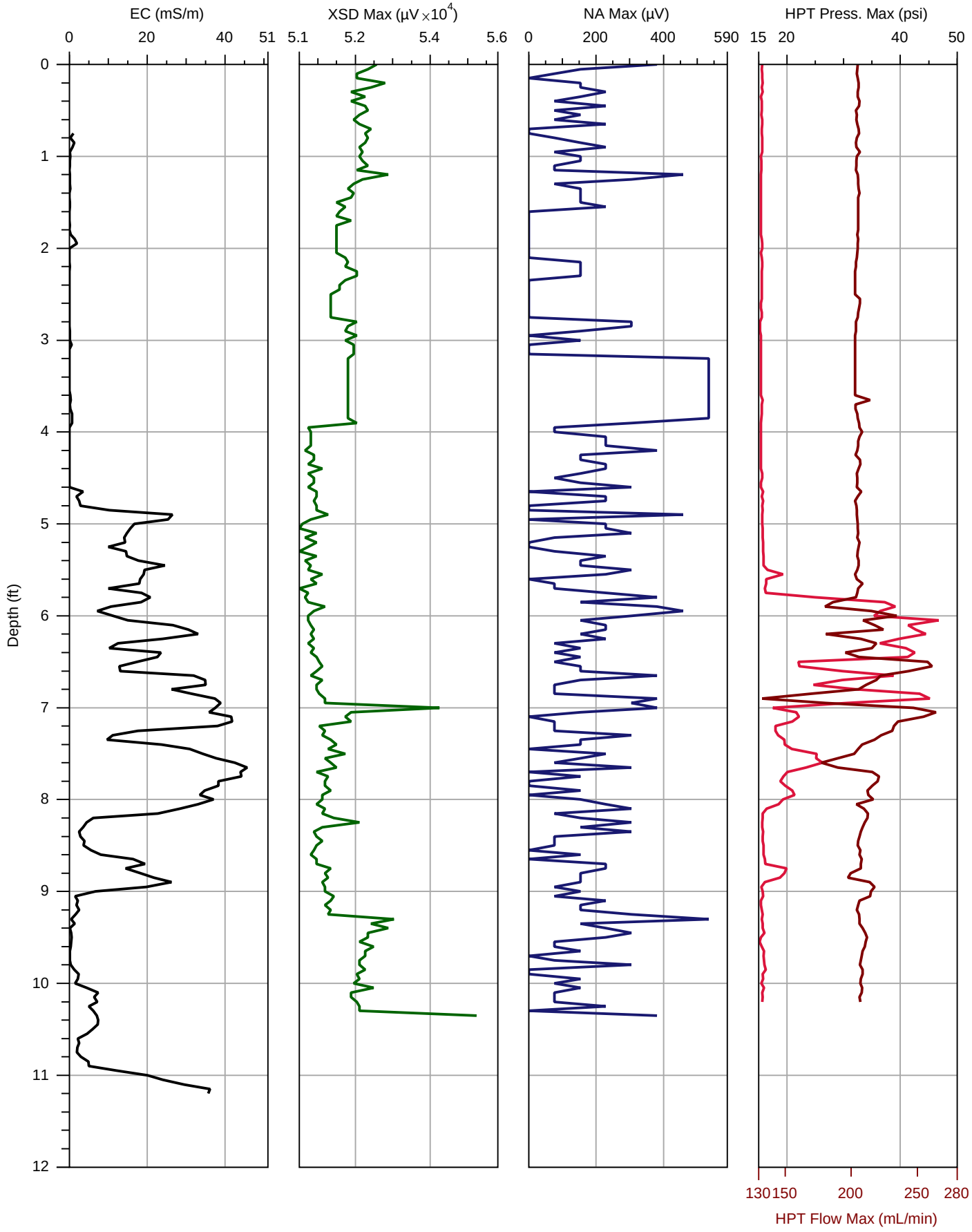
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.3	2.4	PASS
High	290.0	302.8	4.4	PASS

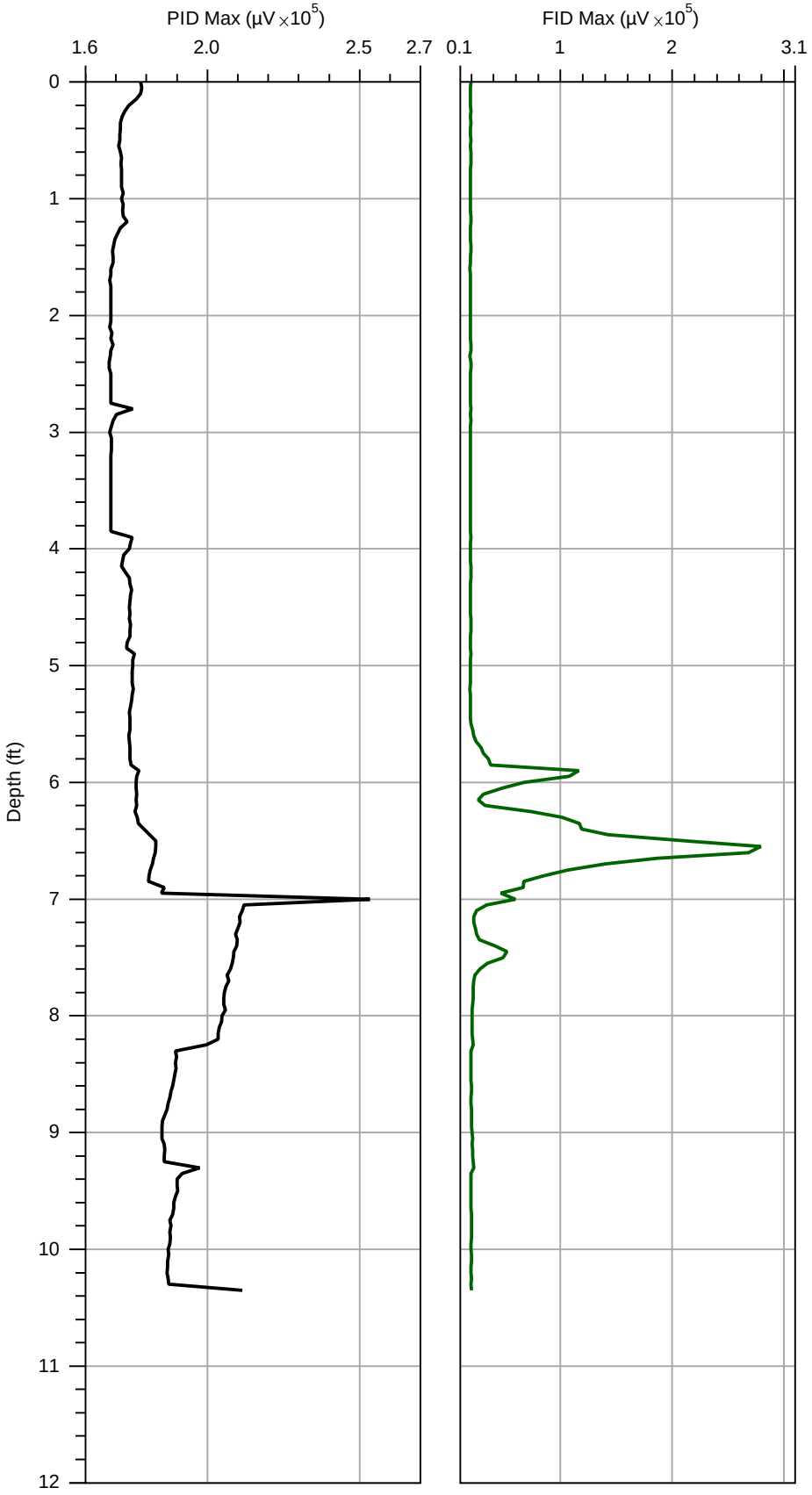
********** USER NOTES **********

Refusal at 9 feet.



Direct Image® By Geoprobe Systems®

		File: MIHPT-B-6A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT-B-6A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		Date: 9/20/2017
Project ID: 17101	Client: Aecom		Location: Sanborn, NY

MiHPT-B-6A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-10A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	302.4	4.3	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-10A.zip)

FILENAME: MiHPT-B-6A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 08:40:53

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-10A.zip)

PRE TEST TIME: Wed Sep 20 2017 08:44:27

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.406	0.0	106.220
TOP with FLOW>0	15.882	203.4	109.500
BOTTOM with FLOW=0	15.203	0.0	104.820
BOTTOM with FLOW>0	15.706	204.8	108.290

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (40.9 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 08:48:27

ATTENUATION CHANGES

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

LOG END DEPTH: 10.45 ft (3.185 m)
LOG END TIME: Wed Sep 20 2017 09:09:07

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-B-6A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 09:18:48

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 09:22:14

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.420	0.0	106.320
TOP with FLOW>0	15.832	205.1	109.160
BOTTOM with FLOW=0	15.212	0.0	104.890
BOTTOM with FLOW>0	15.653	204.4	107.920

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

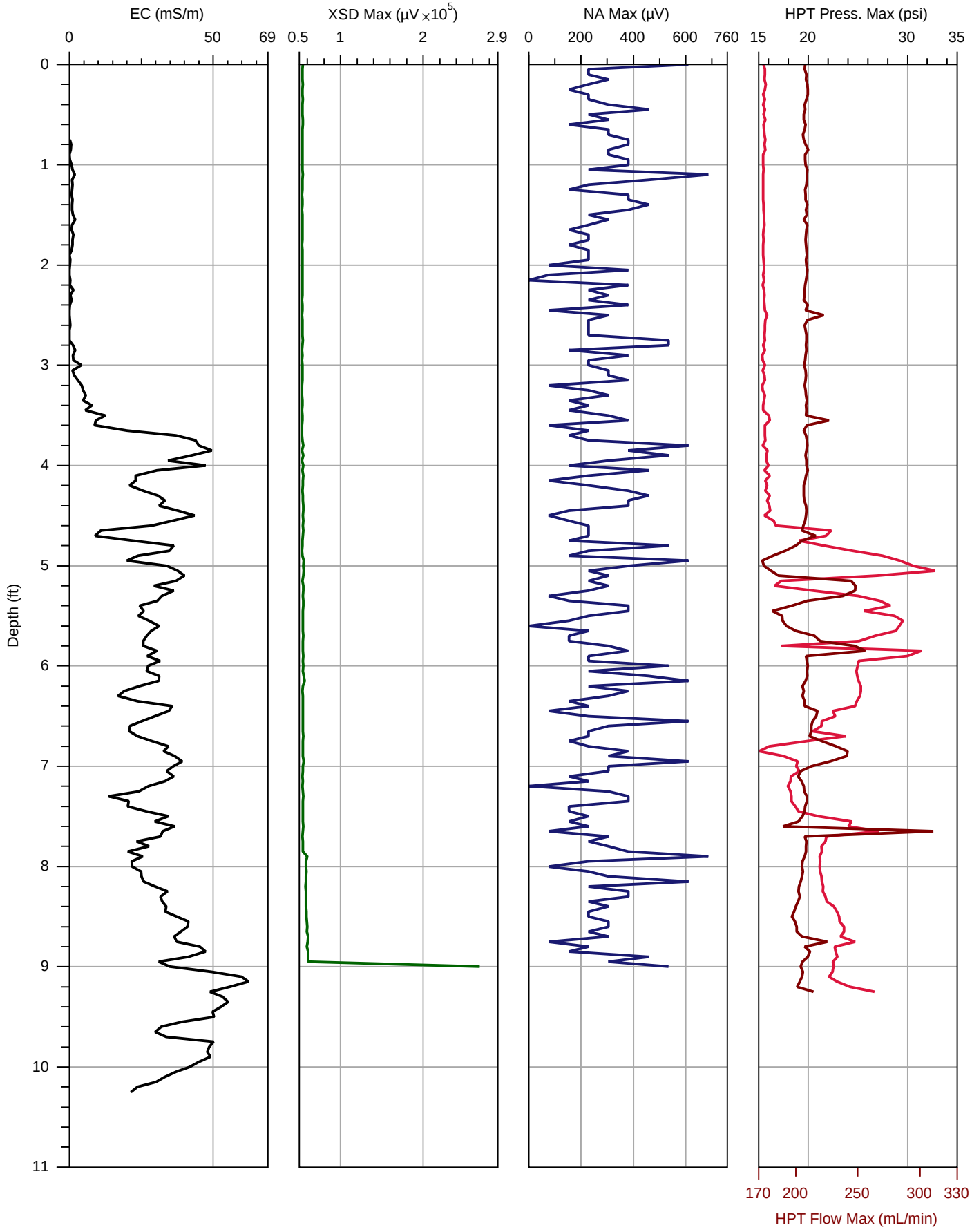
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	303.4	4.6	PASS

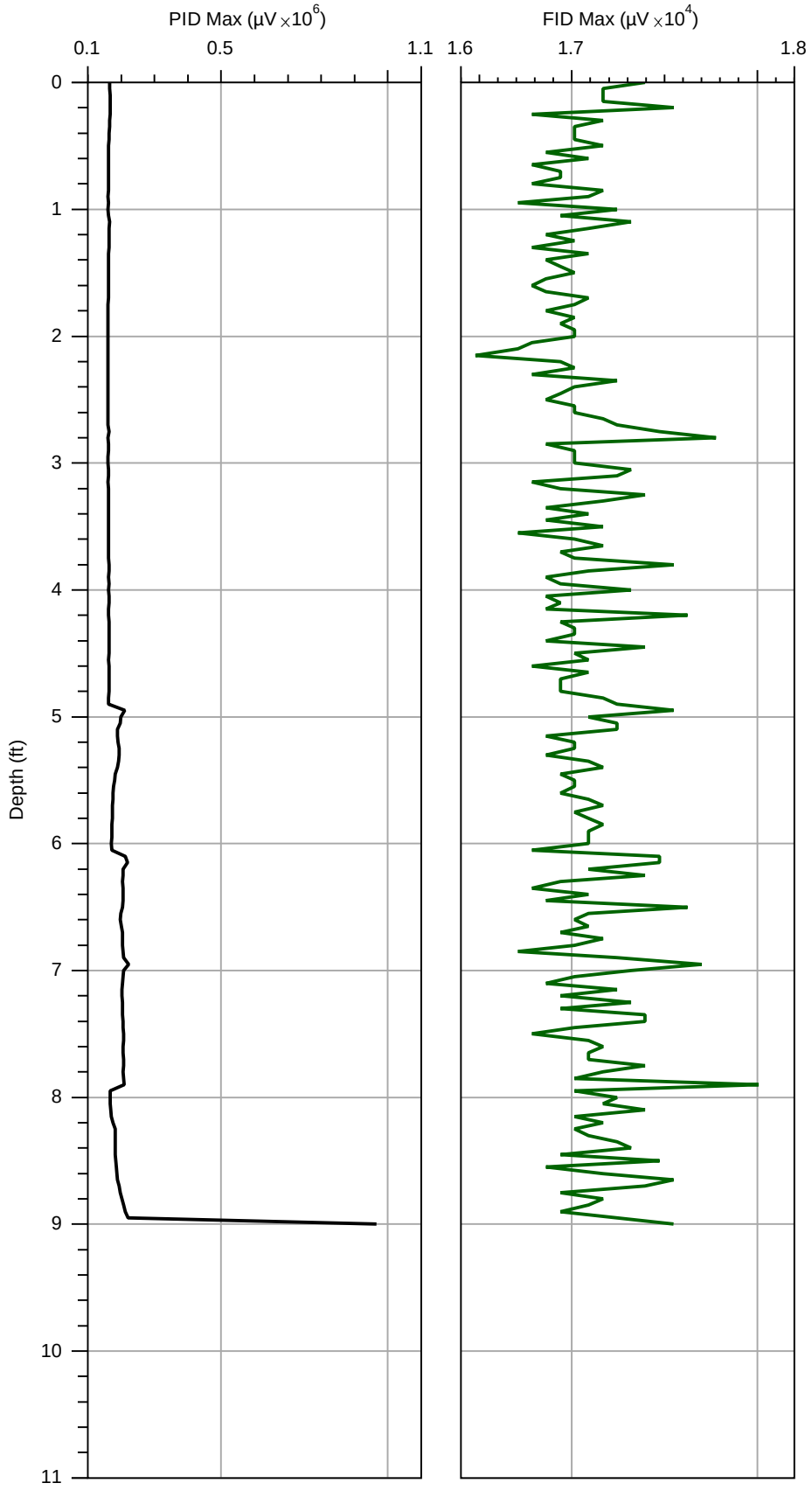
********** USER NOTES **********

Refusal at 9.5, The string pot broke at 3 feet adding a foot to the depth. So
4'is3',5'is4' and so on. replaced string pot.



Direct Image® By Geoprobe Systems®

		File: MIHPT-B-7A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT-B-7A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT-B-7A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-11A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.4	PASS
High	290.0	302.2	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-11A.zip)

FILENAME: MiHPT-B-7A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 10:38:25

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-11A.zip)

PRE TEST TIME: Wed Sep 20 2017 10:42:57

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.452	0.0	106.540
TOP with FLOW>0	15.953	206.8	109.990
BOTTOM with FLOW=0	15.247	0.0	105.120
BOTTOM with FLOW>0	15.874	203.8	109.450

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (45.6 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 10:47:02

Temperature out of range (79.7 deg C) at 7.90 ft (2.408 m)

Temperature out of range (48.6 deg C) at 7.90 ft (2.408 m)

Temperature out of range (39.4 deg C) at 7.90 ft (2.408 m)

Temperature out of range (34.4 deg C) at 7.90 ft (2.408 m)

ATTENUATION CHANGES

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

LOG END DEPTH: 9.50 ft (2.896 m)
LOG END TIME: Wed Sep 20 2017 11:10:36

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-B-7A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 11:21:49

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 11:25:22

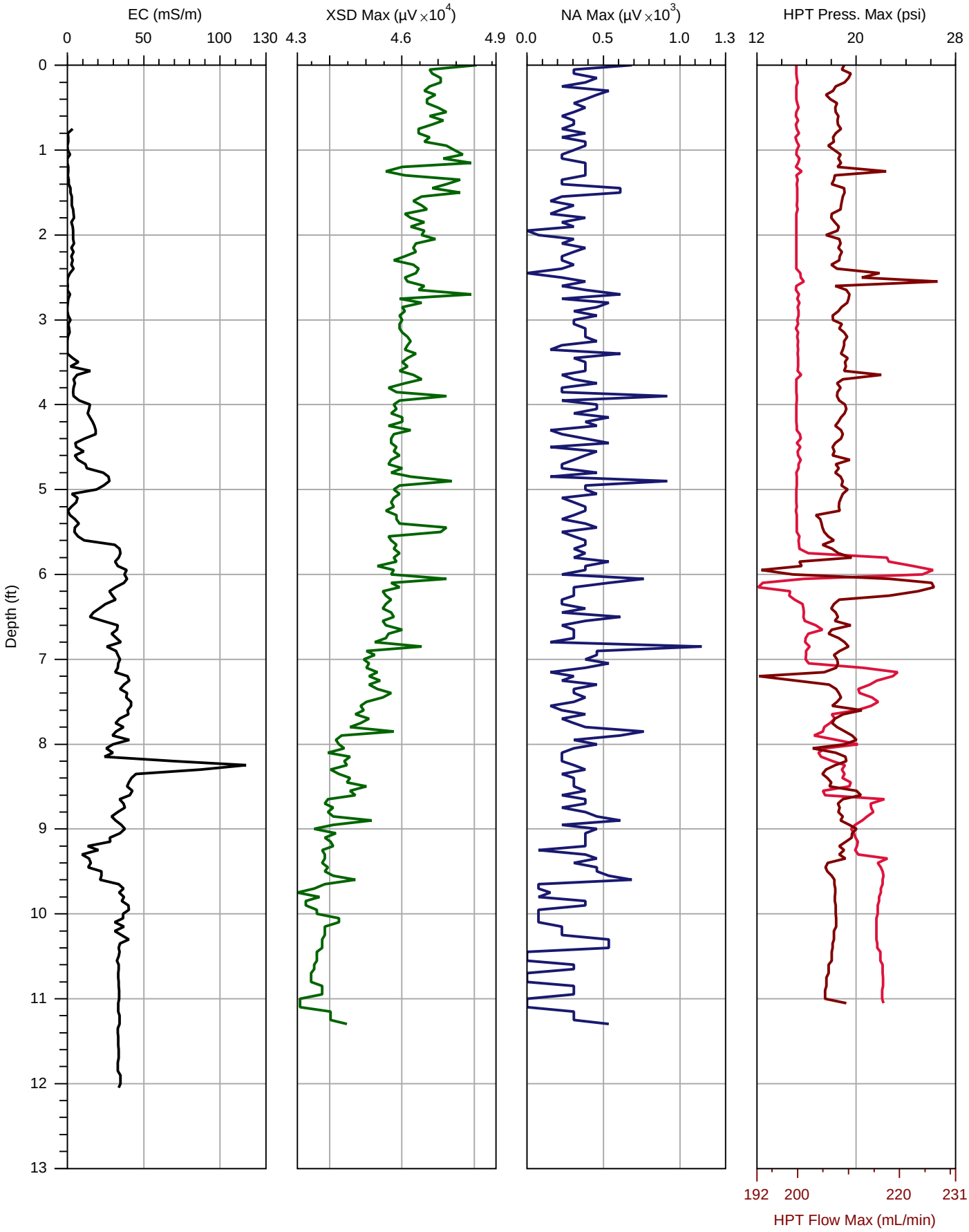
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.448	0.0	106.510
TOP with FLOW>0	15.831	206.8	109.150
BOTTOM with FLOW=0	15.242	0.0	105.090
BOTTOM with FLOW>0	15.643	208.0	107.860

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

TRANSDUCER TEST PASSED

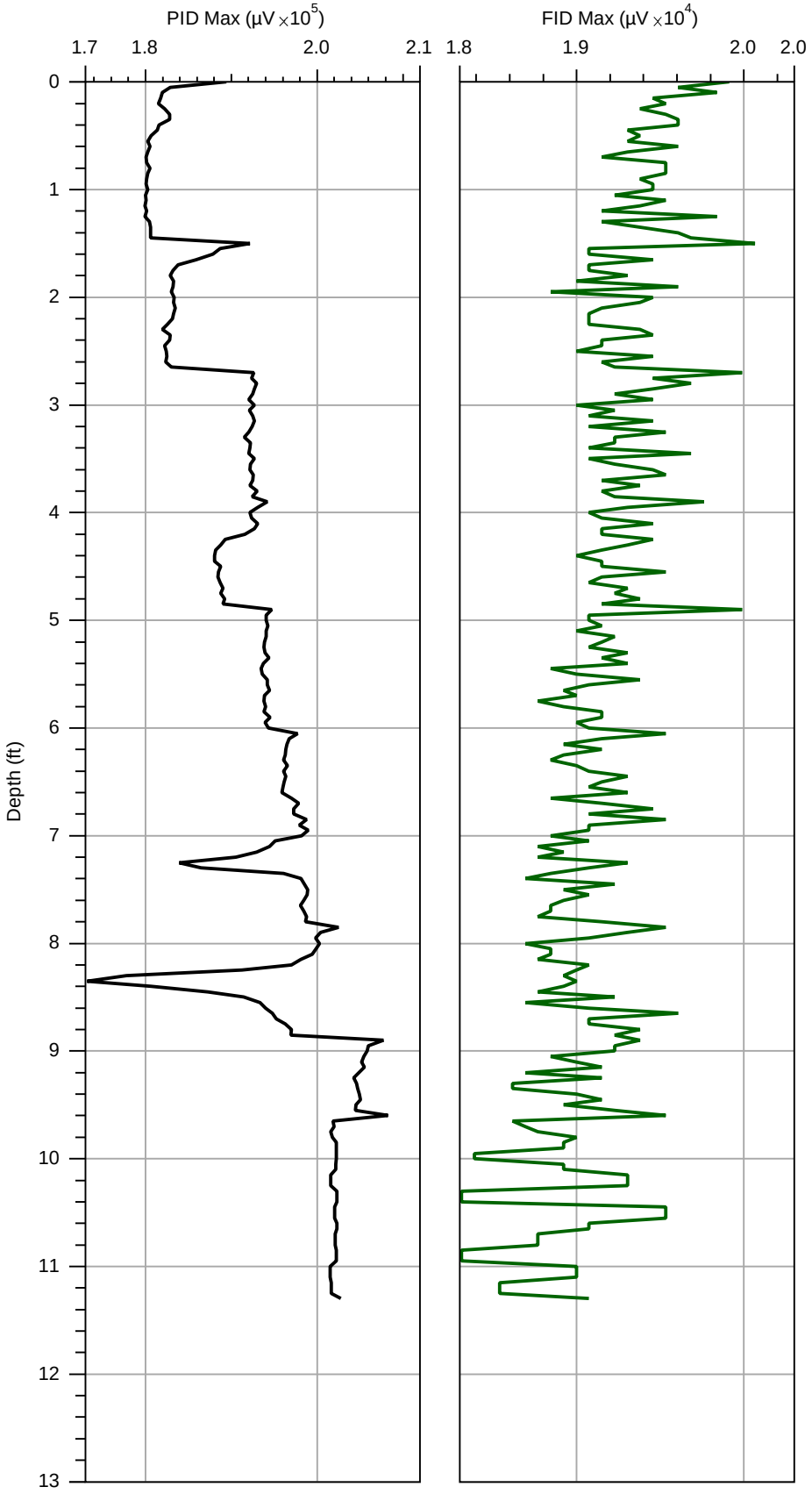
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	302.2	4.2	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-8A 2ND ATTEMPT.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



Direct Image® By Geoprobe Systems®

			File: MIHPT B-8A 2ND ATTEMPT.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-8A 2nd attempt.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.5	PASS
High	290.0	301.2	3.9	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT B-8A 2nd attempt.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 14:10:50

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-4A.zip)

PRE TEST TIME: Thu Sep 21 2017 14:14:24

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.239	0.0	105.070
TOP with FLOW>0	15.627	207.9	107.740
BOTTOM with FLOW=0	15.020	0.0	103.560
BOTTOM with FLOW>0	15.471	208.2	106.670

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (46.5 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 14:24:34

ATTENUATION CHANGES

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

LOG END DEPTH: 11.30 ft (3.444 m)
LOG END TIME: Thu Sep 21 2017 14:41:14

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-8A 2nd attempt.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 14:54:19

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 14:58:07

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.185	0.0	104.700
TOP with FLOW>0	15.552	208.3	107.230
BOTTOM with FLOW=0	14.980	0.0	103.280
BOTTOM with FLOW>0	15.370	208.8	105.970

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

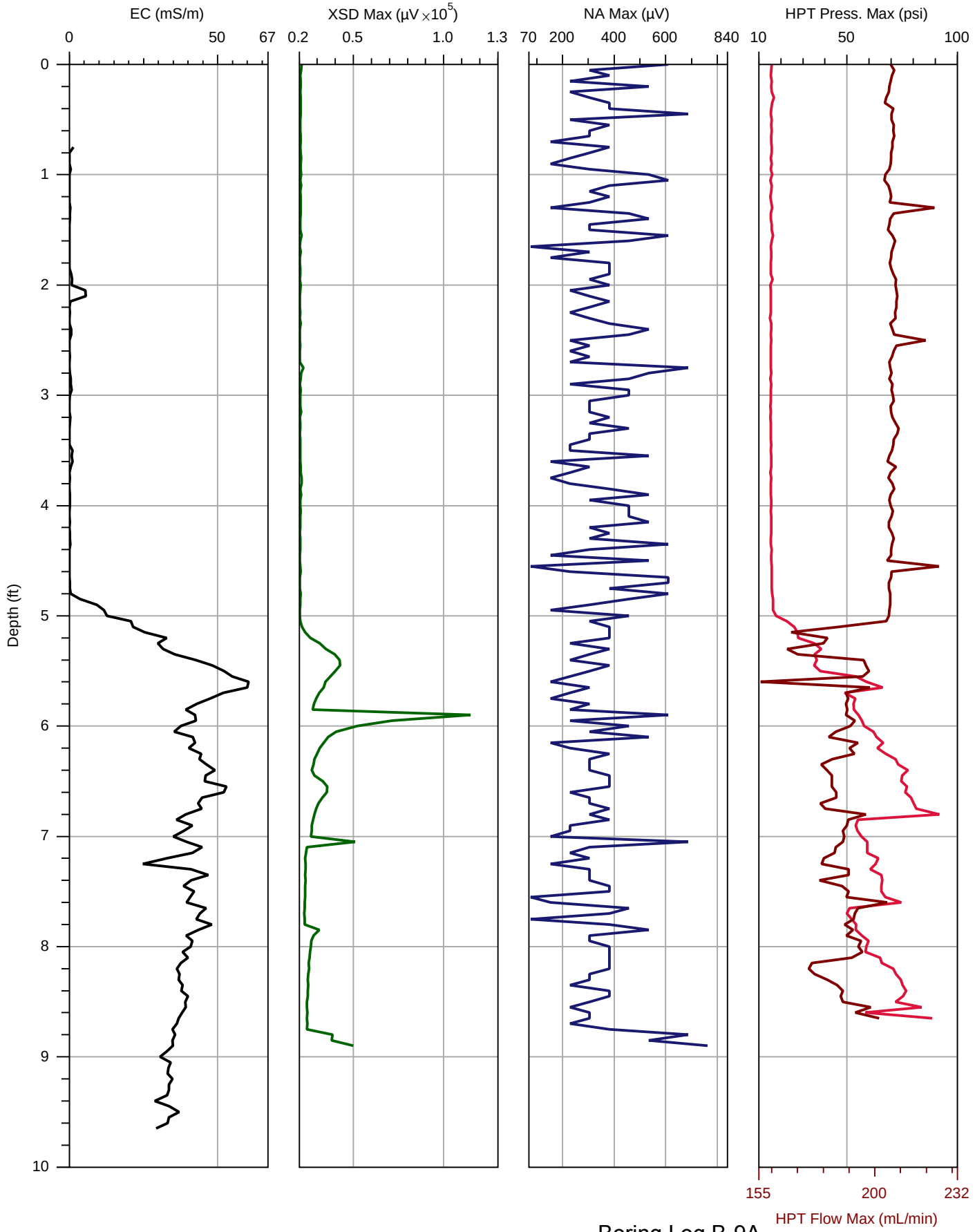
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.5	PASS
High	290.0	302.0	4.1	PASS

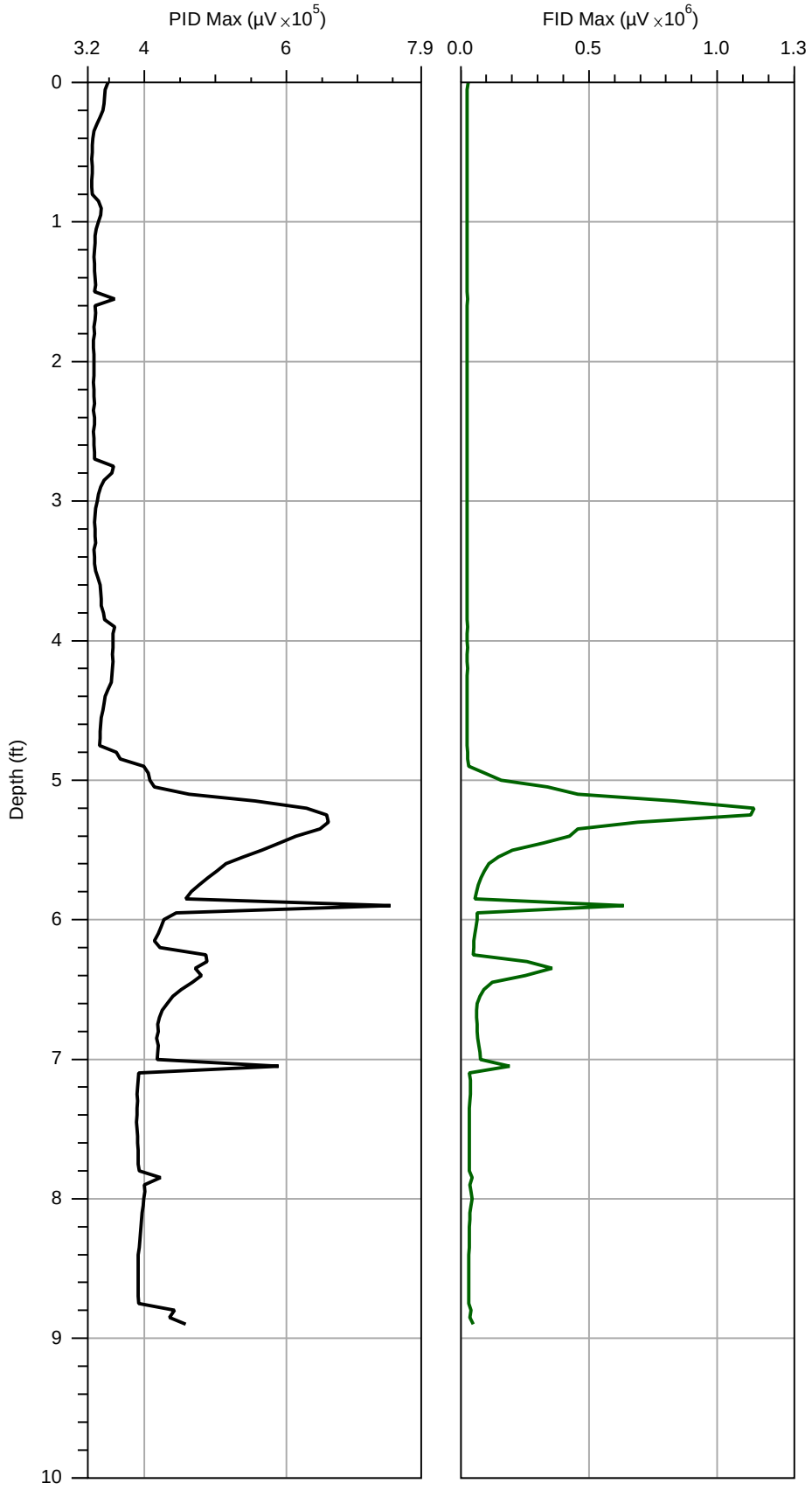
********** USER NOTES **********

Refusal at 10 feet. from 10 to 11.30 is a false reading. moved string pot before pausing the log.



Boring Log B-9A

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	File: MIHPT-A2-1.MHP	
Project ID: 17101	Client: Aecom	Date: 9/19/2017	
		Location: Sanborn, NY	



			File: MIHPT-A2-1.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		Date: 9/19/2017
Project ID: 17101	Client: Aecom		Location: Sanborn, NY

MiHPT-A2-1.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	51.6	6.3	PASS
High	290.0	294.9	1.7	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT-A2-1.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 12:40:48

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-3.zip)

PRE TEST TIME: Tue Sep 19 2017 12:44:32

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.412	0.0	106.260
TOP with FLOW>0	15.744	203.5	108.550
BOTTOM with FLOW=0	15.208	0.0	104.860
BOTTOM with FLOW>0	15.617	203.4	107.680

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (43.7 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Tue Sep 19 2017 12:51:13

Temperature out of range (79.8 deg C) at 8.90 ft (2.713 m)

Temperature out of range (45.7 deg C) at 8.90 ft (2.713 m)

Temperature out of range (34.9 deg C) at 8.90 ft (2.713 m)

Temperature out of range (30.7 deg C) at 8.90 ft (2.713 m)

Temperature out of range (28.1 deg C) at 8.90 ft (2.713 m)

Temperature out of range (26.3 deg C) at 8.90 ft (2.713 m)

Temperature out of range (25.1 deg C) at 8.90 ft (2.713 m)

Temperature out of range (24.0 deg C) at 8.90 ft (2.713 m)

Temperature out of range (22.8 deg C) at 8.90 ft (2.713 m)

Temperature out of range (21.6 deg C) at 8.90 ft (2.713 m)

Temperature out of range (21.4 deg C) at 8.90 ft (2.713 m)

Temperature out of range (20.9 deg C) at 8.90 ft (2.713 m)

Temperature out of range (20.8 deg C) at 8.90 ft (2.713 m)

Temperature out of range (20.4 deg C) at 8.90 ft (2.713 m)

Temperature out of range (20.3 deg C) at 8.90 ft (2.713 m)

Temperature out of range (20.0 deg C) at 8.90 ft (2.713 m)

Temperature out of range (19.8 deg C) at 8.90 ft (2.713 m)

ATTENUATION CHANGES

DEPTH (ft)	DEPTH (m)	DET1	DET2	DET3	DET4

0.00 0.000 1 1 1 1
LOG END DEPTH: 8.90 ft (2.713 m)
LOG END TIME: Tue Sep 19 2017 13:55:40

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-A2-1.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 14:56:59

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Sep 19 2017 15:01:36

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.414	0.0	106.270
TOP with FLOW>0	15.751	203.6	108.600
BOTTOM with FLOW=0	15.195	0.0	104.770
BOTTOM with FLOW>0	15.566	203.8	107.320

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

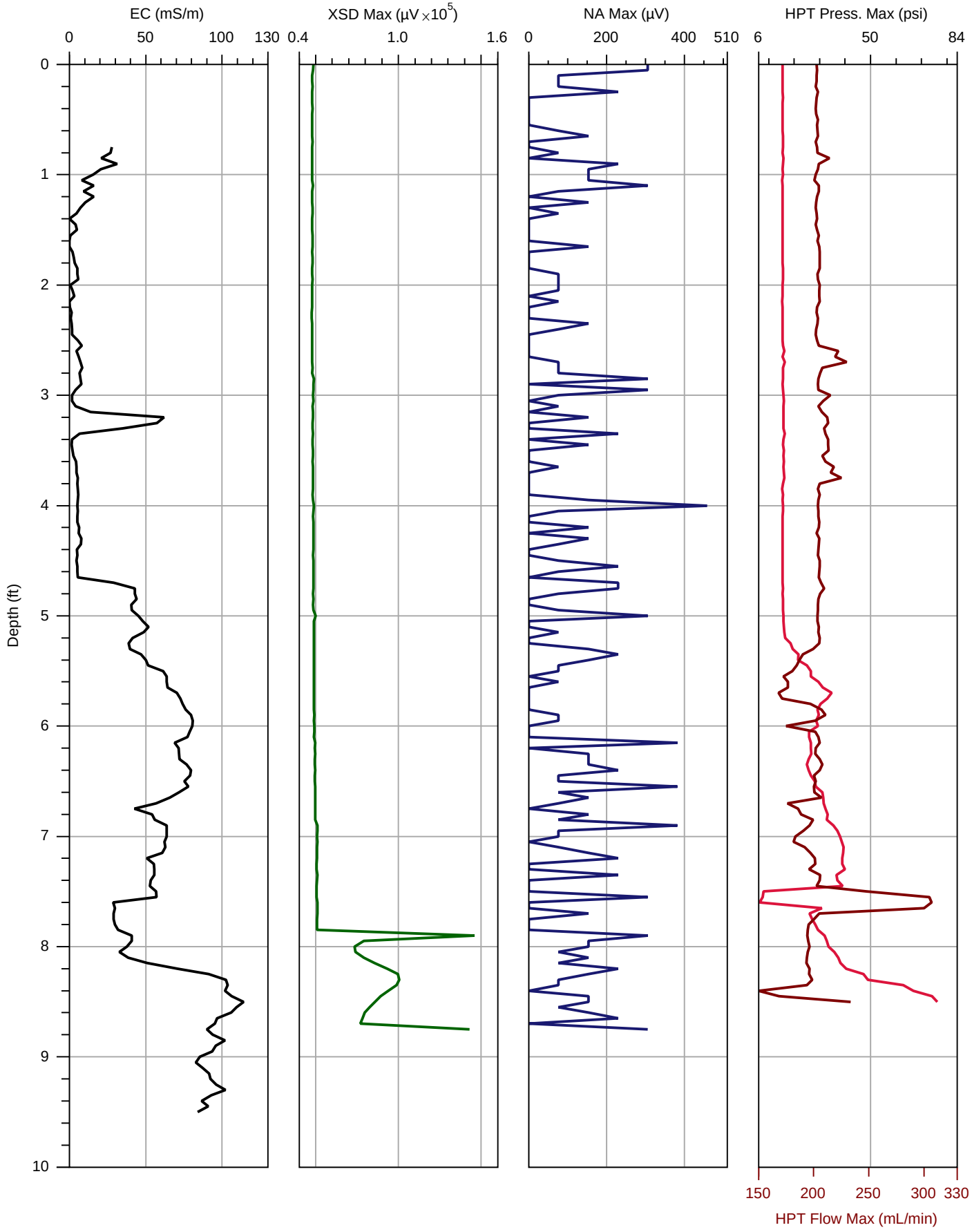
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	302.2	4.2	PASS

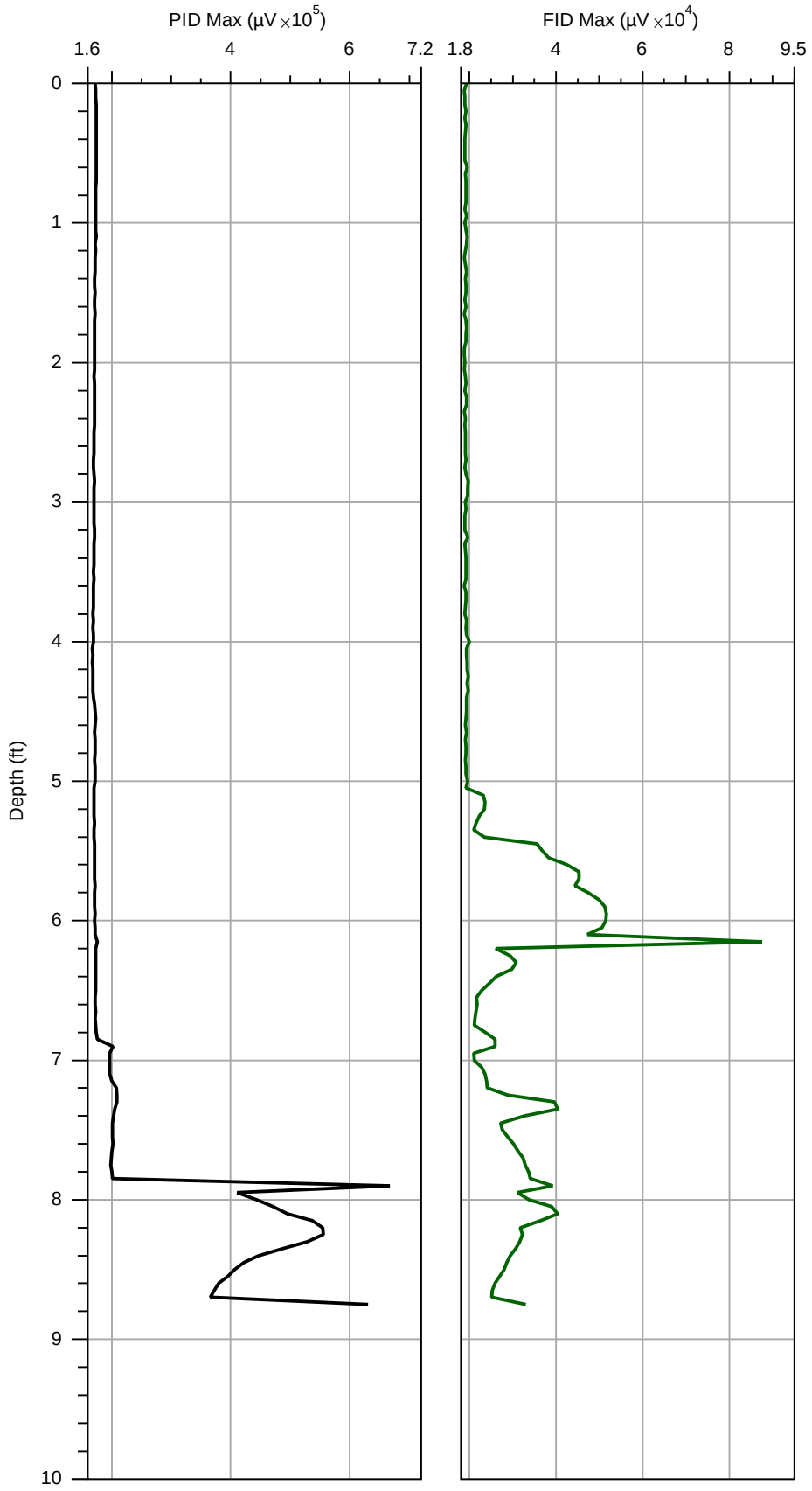
********** USER NOTES **********

MiHPT B-9A refusal at 9 feet. Post boring response testing showed elevated baselines. Baked out GC and increased trunkline flow to reduce residual response. Reset GC oven and trunkline flow to original settings, baseline for PID and XSD had dropped, post test response testing was run.



Direct Image® By Geoprobe Systems®

		File: MIHPT B-10A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



Direct Image® By Geoprobe Systems®

			File: MIHPT B-10A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-10A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.6	PASS
High	290.0	300.8	3.7	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT B-10A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 08:03:26

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Wed Sep 20 2017 08:07:38

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.391	0.0	106.120
TOP with FLOW>0	15.855	202.0	109.310
BOTTOM with FLOW=0	15.182	0.0	104.670
BOTTOM with FLOW>0	15.704	201.5	108.270

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (38.8 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 08:12:19

ATTENUATION CHANGES

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

LOG END DEPTH: 8.75 ft (2.667 m)
LOG END TIME: Wed Sep 20 2017 08:28:37

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-10A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 08:40:53

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 08:44:27

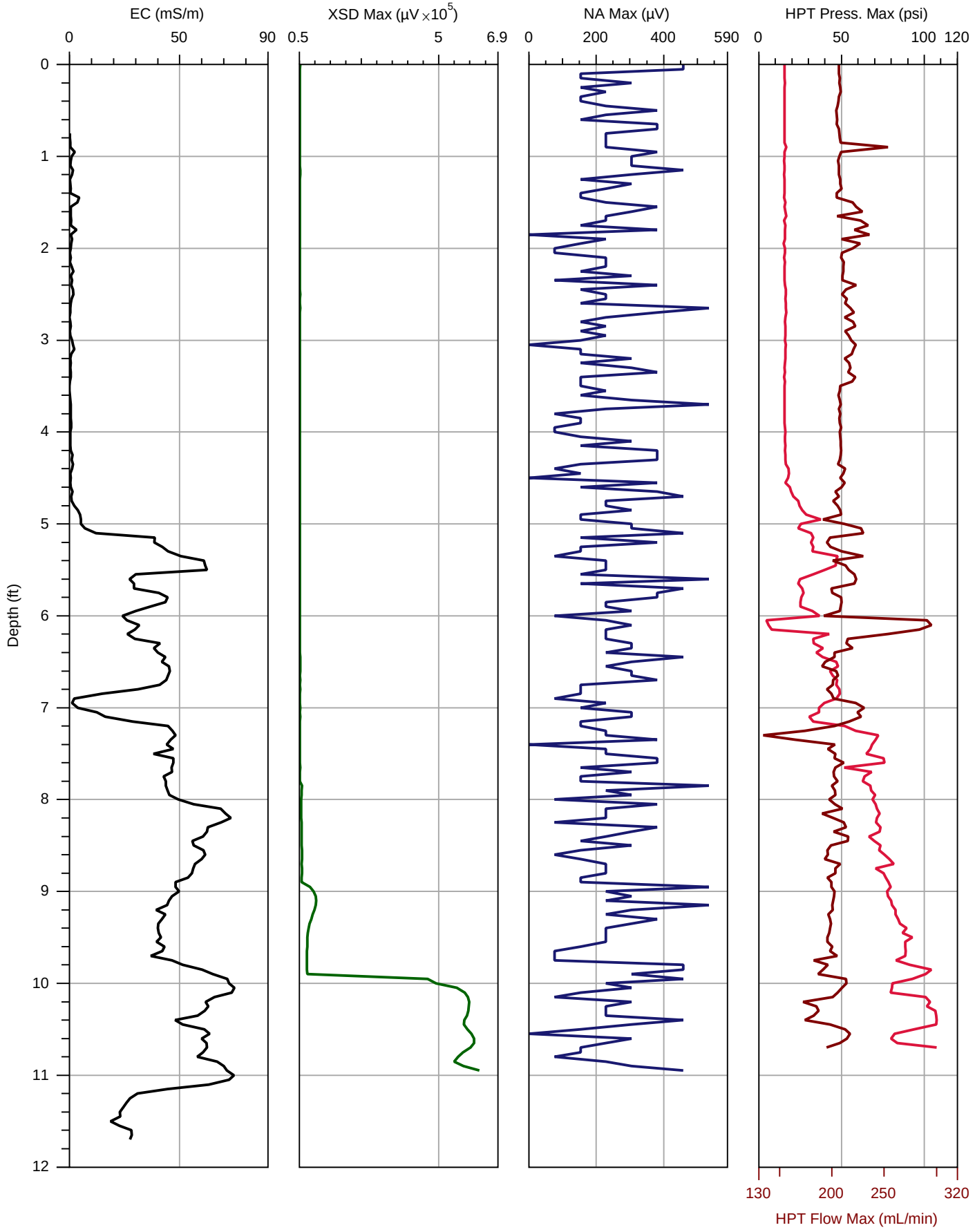
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.406	0.0	106.220
TOP with FLOW>0	15.882	203.4	109.500
BOTTOM with FLOW=0	15.203	0.0	104.820
BOTTOM with FLOW>0	15.706	204.8	108.290

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

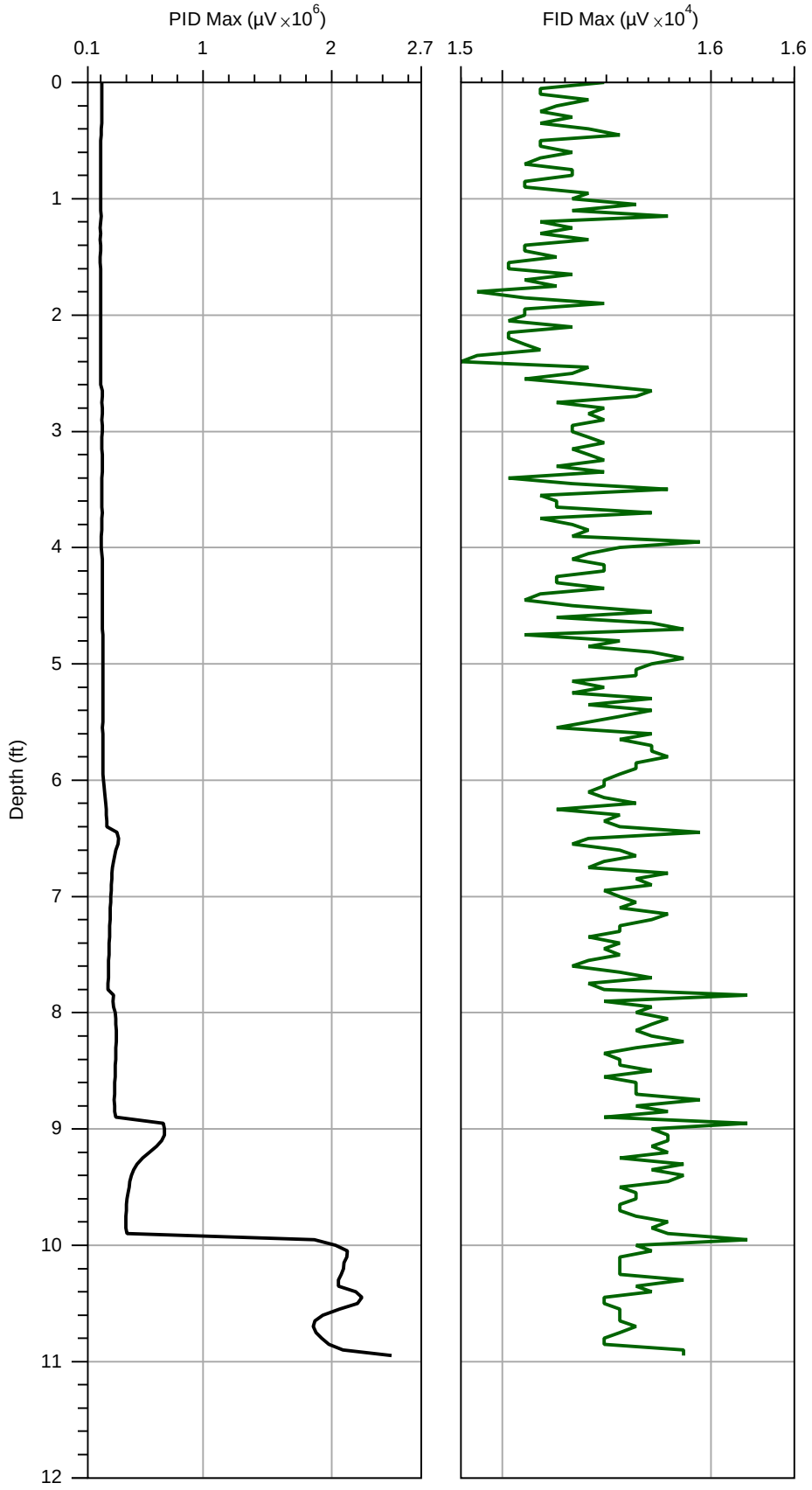
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	302.4	4.3	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-11A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-11A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-11A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-B-6A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	303.4	4.6	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-B-6A.zip)

FILENAME: MiHPT B-11A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 09:18:48

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-B-6A.zip)

PRE TEST TIME: Wed Sep 20 2017 09:22:14

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.420	0.0	106.320
TOP with FLOW>0	15.832	205.1	109.160
BOTTOM with FLOW=0	15.212	0.0	104.890
BOTTOM with FLOW>0	15.653	204.4	107.920

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (30.3 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 09:43:13

ATTENUATION CHANGES

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

LOG END DEPTH: 10.95 ft (3.338 m)
LOG END TIME: Wed Sep 20 2017 10:03:50

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-11A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 10:38:25

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 10:42:57

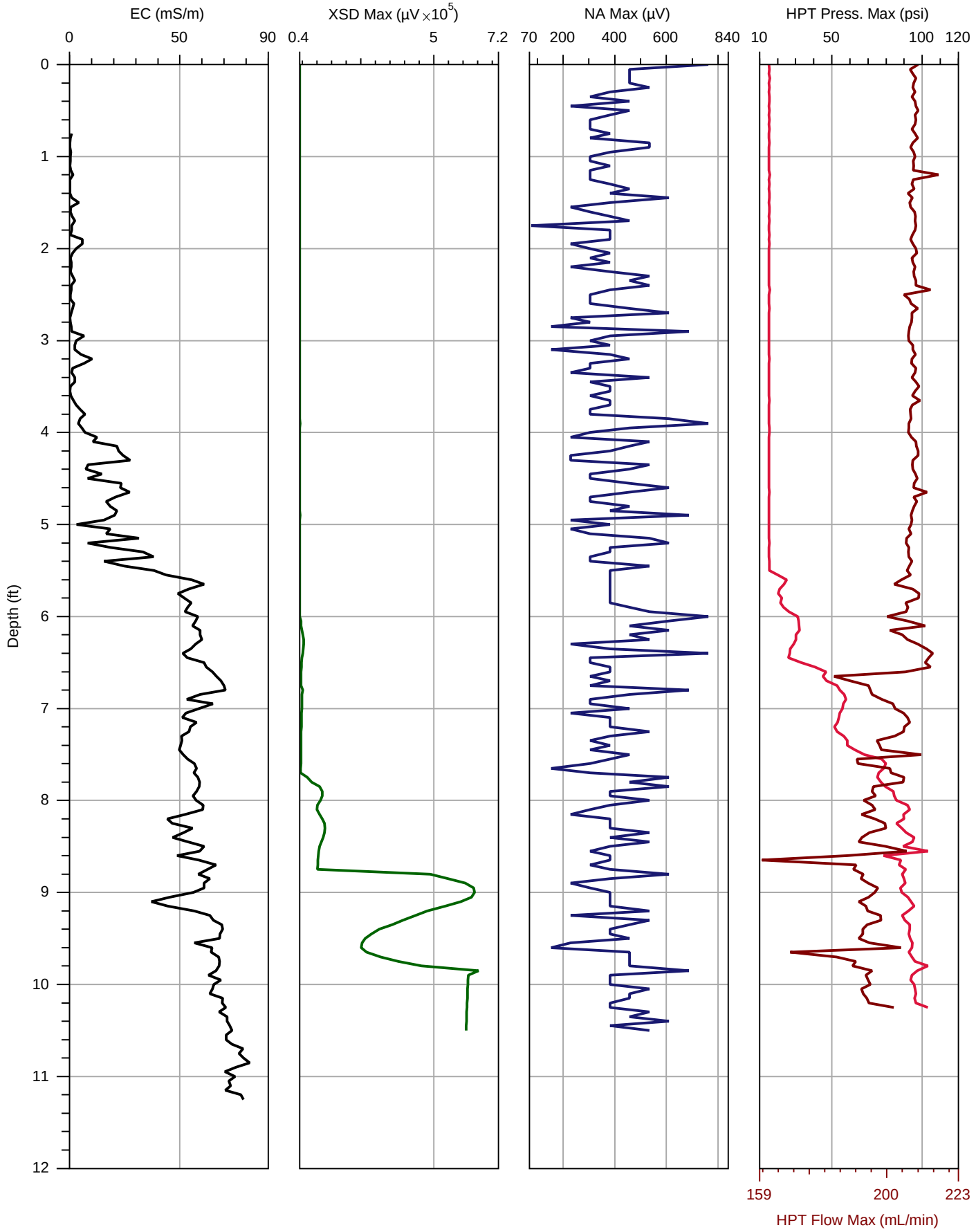
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.452	0.0	106.540
TOP with FLOW>0	15.953	206.8	109.990
BOTTOM with FLOW=0	15.247	0.0	105.120
BOTTOM with FLOW>0	15.874	203.8	109.450

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

TRANSDUCER TEST PASSED

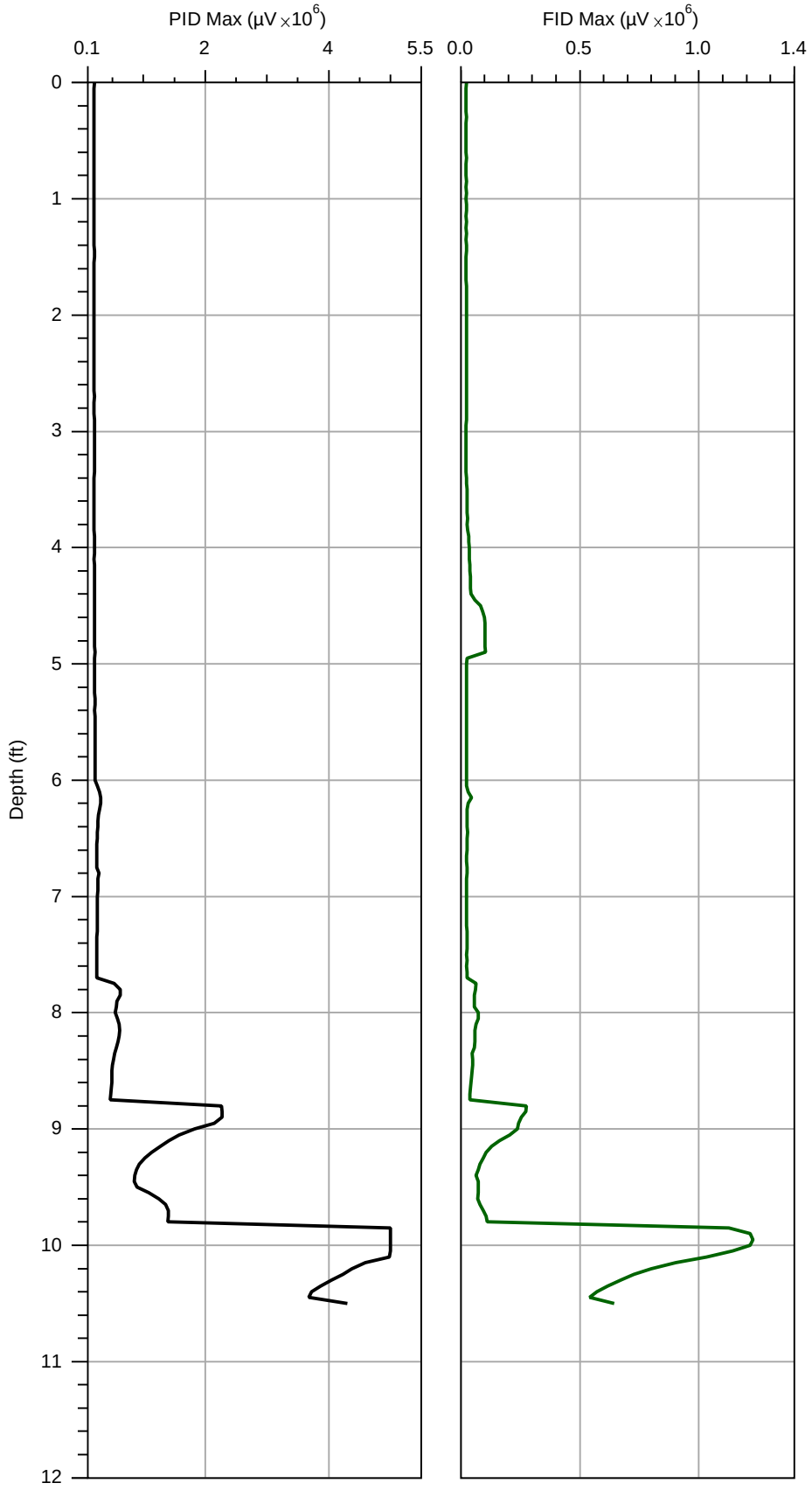
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.4	PASS
High	290.0	302.2	4.2	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-12A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-12A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-12A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-8A 2nd attempt.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.5	PASS
High	290.0	302.0	4.1	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-8A 2nd attempt.zip)

FILENAME: MiHPT B-12A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 14:54:19

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-8A 2nd attempt.zip)

PRE TEST TIME: Thu Sep 21 2017 14:58:07

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.185	0.0	104.700
TOP with FLOW>0	15.552	208.3	107.230
BOTTOM with FLOW=0	14.980	0.0	103.280
BOTTOM with FLOW>0	15.370	208.8	105.970

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (41.0 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 15:24:54

ATTENUATION CHANGES

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

LOG END DEPTH: 10.50 ft (3.200 m)
LOG END TIME: Thu Sep 21 2017 15:42:31

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-12A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 16:36:16

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 16:41:28

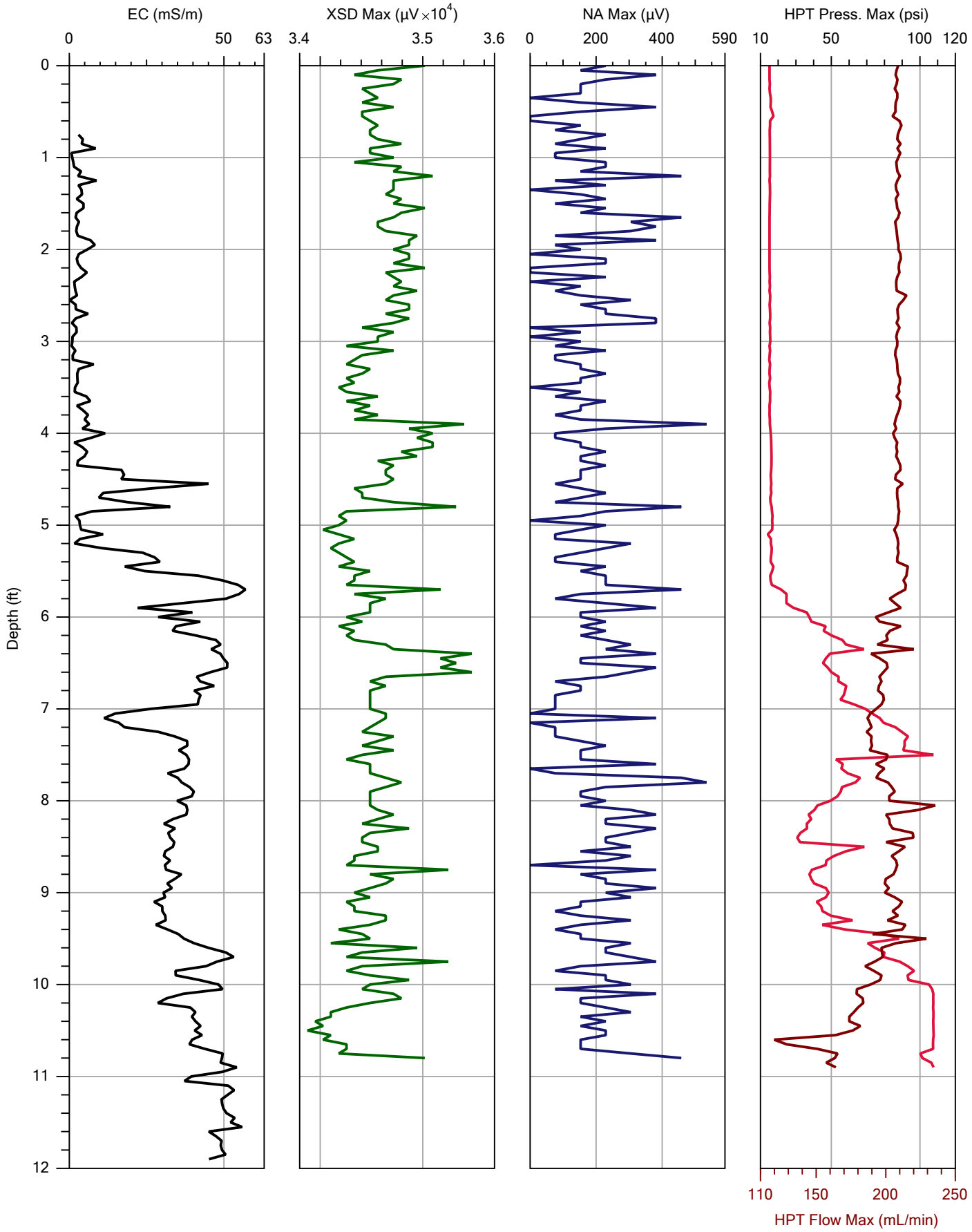
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.161	0.0	104.530
TOP with FLOW>0	15.709	208.0	108.310
BOTTOM with FLOW=0	14.952	0.0	103.090
BOTTOM with FLOW>0	15.689	207.6	108.170

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

TRANSDUCER TEST PASSED

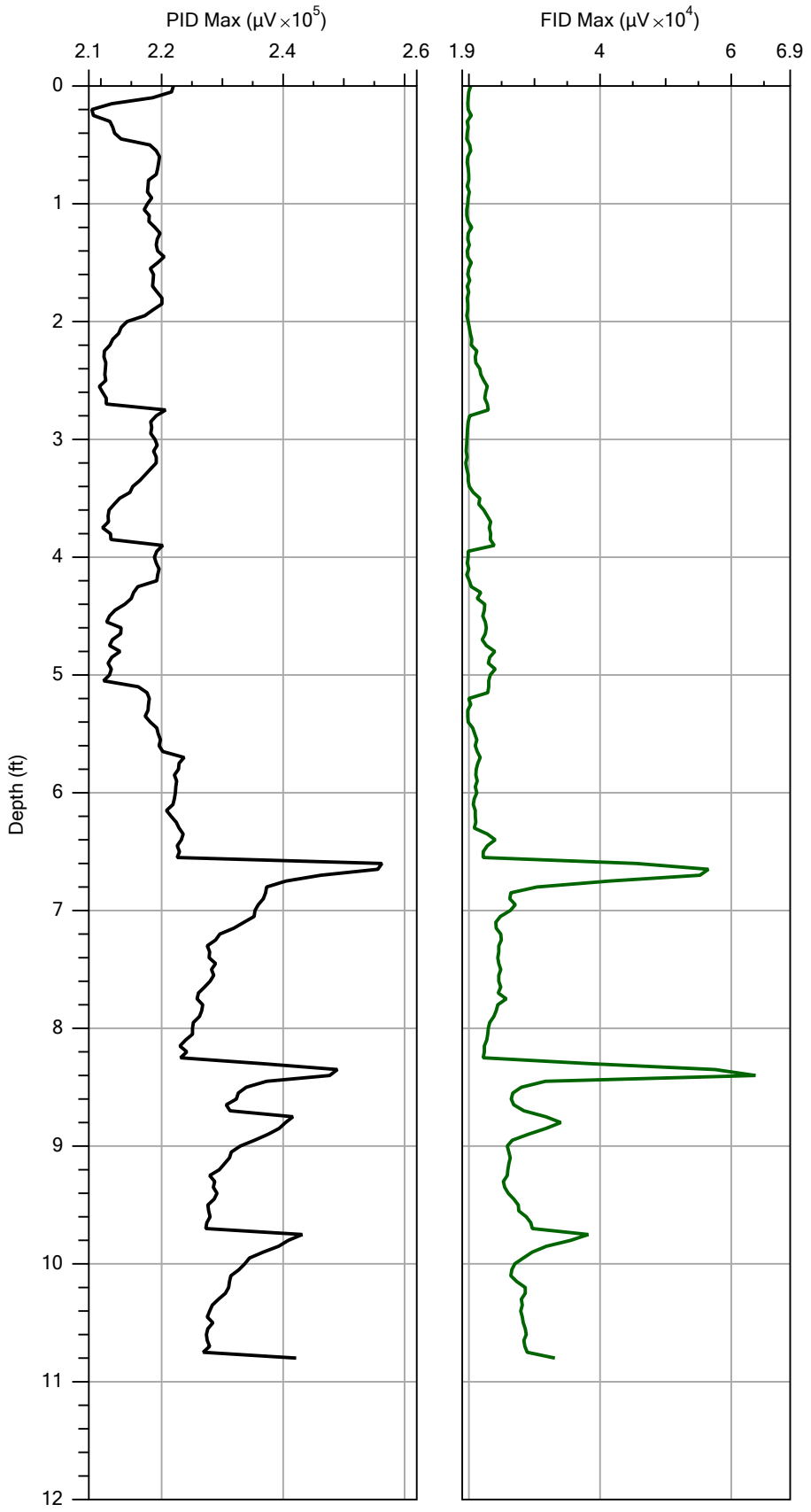
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.5	PASS
High	290.0	302.2	4.2	PASS



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		File: MIHPT B-13A.MHP
Project ID: 17101	Client: Aecom		Date: 9/22/2017
			Location: Sanborn, NY



Direct Image® By Geoprobe Systems®

		File: MIHPT B-13A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY

MiHPT B-13A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-14A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	54.4	1.1	PASS
High	290.0	302.9	4.4	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-14A.zip)

FILENAME: MiHPT B-13A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 08:49:40

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-14A.zip)

PRE TEST TIME: Fri Sep 22 2017 08:53:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.086	0.0	104.020
TOP with FLOW>0	15.487	206.2	106.780
BOTTOM with FLOW=0	14.874	0.0	102.550
BOTTOM with FLOW>0	15.289	207.3	105.410

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (30.4 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 09:11:26

ATTENUATION CHANGES

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

LOG END DEPTH: 11.15 ft (3.399 m)
LOG END TIME: Fri Sep 22 2017 09:31:05

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-13A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 09:44:09

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 09:48:05

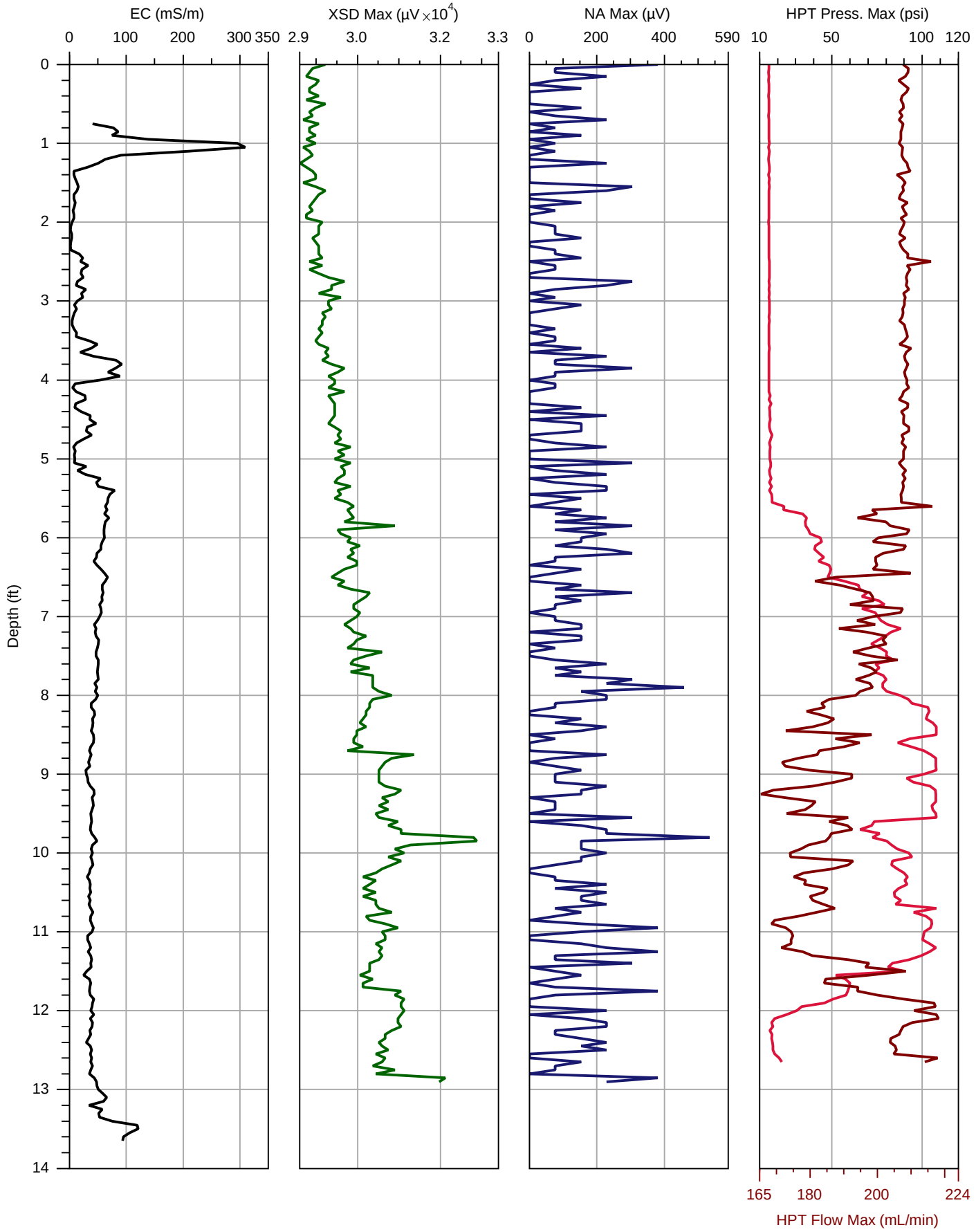
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.124	0.0	104.280
TOP with FLOW>0	15.514	205.9	106.970
BOTTOM with FLOW=0	14.905	0.0	102.770
BOTTOM with FLOW>0	15.321	205.9	105.630

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

TRANSDUCER TEST PASSED

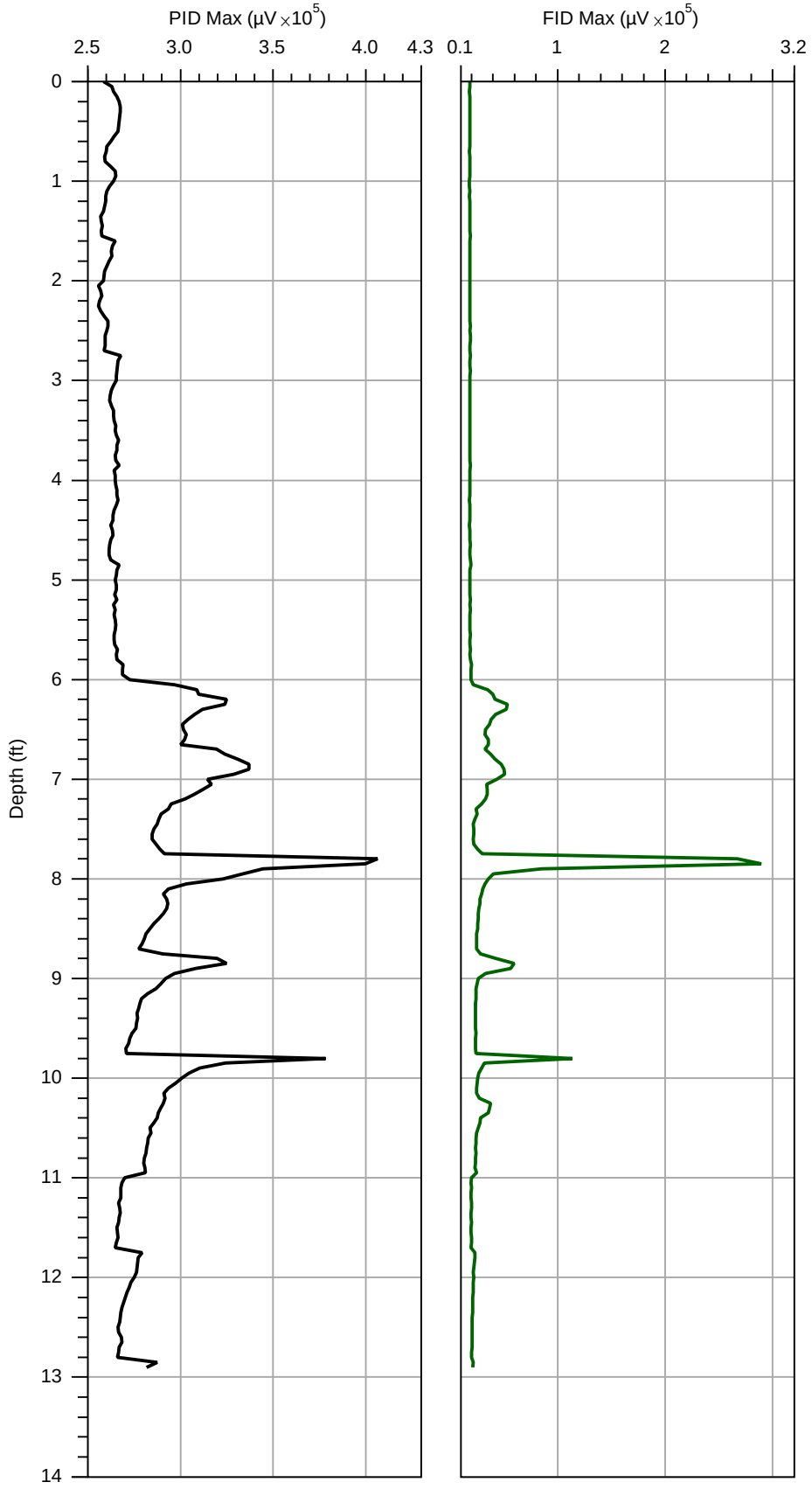
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	2.9	PASS
High	290.0	302.8	4.4	PASS



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	File: MIHPT B-14A.MHP
Project ID: 17101	Client: Aecom	Date: 9/22/2017
		Location: Sanborn, NY



			File: MIHPT B-14A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-14A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-15A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.5	PASS
High	290.0	303.1	4.5	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-15A.zip)

FILENAME: MiHPT B-14A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 08:10:06

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-15A.zip)

PRE TEST TIME: Fri Sep 22 2017 08:14:04

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.063	0.0	103.860
TOP with FLOW>0	15.514	207.4	106.960
BOTTOM with FLOW=0	14.848	0.0	102.380
BOTTOM with FLOW>0	15.343	207.3	105.780

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (40.1 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 08:17:40

ATTENUATION CHANGES

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

LOG END DEPTH: 12.90 ft (3.932 m)
LOG END TIME: Fri Sep 22 2017 08:38:05

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-14A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 08:49:40

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 08:53:19

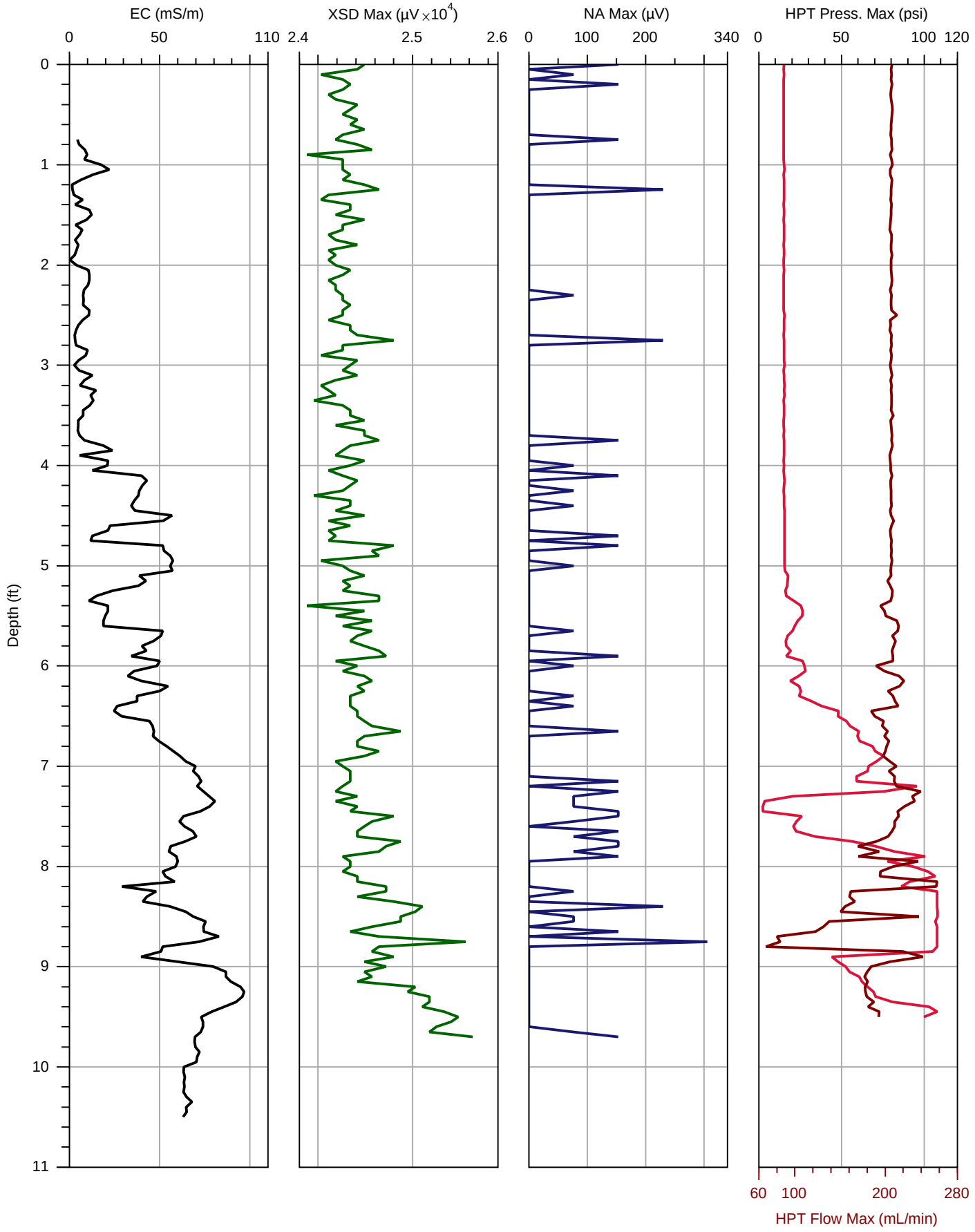
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.086	0.0	104.020
TOP with FLOW>0	15.487	206.2	106.780
BOTTOM with FLOW=0	14.874	0.0	102.550
BOTTOM with FLOW>0	15.289	207.3	105.410

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

TRANSDUCER TEST PASSED

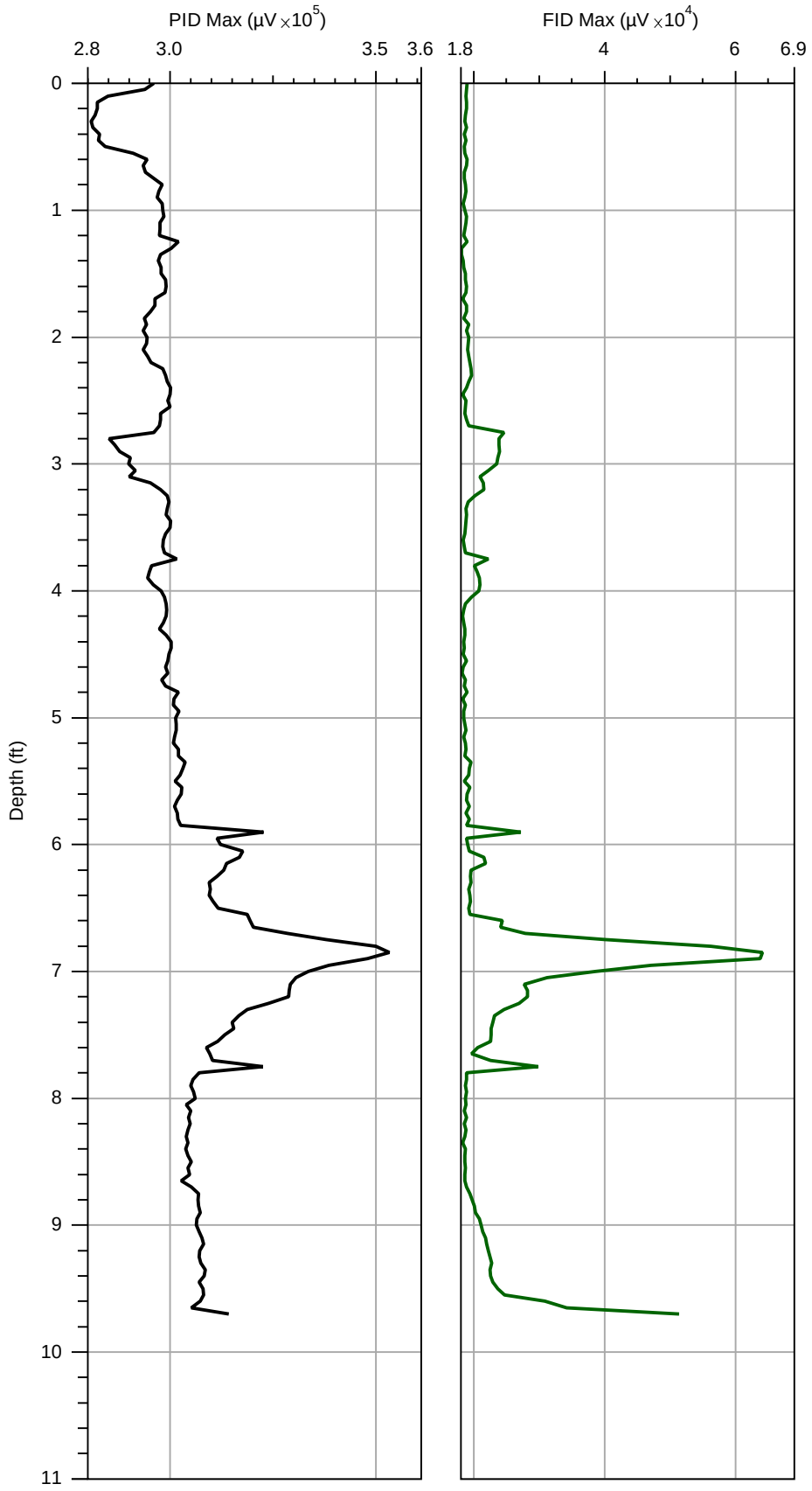
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	54.4	1.1	PASS
High	290.0	302.9	4.4	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-15A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-15A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-15A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.6	PASS
High	290.0	298.6	3.0	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT B-15A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 07:28:18

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Fri Sep 22 2017 07:31:55

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.032	0.0	103.640
TOP with FLOW>0	15.522	205.2	107.020
BOTTOM with FLOW=0	14.827	0.0	102.230
BOTTOM with FLOW>0	15.339	203.8	105.760

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (38.3 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 07:34:51

ATTENUATION CHANGES

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

LOG END DEPTH: 9.75 ft (2.972 m)
LOG END TIME: Fri Sep 22 2017 07:50:09

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-15A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 08:10:06

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 08:14:04

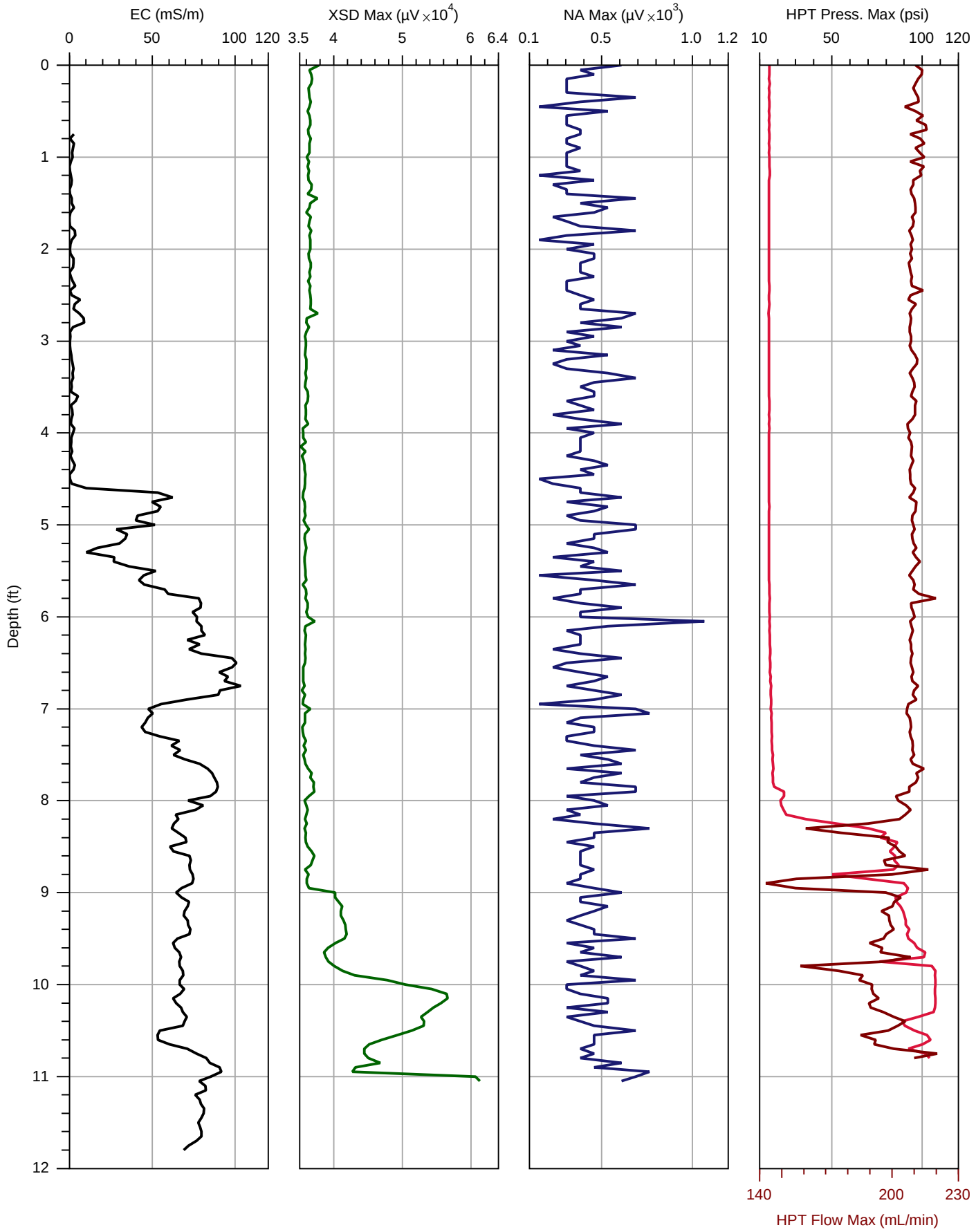
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.063	0.0	103.860
TOP with FLOW>0	15.514	207.4	106.960
BOTTOM with FLOW=0	14.848	0.0	102.380
BOTTOM with FLOW>0	15.343	207.3	105.780

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

TRANSDUCER TEST PASSED

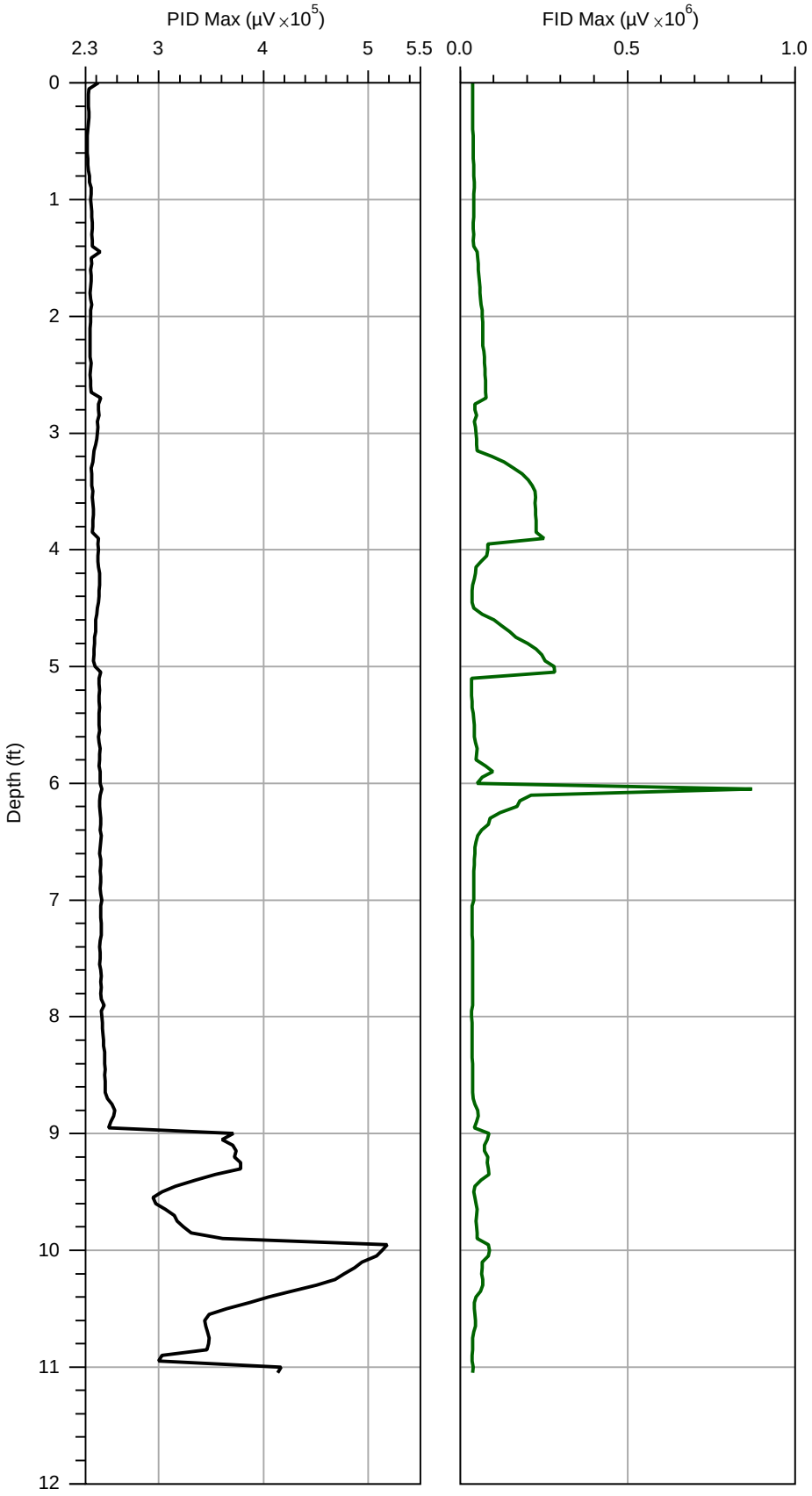
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.5	PASS
High	290.0	303.1	4.5	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-16A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



Direct Image® By Geoprobe Systems®

		File: MIHPT B-16A.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY

MiHPT B-16A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-12A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.8	1.5	PASS
High	290.0	302.2	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-12A.zip)

FILENAME: MiHPT B-16A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 16:36:16

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-12A.zip)

PRE TEST TIME: Thu Sep 21 2017 16:41:28

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.161	0.0	104.530
TOP with FLOW>0	15.709	208.0	108.310
BOTTOM with FLOW=0	14.952	0.0	103.090
BOTTOM with FLOW>0	15.689	207.6	108.170

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (51.2 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 16:46:15

ATTENUATION CHANGES

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

LOG END DEPTH: 11.05 ft (3.368 m)
LOG END TIME: Thu Sep 21 2017 17:01:02

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-16A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 17:08:00

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 17:11:53

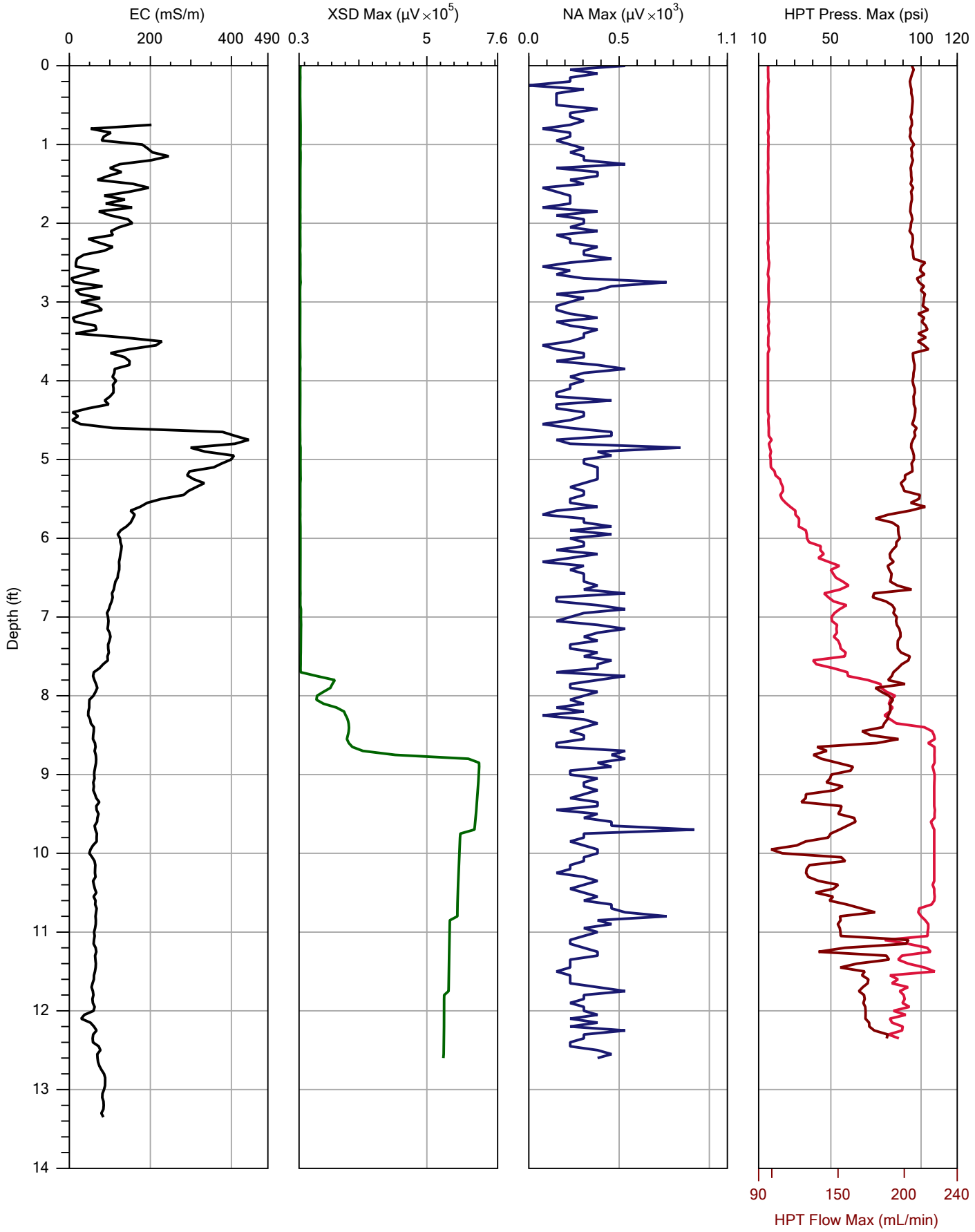
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.117	0.0	104.220
TOP with FLOW>0	15.599	207.5	107.550
BOTTOM with FLOW=0	14.908	0.0	102.790
BOTTOM with FLOW>0	15.403	208.3	106.200

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

TRANSDUCER TEST PASSED

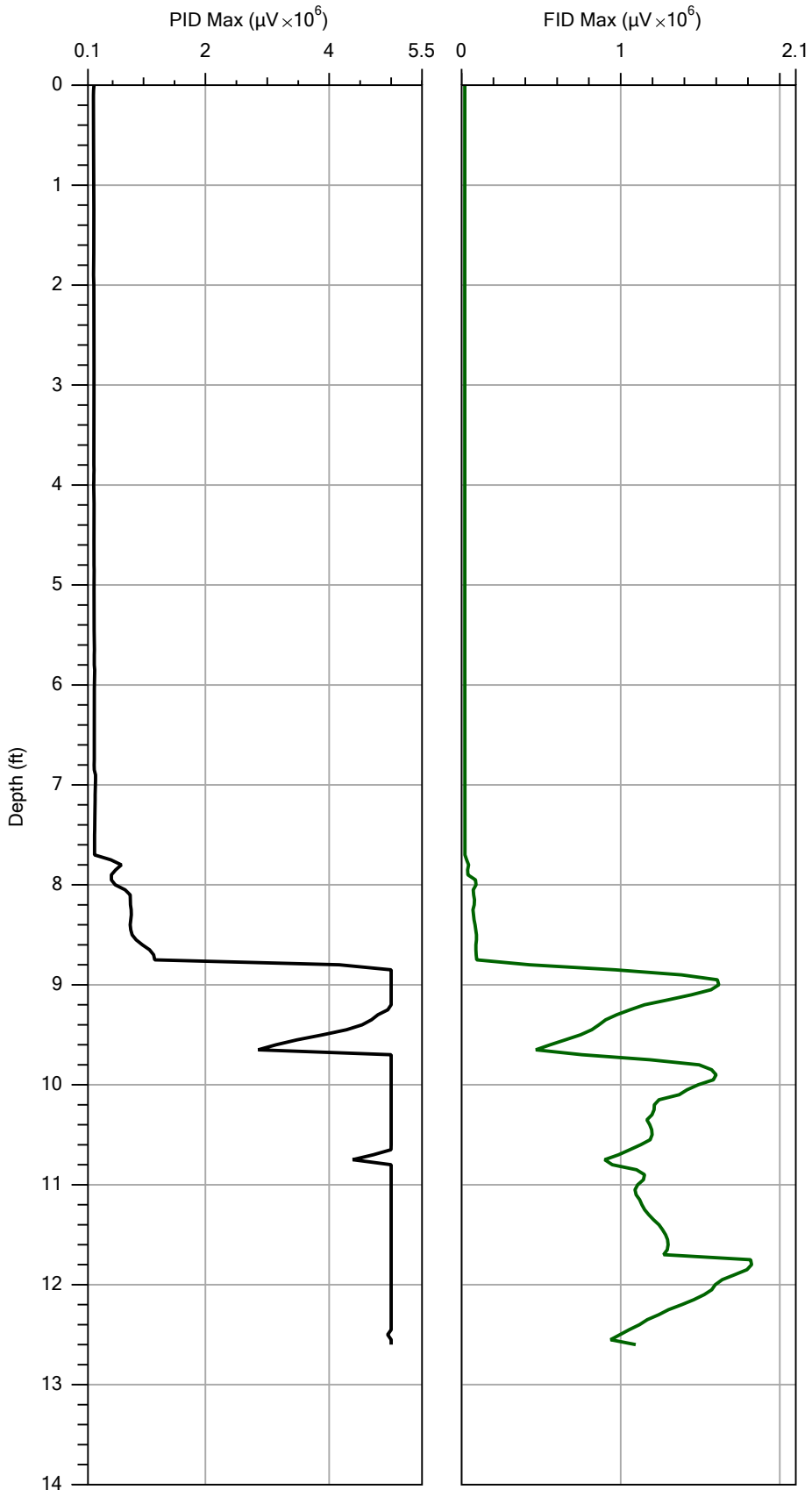
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.3	0.5	PASS
High	290.0	302.0	4.1	PASS



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		File: MIHPT B-17A.MHP
Project ID: 17101	Client: Aecom		Date: 9/22/2017
			Location: Sanborn, NY



			File: MIHPT B-17A.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-17A.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-14.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.0	3.6	PASS
High	290.0	300.0	3.5	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-14.zip)

FILENAME: MiHPT B-17A.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 12:08:37

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-14.zip)

PRE TEST TIME: Fri Sep 22 2017 12:12:07

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.158	0.0	104.510
TOP with FLOW>0	15.570	202.7	107.350
BOTTOM with FLOW=0	14.943	0.0	103.030
BOTTOM with FLOW>0	15.372	202.9	105.990

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (37.1 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 12:26:44

ATTENUATION CHANGES

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

LOG END DEPTH: 12.60 ft (3.840 m)
LOG END TIME: Fri Sep 22 2017 12:46:35

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-17A.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 13:13:27

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 13:17:06

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.201	0.0	104.810
TOP with FLOW>0	15.657	208.4	107.950
BOTTOM with FLOW=0	14.992	0.0	103.370
BOTTOM with FLOW>0	15.530	208.8	107.070

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

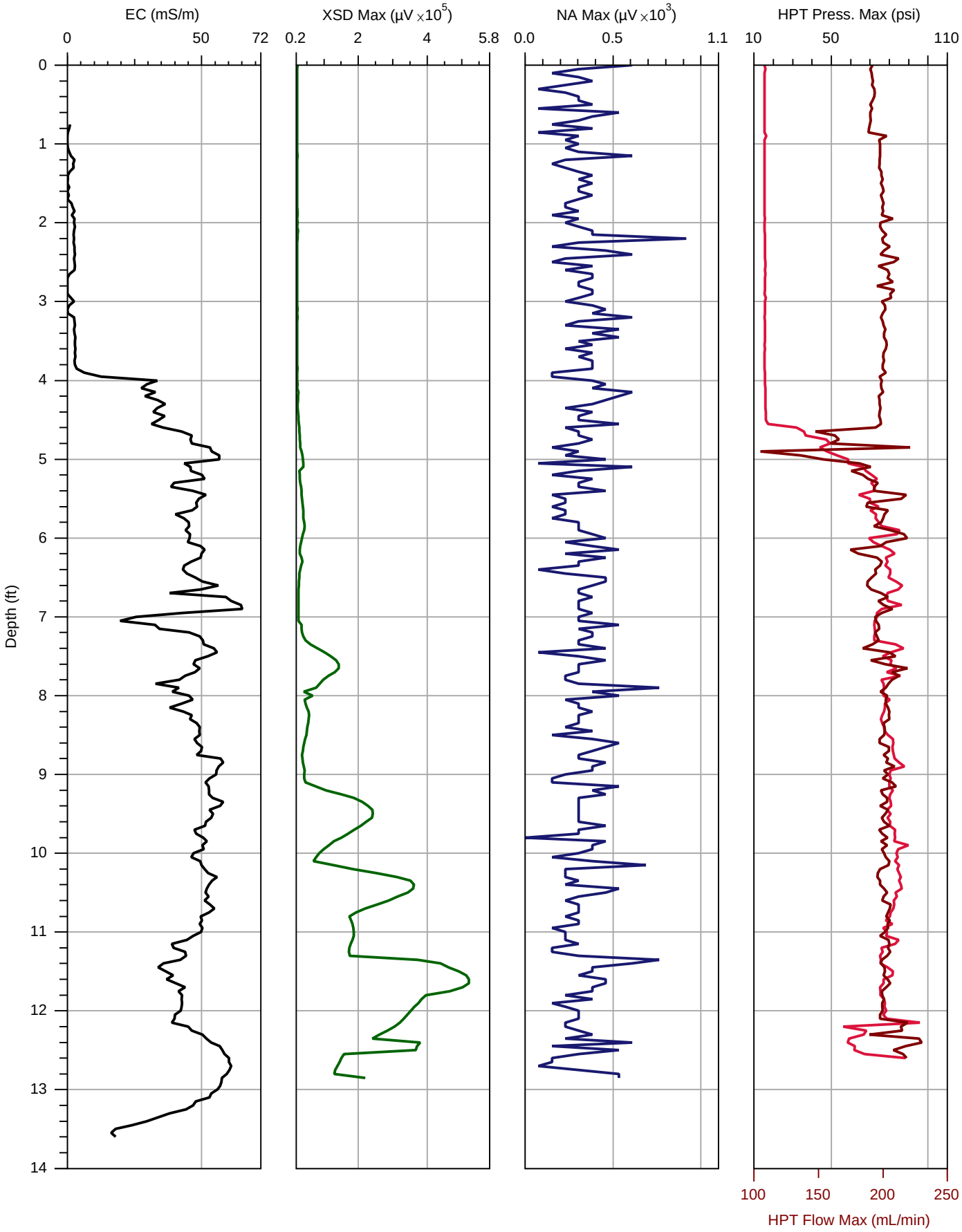
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.9	3.5	PASS
High	290.0	302.7	4.4	PASS

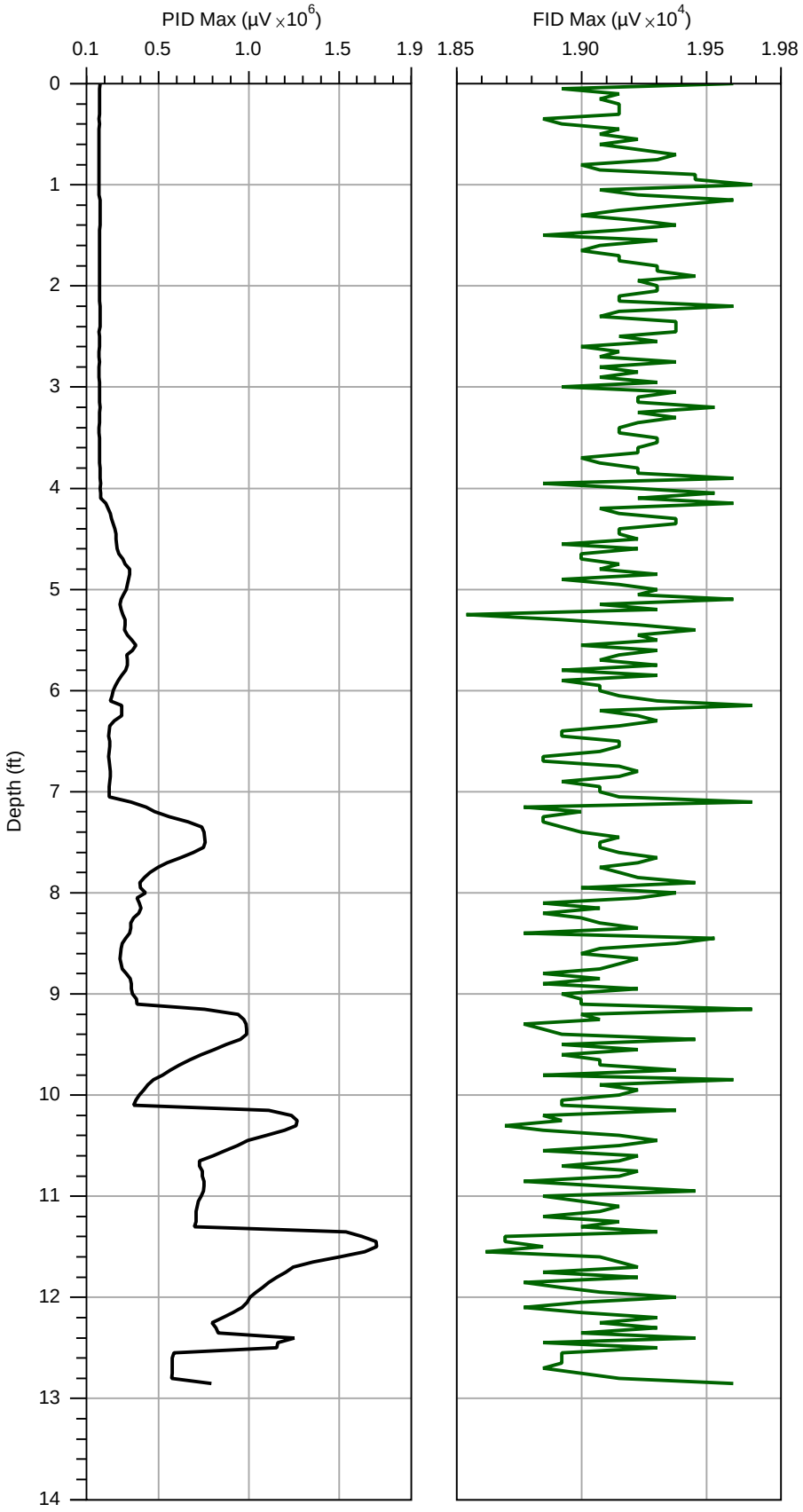
Boring location B-8 was not performed due to utility interferences.

Boring log labeled B-15 herein is for location B-12.



Direct Image® By Geoprobe Systems®

		File: MIHPT-1.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/18/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT-1.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/18/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT-1.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.3	PASS
High	290.0	301.3	3.9	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT-1.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Mon Sep 18 2017 12:40:49

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Mon Sep 18 2017 12:44:46

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.396	0.0	106.160
TOP with FLOW>0	15.770	201.9	108.730
BOTTOM with FLOW=0	15.161	0.0	104.530
BOTTOM with FLOW>0	15.597	205.6	107.540

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.24 psi (1.6 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (43.5 deg C) at 0.00 ft (0.000 m)

Temperature out of range (41.8 deg C) at 0.00 ft (0.000 m)

Temperature out of range (41.0 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Mon Sep 18 2017 12:51:03

ATTENUATION CHANGES

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

LOG END DEPTH: 12.85 ft (3.917 m)
LOG END TIME: Mon Sep 18 2017 13:53:24

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-1.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Mon Sep 18 2017 13:57:35

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Sep 18 2017 14:01:19

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.346	0.0	105.810
TOP with FLOW>0	15.723	210.2	108.400
BOTTOM with FLOW=0	15.124	0.0	104.270
BOTTOM with FLOW>0	15.553	215.4	107.230

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

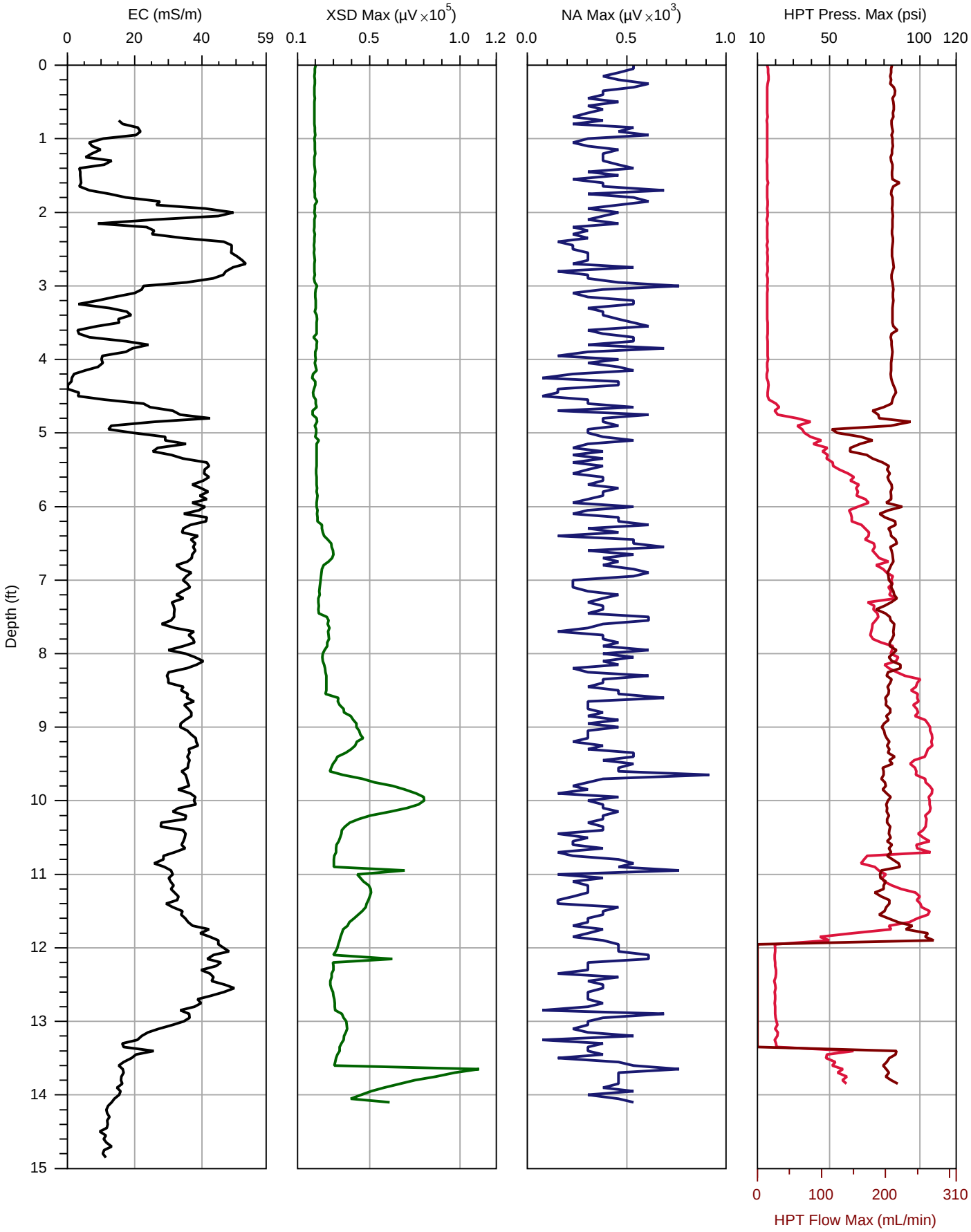
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.4	2.5	PASS
High	290.0	301.5	4.0	PASS

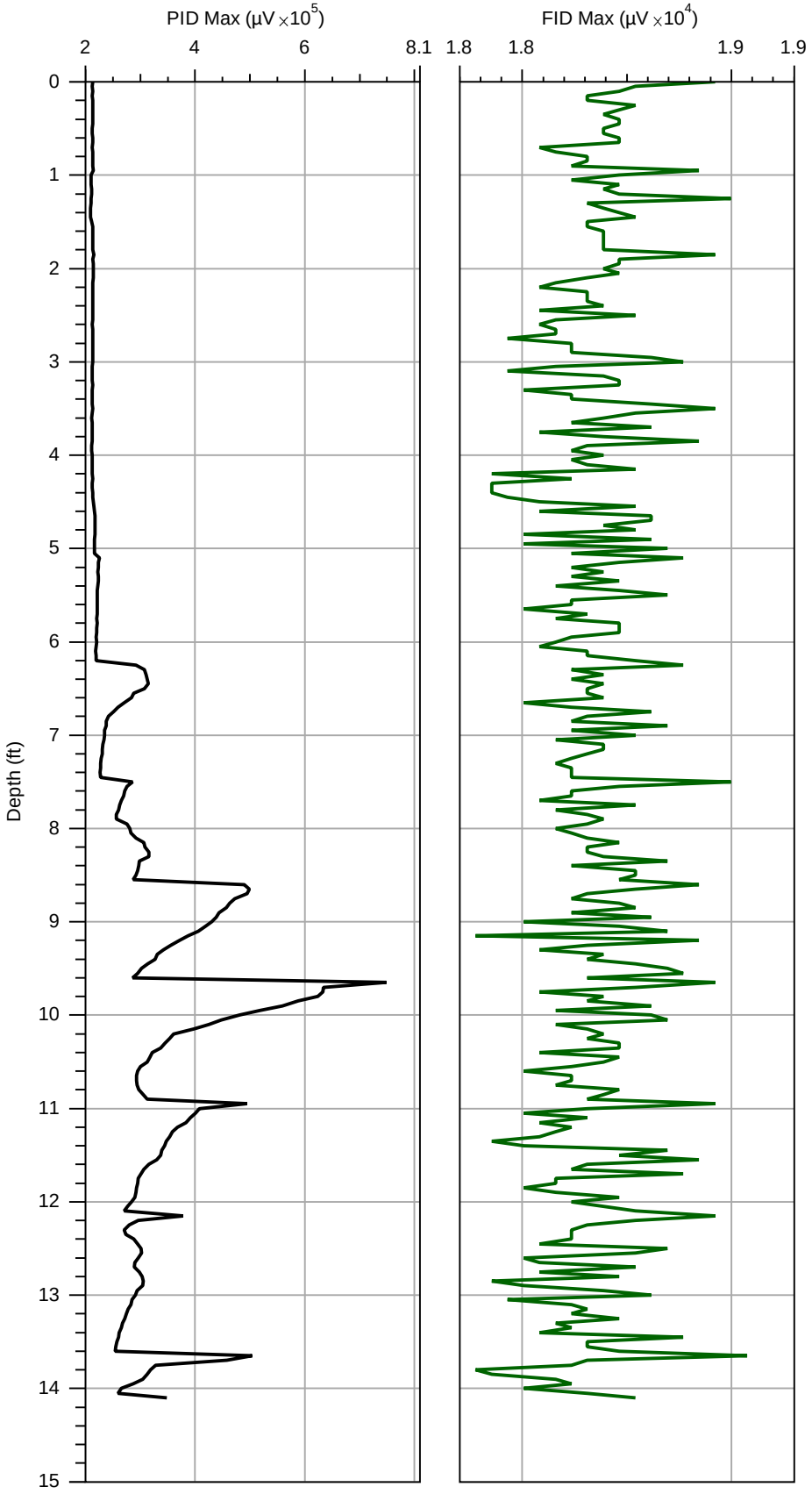
********** USER NOTES **********

MiHPT-1 didnt do dissipation test due to high HPT line pressure. Refusal at 12.85 feet. Hole near corner, paved area, wooden crates.



Direct Image® By Geoprobe Systems®

		File: MIHPT-2.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/18/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



		File: MIHPT-2.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/18/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY

MiHPT-2.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-2.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.5	2.6	PASS
High	290.0	302.2	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-2.zip)

FILENAME: MiHPT-2.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Mon Sep 18 2017 16:28:25

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-2.zip)

PRE TEST TIME: Mon Sep 18 2017 16:32:08

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.408	0.0	106.240
TOP with FLOW>0	15.710	221.0	108.320
BOTTOM with FLOW=0	15.199	0.0	104.790
BOTTOM with FLOW>0	15.529	213.5	107.070

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (48.2 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Mon Sep 18 2017 16:35:29

Temperature out of range (79.9 deg C) at 12.15 ft (3.703 m)

Probe advancement with HPT flow valve and/or pump switch turned off at 12.20 ft (3.719 m).

Temperature out of range (27.4 deg C) at 13.65 ft (4.161 m)

ATTENUATION CHANGES

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

LOG END DEPTH: 14.10 ft (4.298 m)
LOG END TIME: Mon Sep 18 2017 17:16:56

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-2.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Mon Sep 18 2017 17:18:44

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Mon Sep 18 2017 17:23:36

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.360	0.0	105.900
TOP with FLOW>0	15.891	210.8	109.570
BOTTOM with FLOW=0	15.143	0.0	104.410
BOTTOM with FLOW>0	15.613	210.1	107.650

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

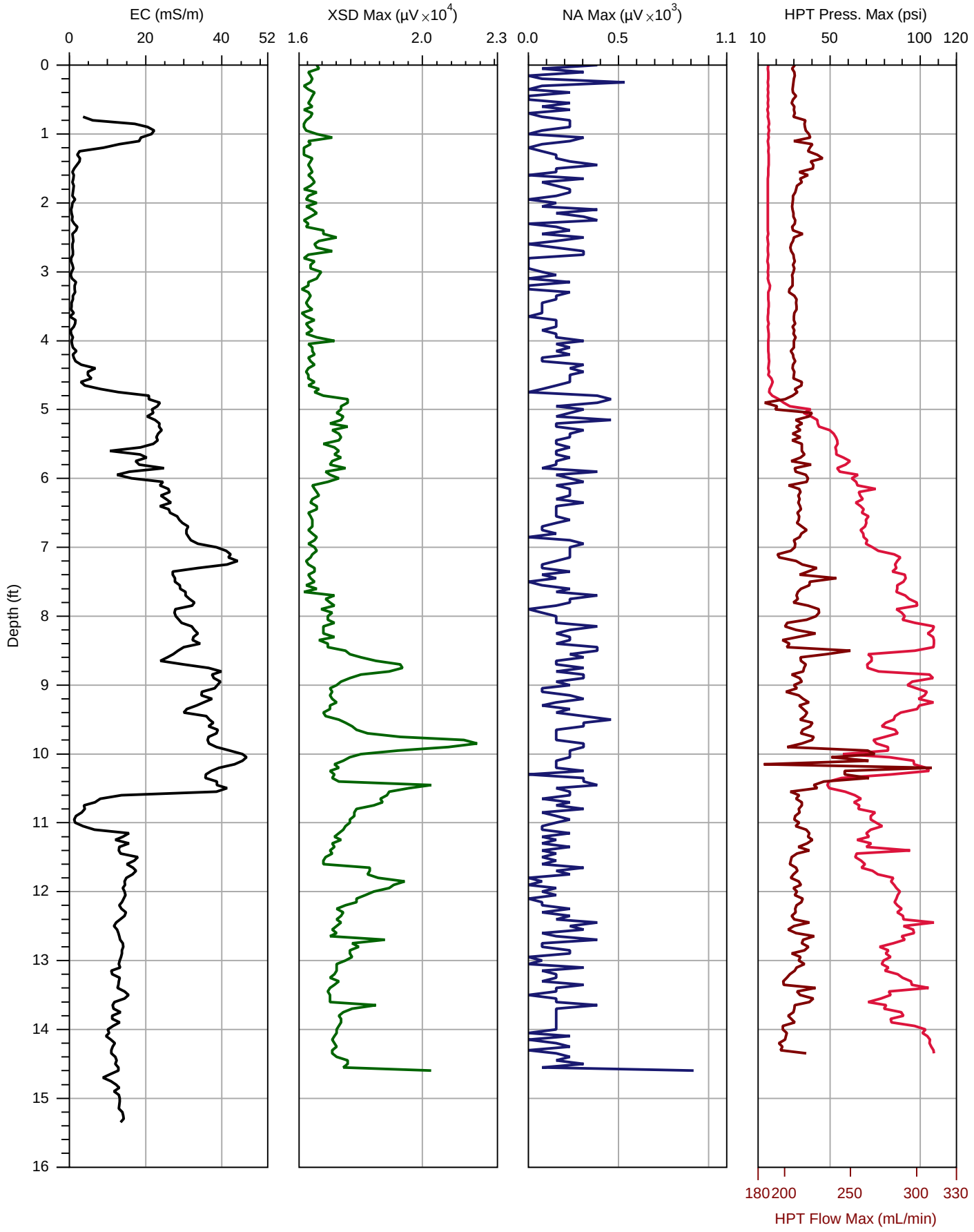
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.7	1.2	PASS
High	290.0	302.7	4.4	PASS

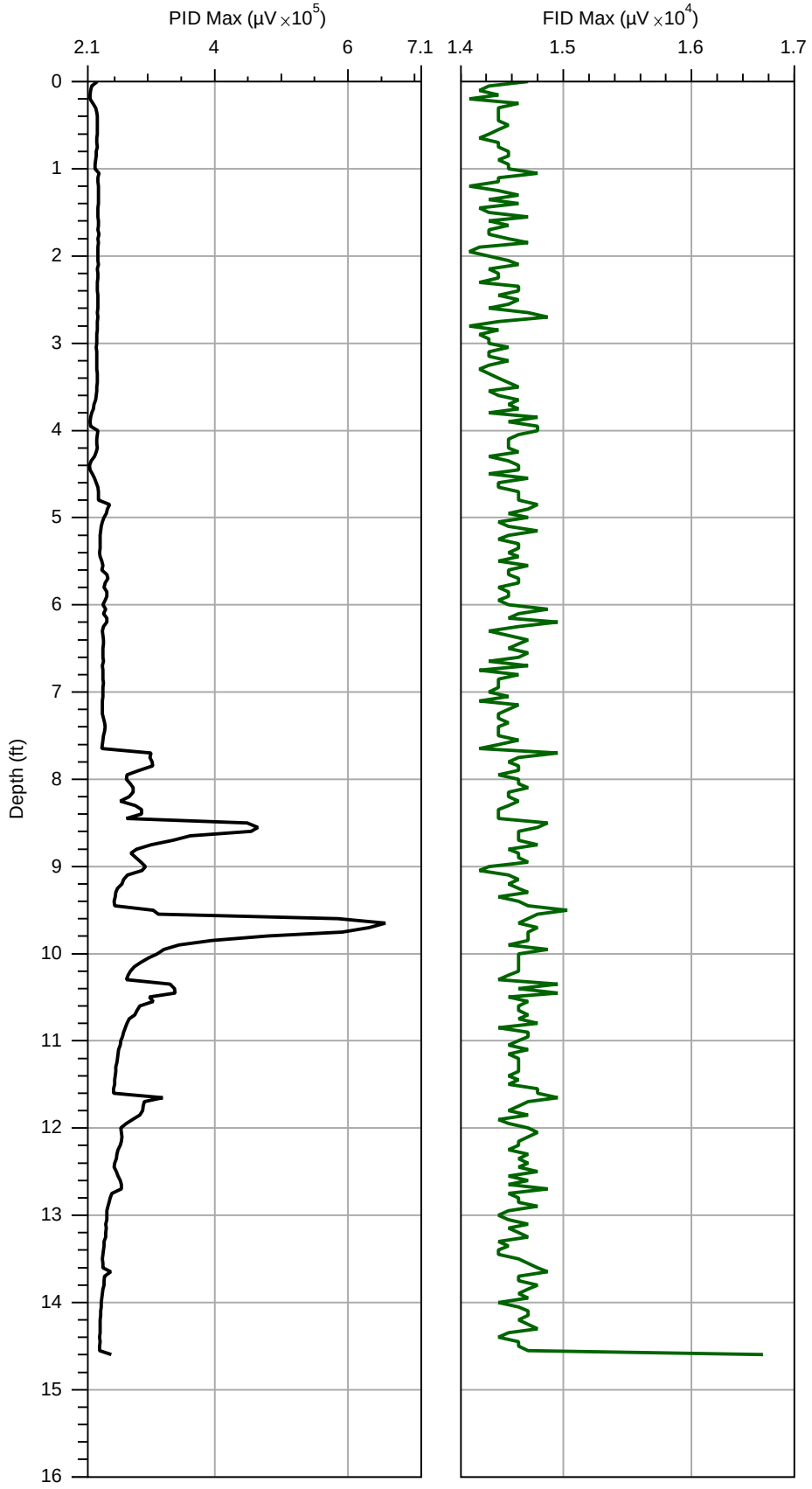
********** USER NOTES **********

MiHPT-2 refusal 14 feet. Hand cleared 5 feet. dissipation test will look funny do to advancing rods while test was underway.



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	File: MIHPT-3.MHP
Project ID: 17101	Client: Aecom	Date: 9/19/2017
		Location: Sanborn, NY



			File: MIHPT-3.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/19/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT-3.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.2	0.4	PASS
High	290.0	298.5	2.9	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT-3.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 08:17:10

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Tue Sep 19 2017 08:20:49

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.299	0.0	105.480
TOP with FLOW>0	15.749	206.0	108.590
BOTTOM with FLOW=0	15.087	0.0	104.020
BOTTOM with FLOW>0	15.712	205.3	108.330

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (42.6 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Tue Sep 19 2017 08:24:27

Temperature out of range (79.7 deg C) at 14.60 ft (4.450 m)

Temperature out of range (41.9 deg C) at 14.60 ft (4.450 m)

Temperature out of range (28.0 deg C) at 14.60 ft (4.450 m)

Temperature out of range (25.3 deg C) at 14.60 ft (4.450 m)

Temperature out of range (23.3 deg C) at 14.60 ft (4.450 m)

Temperature out of range (19.2 deg C) at 14.60 ft (4.450 m)

Temperature out of range (18.9 deg C) at 14.60 ft (4.450 m)

Temperature out of range (18.5 deg C) at 14.60 ft (4.450 m)

Temperature out of range (18.3 deg C) at 14.60 ft (4.450 m)

Temperature out of range (18.1 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.8 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.7 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.6 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.3 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.3 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.2 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.2 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.0 deg C) at 14.60 ft (4.450 m)

Temperature out of range (17.0 deg C) at 14.60 ft (4.450 m)

Temperature out of range (16.9 deg C) at 14.60 ft (4.450 m)

Temperature out of range (16.9 deg C) at 14.60 ft (4.450 m)

Temperature out of range (16.8 deg C) at 14.60 ft (4.450 m)

Temperature out of range (23.6 deg C) at 14.60 ft (4.450 m)

Temperature out of range (20.0 deg C) at 14.60 ft (4.450 m)

ATTENUATION CHANGES

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

LOG END DEPTH: 14.60 ft (4.450 m)
LOG END TIME: Tue Sep 19 2017 10:10:52

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-3.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 10:16:02

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Sep 19 2017 10:19:26

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.336	0.0	105.740
TOP with FLOW>0	15.746	212.2	108.560
BOTTOM with FLOW=0	15.118	0.0	104.240
BOTTOM with FLOW>0	15.556	211.3	107.250

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

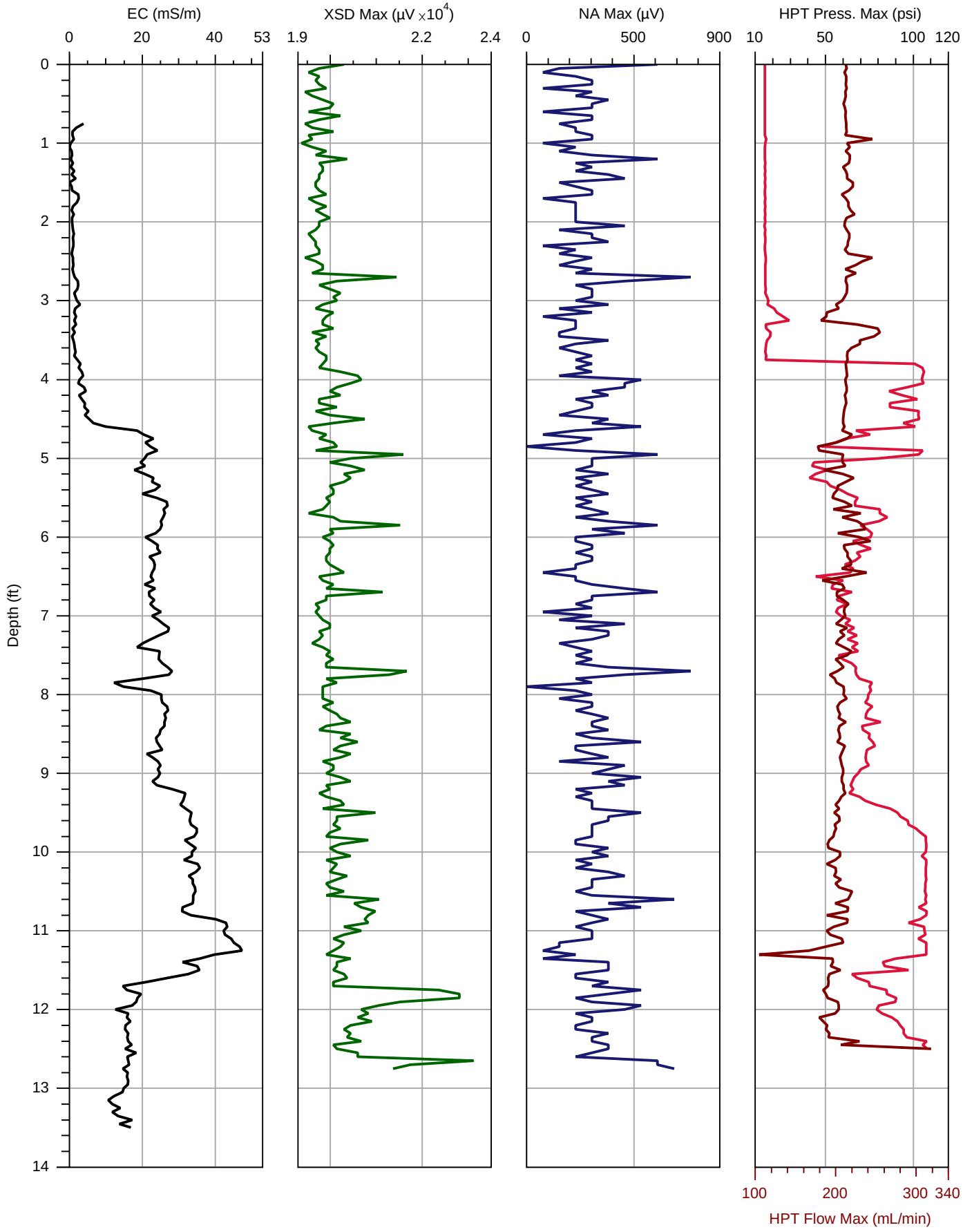
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.7	3.2	PASS
High	290.0	296.6	2.3	PASS

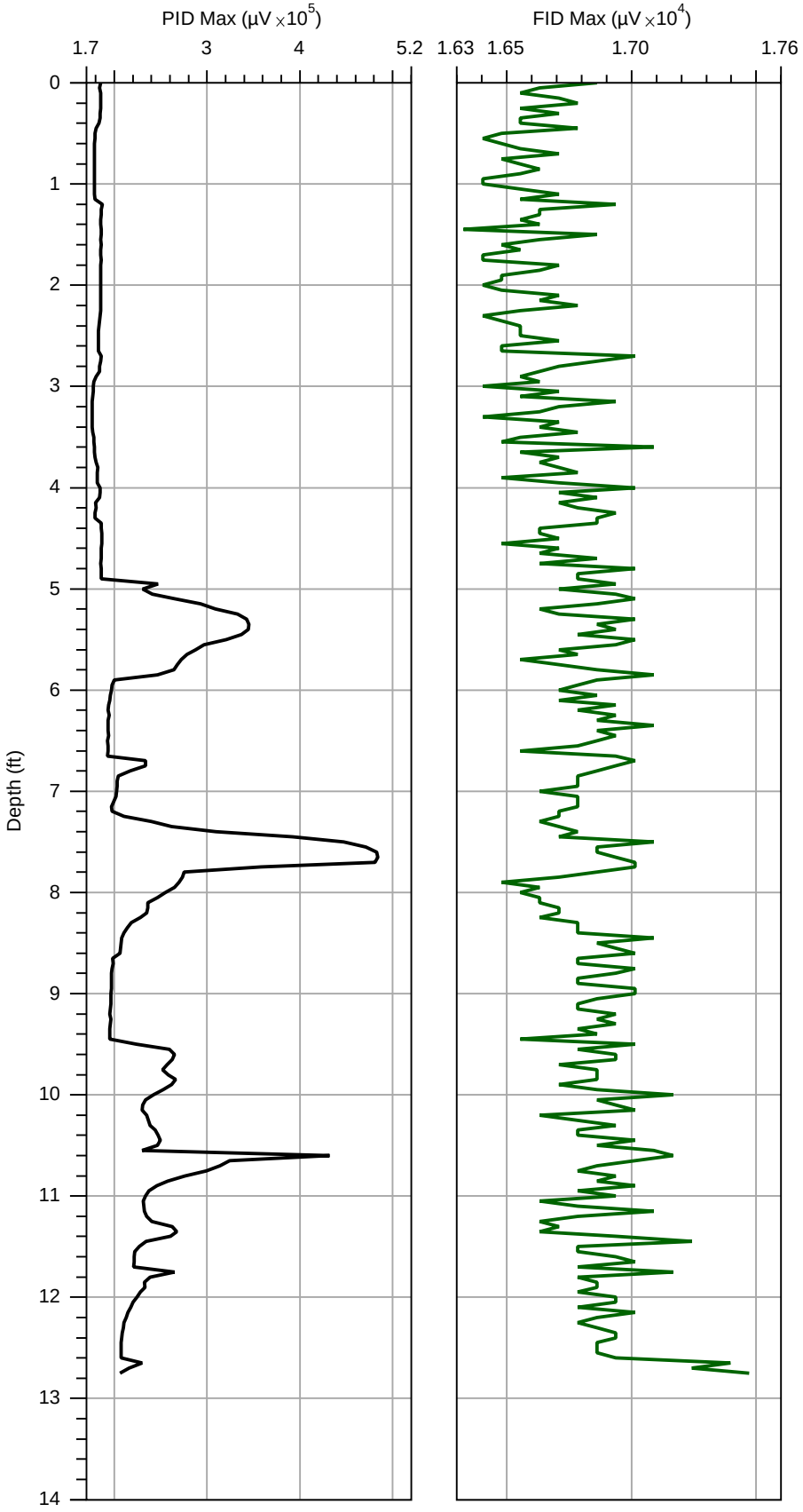
********** USER NOTES **********

MiHPT-3 Refusal at 14 feet. Dissapation test at bottom of boring.



Direct Image® By Geoprobe Systems®

		File: MIHPT-4.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/19/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT-4.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/19/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT-4.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-3.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.7	3.2	PASS
High	290.0	296.6	2.3	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-3.zip)

FILENAME: MiHPT-4.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 10:16:02

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-3.zip)

PRE TEST TIME: Tue Sep 19 2017 10:19:26

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.336	0.0	105.740
TOP with FLOW>0	15.746	212.2	108.560
BOTTOM with FLOW=0	15.118	0.0	104.240
BOTTOM with FLOW>0	15.556	211.3	107.250

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (39.0 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Tue Sep 19 2017 10:26:38

Temperature out of range (79.9 deg C) at 12.75 ft (3.886 m)

Temperature out of range (48.0 deg C) at 12.75 ft (3.886 m)

ATTENUATION CHANGES

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

LOG END DEPTH: 12.75 ft (3.886 m)
LOG END TIME: Tue Sep 19 2017 10:54:34

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-4.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 42 mL/min
RESPONSE TEST START TIME: Tue Sep 19 2017 11:11:13

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Tue Sep 19 2017 11:14:43

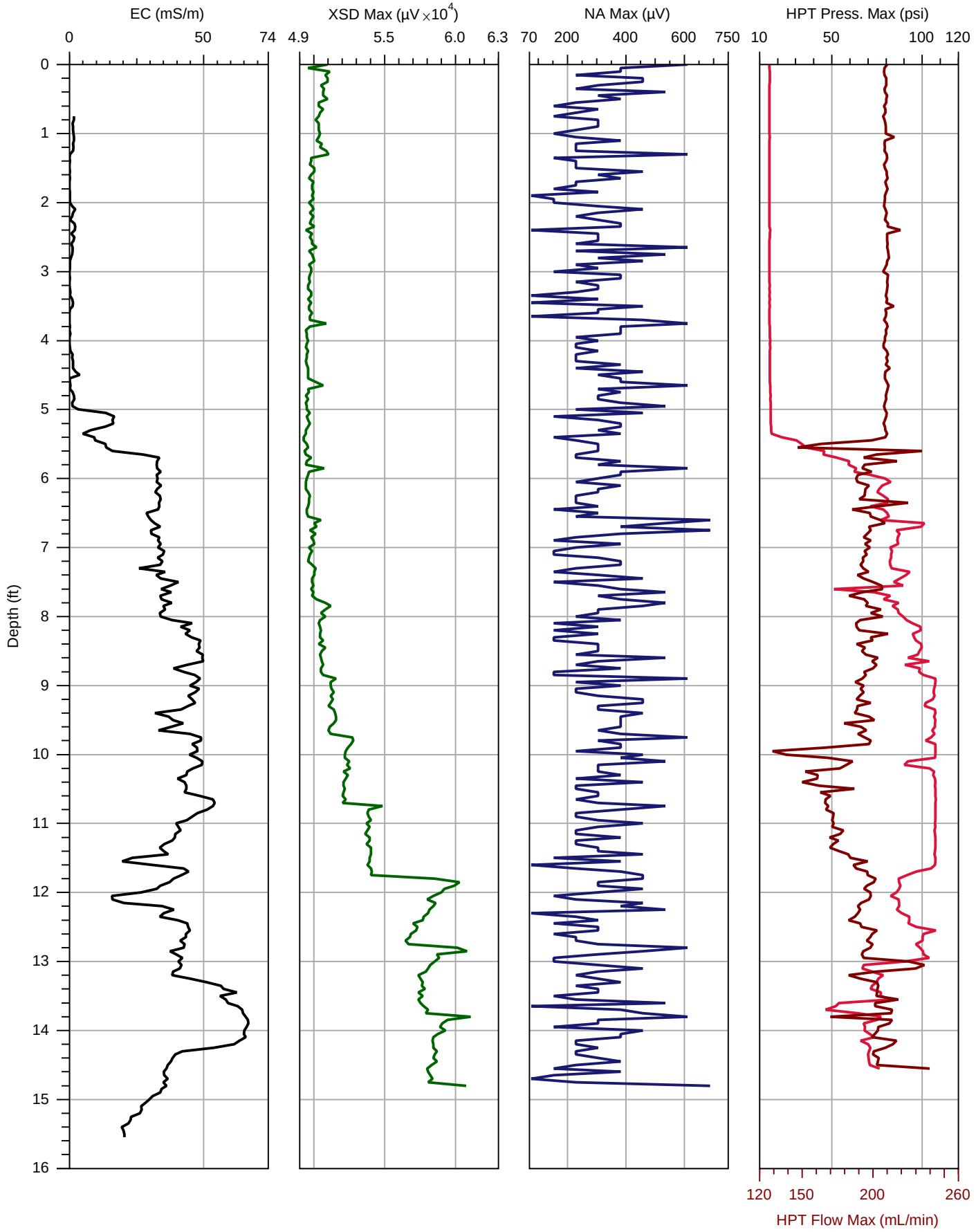
POST-LOG HPT REFERENCE TESTS BYPASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.2	2.1	PASS
High	290.0	299.2	3.2	PASS

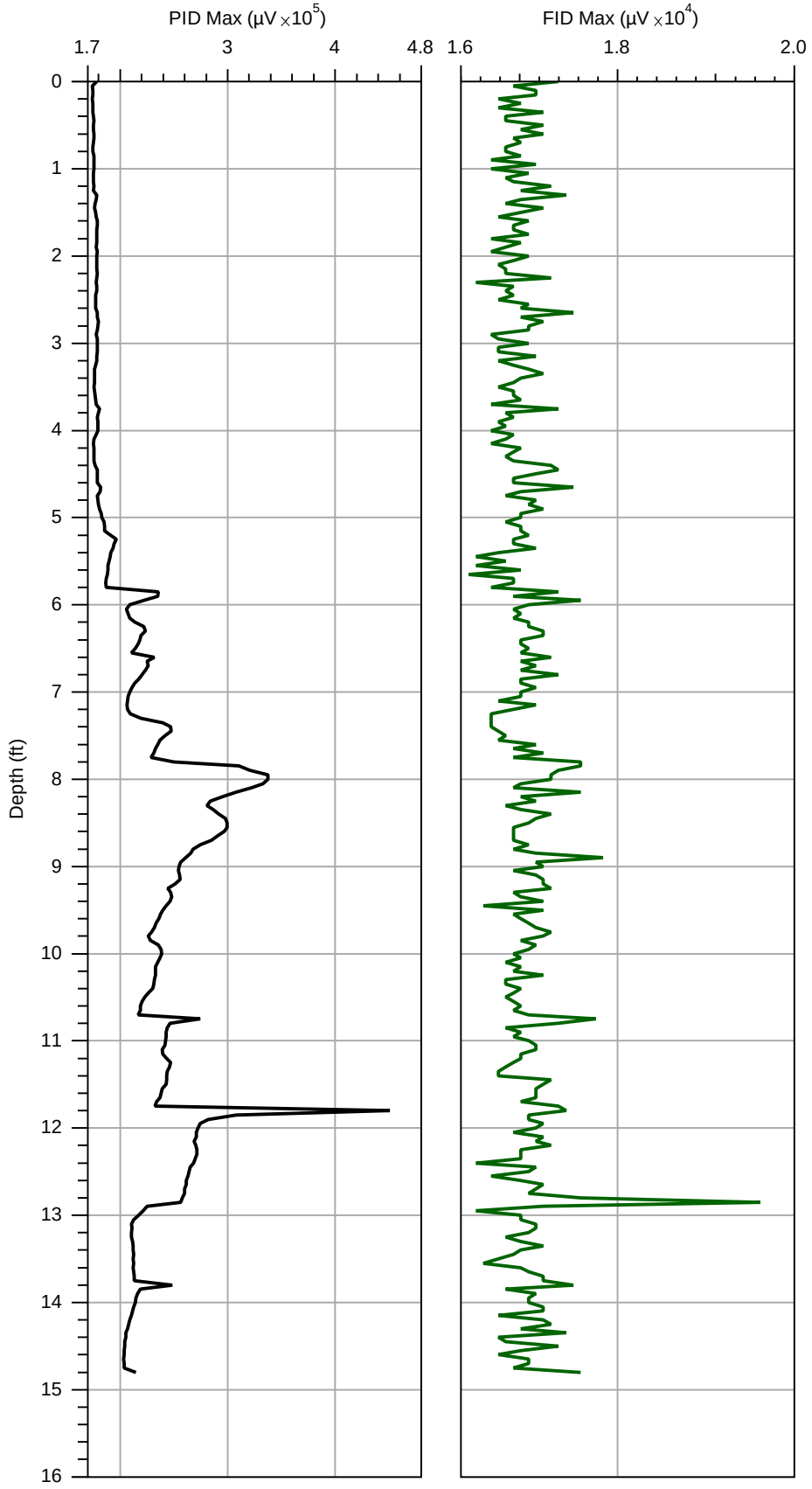
********** USER NOTES **********

MiHPT-4 refusal 12.7 feet. HPT sensor misreading at bottom of boring.



Direct Image® By Geoprobe Systems®

		File: MIHPT B-5.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-5.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-5.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-B-7A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	302.2	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-B-7A.zip)

FILENAME: MiHPT B-5.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 11:21:49

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-B-7A.zip)

PRE TEST TIME: Wed Sep 20 2017 11:25:22

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.448	0.0	106.510
TOP with FLOW>0	15.831	206.8	109.150
BOTTOM with FLOW=0	15.242	0.0	105.090
BOTTOM with FLOW>0	15.643	208.0	107.860

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (34.8 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 11:49:17

ATTENUATION CHANGES

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

LOG END DEPTH: 14.80 ft (4.511 m)
LOG END TIME: Wed Sep 20 2017 12:17:00

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-5.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 12:43:37

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 12:47:01

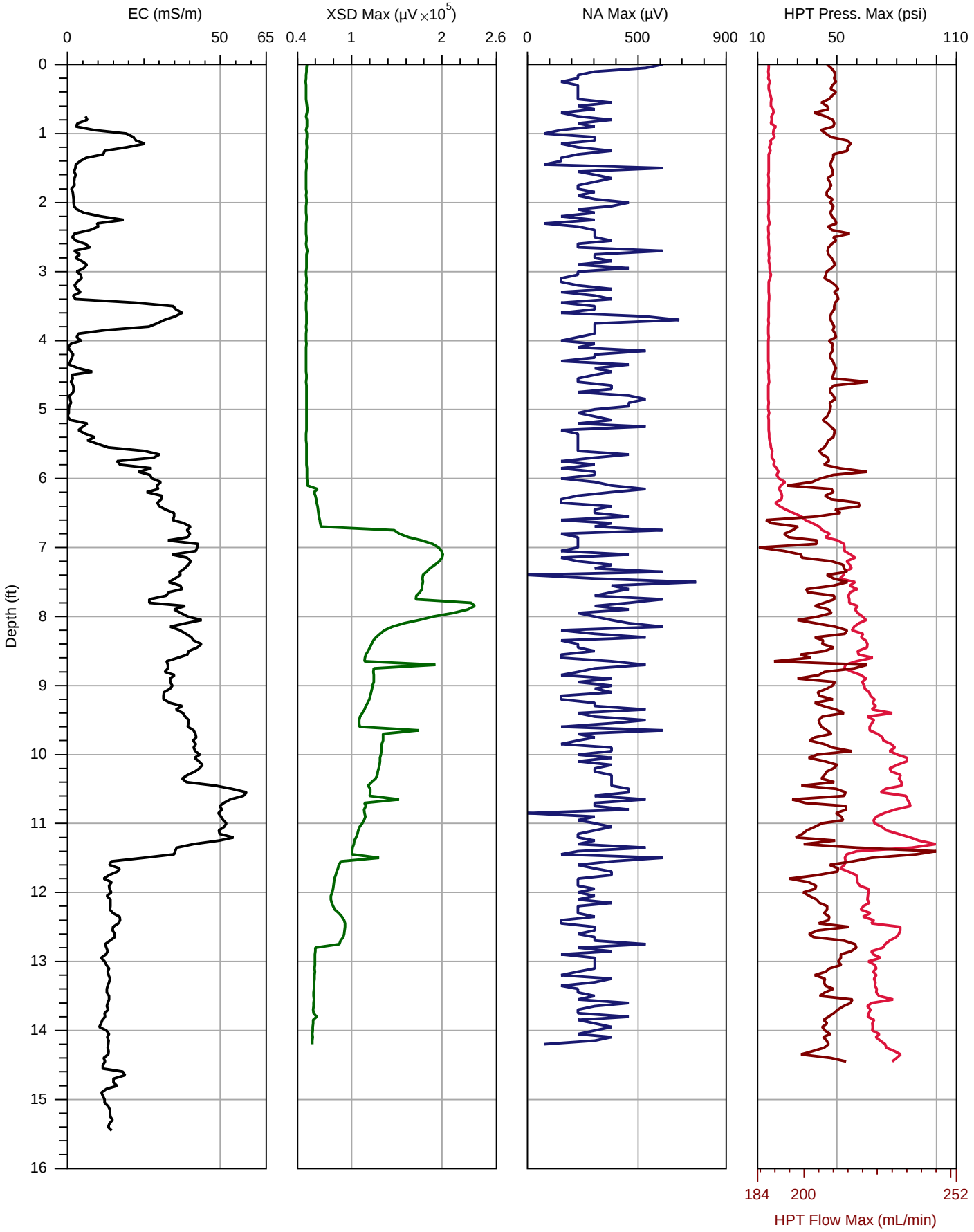
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.464	0.0	106.620
TOP with FLOW>0	15.872	209.8	109.440
BOTTOM with FLOW=0	15.248	0.0	105.130
BOTTOM with FLOW>0	15.676	208.9	108.080

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

TRANSDUCER TEST PASSED

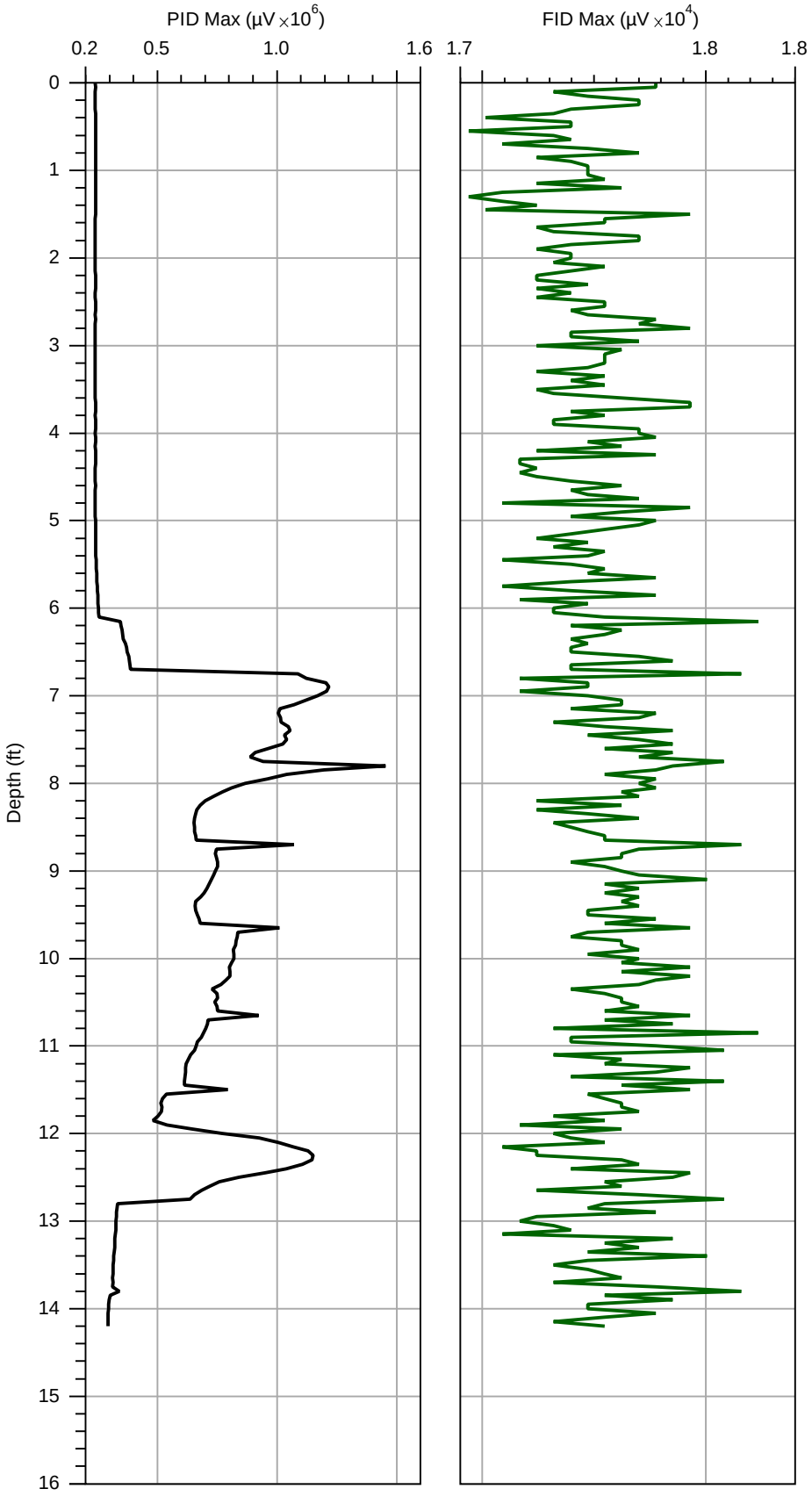
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.9	PASS
High	290.0	302.6	4.4	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT-B-6.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



		File: MIHPT-B-6.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY

MiHPT-B-6.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-5.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.9	PASS
High	290.0	302.6	4.4	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-5.zip)

FILENAME: MiHPT-B-6.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 12:43:37

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-5.zip)

PRE TEST TIME: Wed Sep 20 2017 12:47:01

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.464	0.0	106.620
TOP with FLOW>0	15.872	209.8	109.440
BOTTOM with FLOW=0	15.248	0.0	105.130
BOTTOM with FLOW>0	15.676	208.9	108.080

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (34.8 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 13:07:07

ATTENUATION CHANGES

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

LOG END DEPTH: 14.70 ft (4.481 m)
LOG END TIME: Wed Sep 20 2017 13:31:11

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT-B-6.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 13:46:33

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 13:50:09

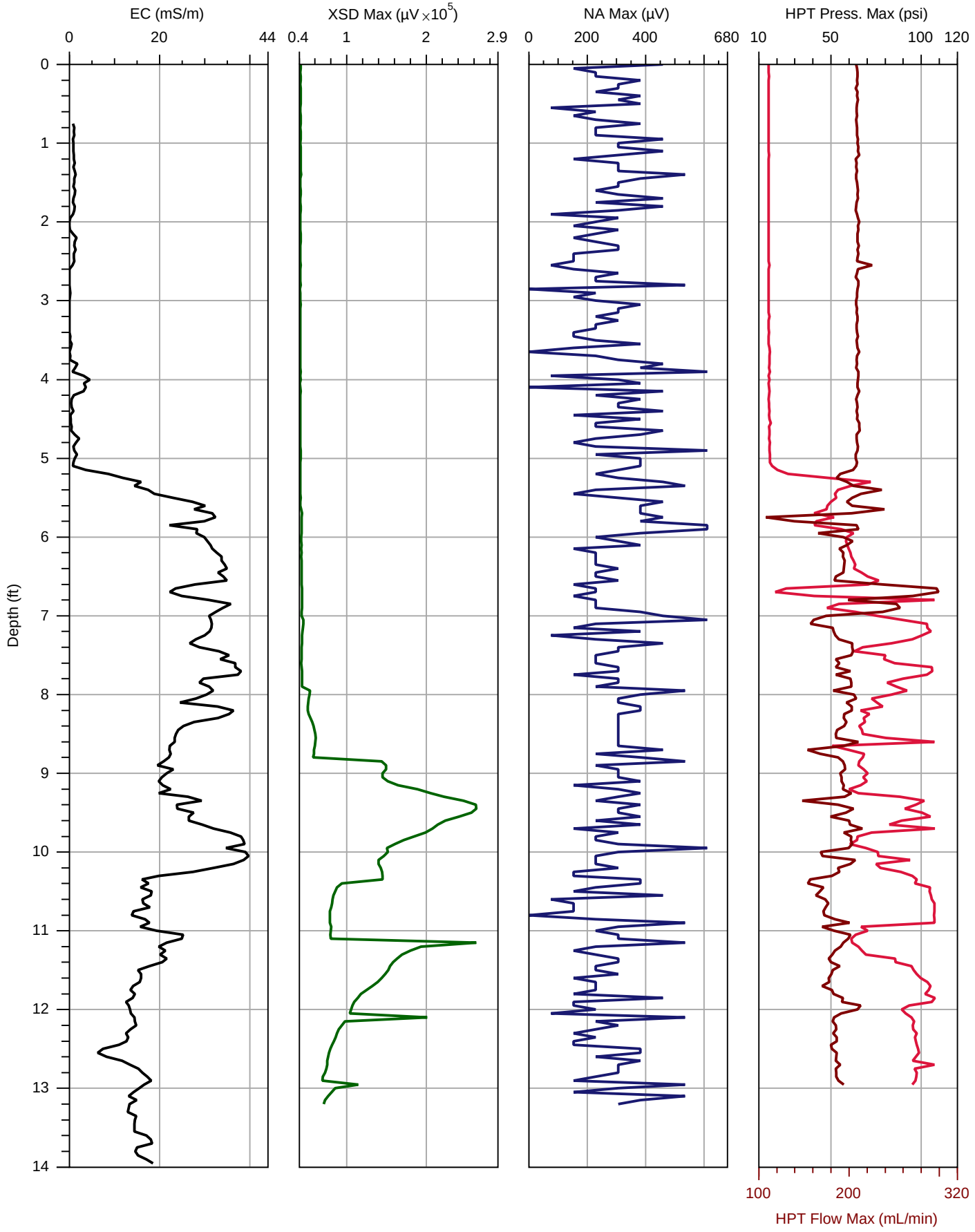
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.460	0.0	106.590
TOP with FLOW>0	15.862	210.7	109.360
BOTTOM with FLOW=0	15.252	0.0	105.160
BOTTOM with FLOW>0	15.769	211.1	108.720

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

TRANSDUCER TEST PASSED

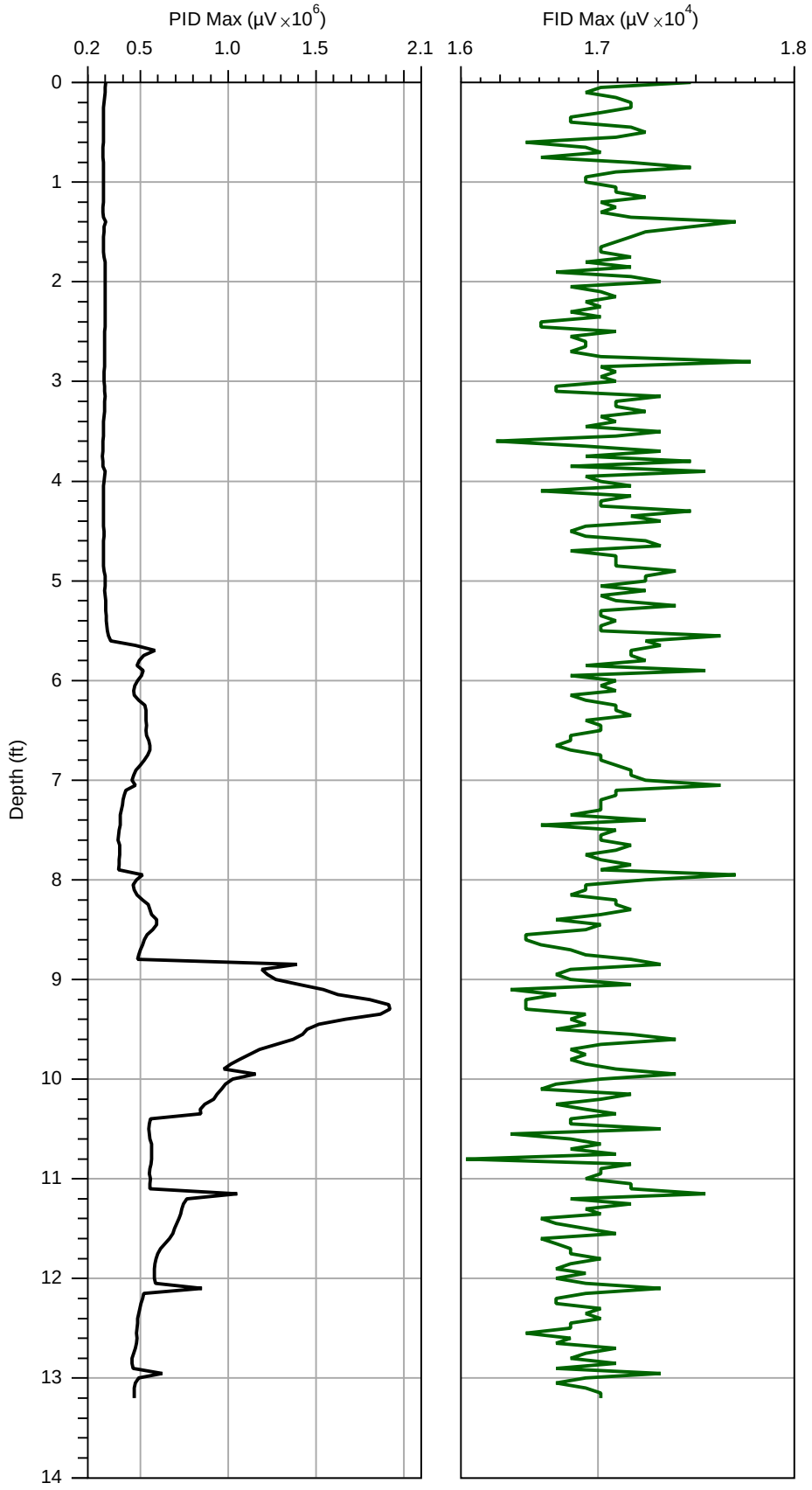
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	302.1	4.2	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-7.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



		File: MIHPT B-7.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY

MiHPT B-7.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-10.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	302.0	4.1	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-10.zip)

FILENAME: MiHPT B-7.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 15:54:53

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-10.zip)

PRE TEST TIME: Wed Sep 20 2017 15:59:11

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.458	0.0	106.580
TOP with FLOW>0	15.890	212.0	109.550
BOTTOM with FLOW=0	15.259	0.0	105.200
BOTTOM with FLOW>0	15.808	210.9	108.990

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (45.3 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 16:15:57

ATTENUATION CHANGES

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

LOG END DEPTH: 13.20 ft (4.023 m)
LOG END TIME: Wed Sep 20 2017 16:34:13

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-7.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 16:55:19

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 16:58:55

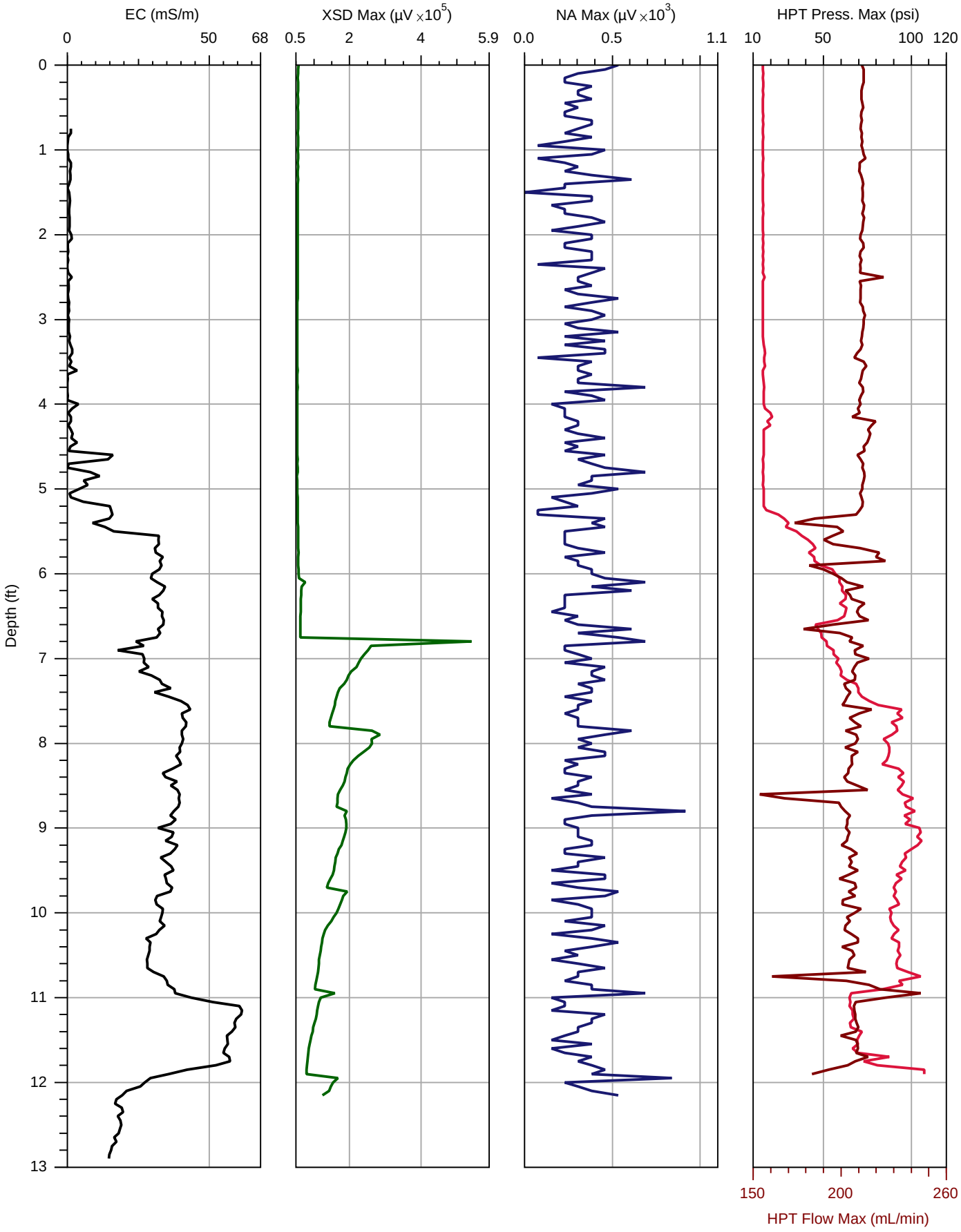
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.445	0.0	106.490
TOP with FLOW>0	15.808	207.7	108.990
BOTTOM with FLOW=0	15.244	0.0	105.100
BOTTOM with FLOW>0	15.625	206.8	107.730

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

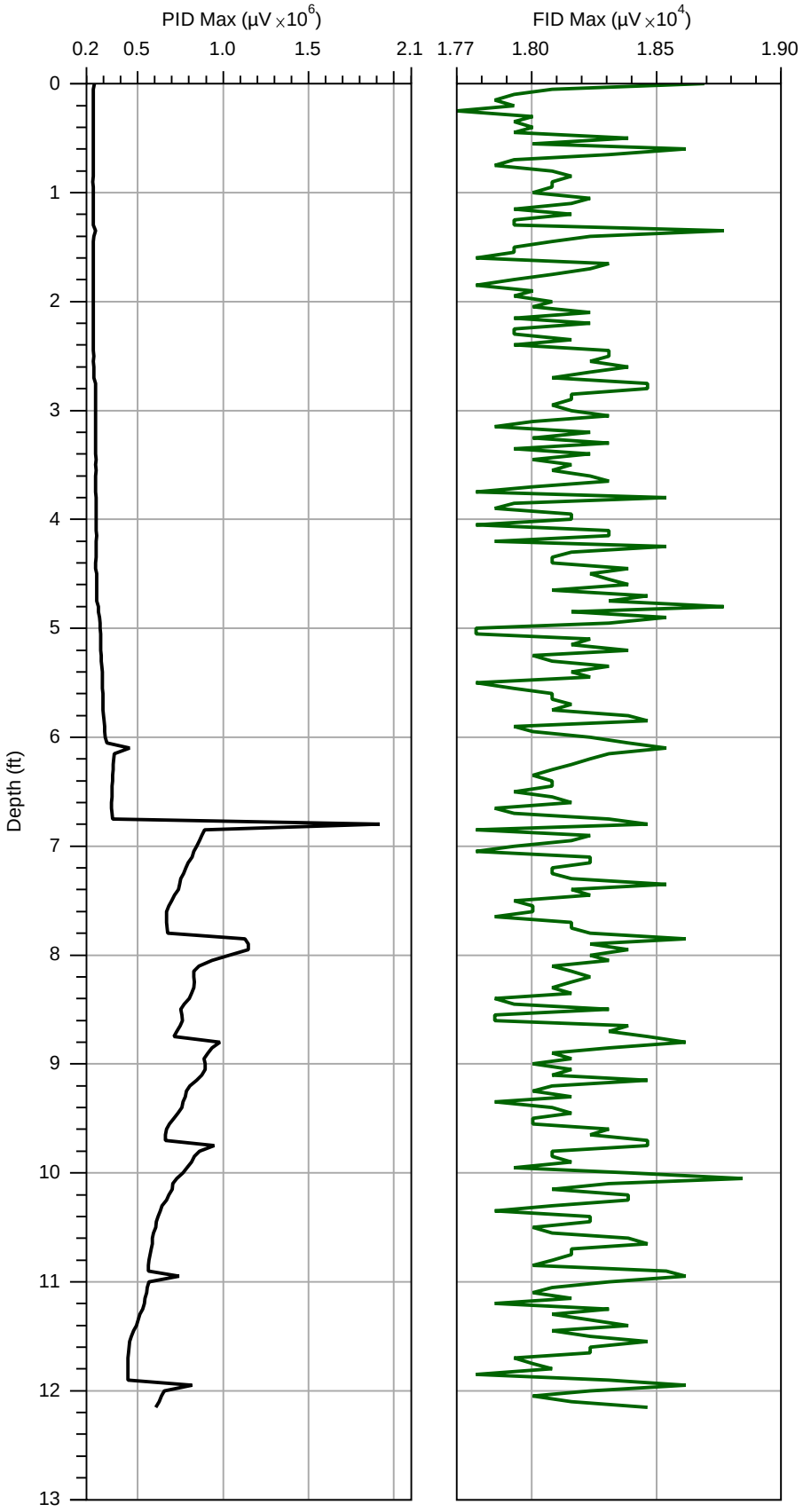
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.9	1.6	PASS
High	290.0	302.6	4.4	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-9.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-9.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-9.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT-B-6.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.1	1.9	PASS
High	290.0	302.1	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT-B-6.zip)

FILENAME: MiHPT B-9.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 13:46:33

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT-B-6.zip)

PRE TEST TIME: Wed Sep 20 2017 13:50:09

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.460	0.0	106.590
TOP with FLOW>0	15.862	210.7	109.360
BOTTOM with FLOW=0	15.252	0.0	105.160
BOTTOM with FLOW>0	15.769	211.1	108.720

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (46.9 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 13:55:49

ATTENUATION CHANGES

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

LOG END DEPTH: 12.15 ft (3.703 m)
LOG END TIME: Wed Sep 20 2017 14:16:19

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-9.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 14:35:50

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 14:40:03

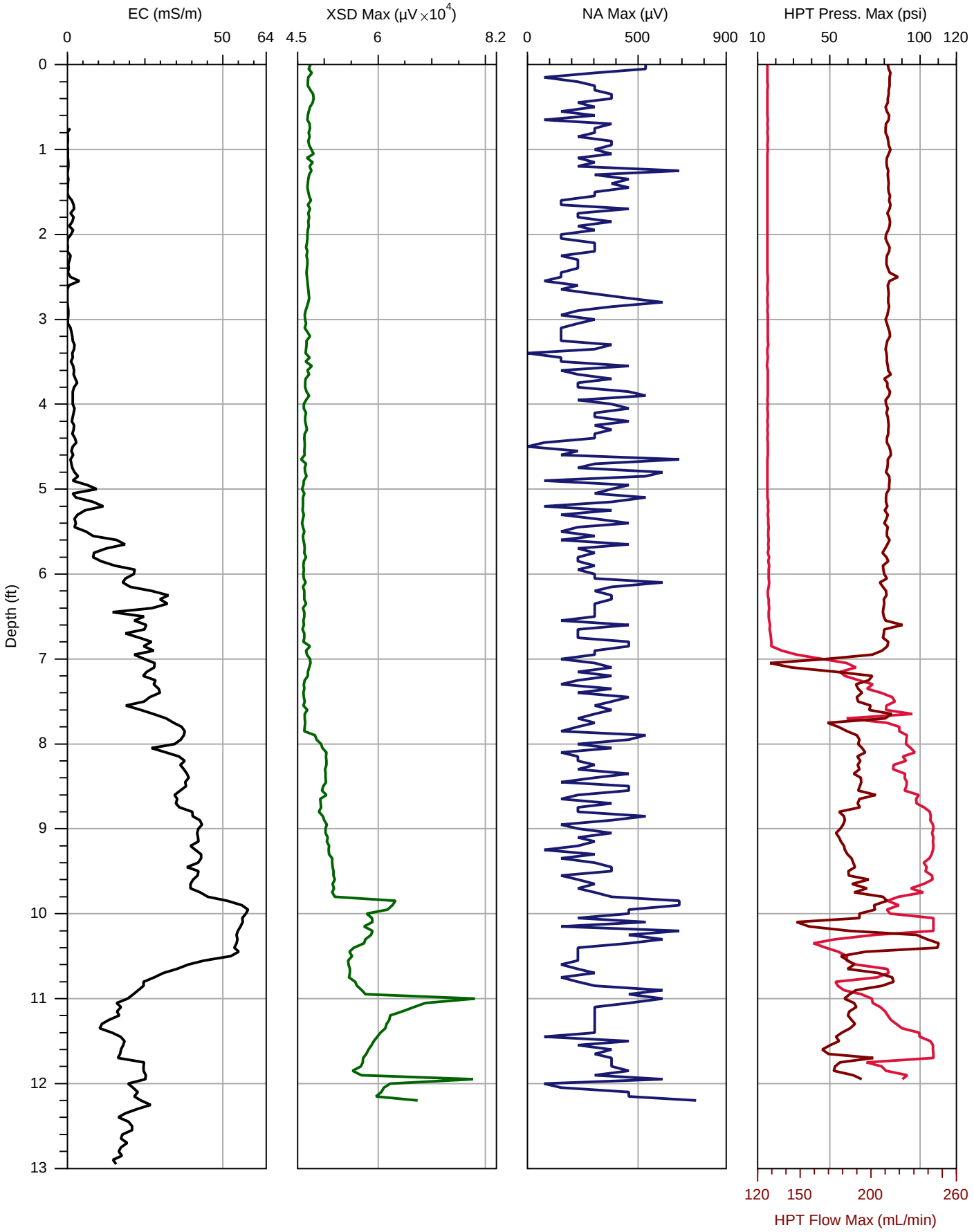
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.464	0.0	106.620
TOP with FLOW>0	15.847	209.9	109.260
BOTTOM with FLOW=0	15.259	0.0	105.210
BOTTOM with FLOW>0	15.695	209.4	108.210

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

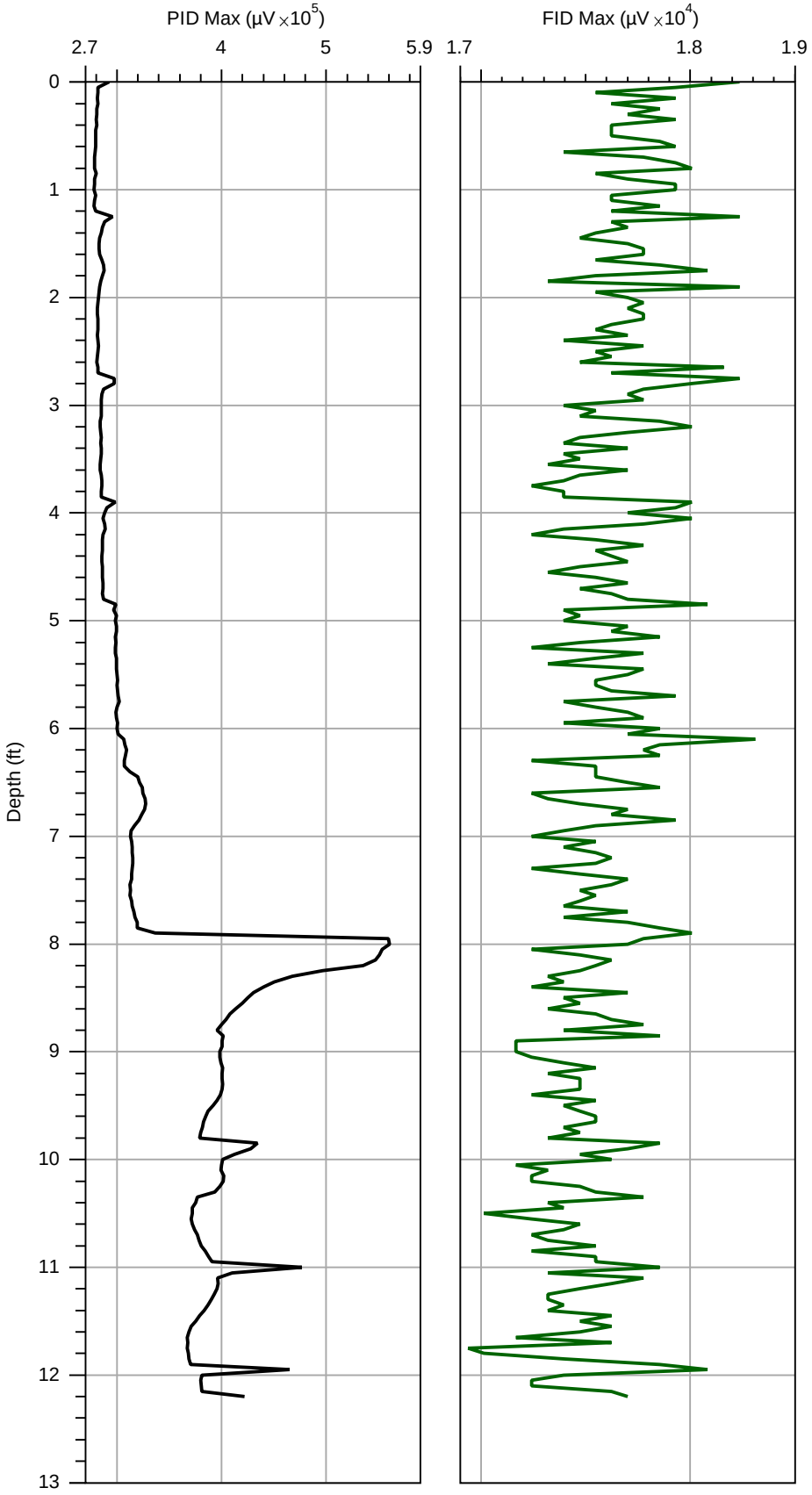
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.2	2.1	PASS
High	290.0	300.0	3.4	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-10.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-10.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/20/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-10.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-9.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.2	2.1	PASS
High	290.0	300.0	3.4	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-9.zip)

FILENAME: MiHPT B-10.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 14:35:50

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-9.zip)

PRE TEST TIME: Wed Sep 20 2017 14:40:03

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.464	0.0	106.620
TOP with FLOW>0	15.847	209.9	109.260
BOTTOM with FLOW=0	15.259	0.0	105.210
BOTTOM with FLOW>0	15.695	209.4	108.210

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (36.6 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Wed Sep 20 2017 14:55:25

ATTENUATION CHANGES

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

LOG END DEPTH: 12.20 ft (3.719 m)
LOG END TIME: Wed Sep 20 2017 15:14:35

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-10.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Wed Sep 20 2017 15:54:53

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Wed Sep 20 2017 15:59:11

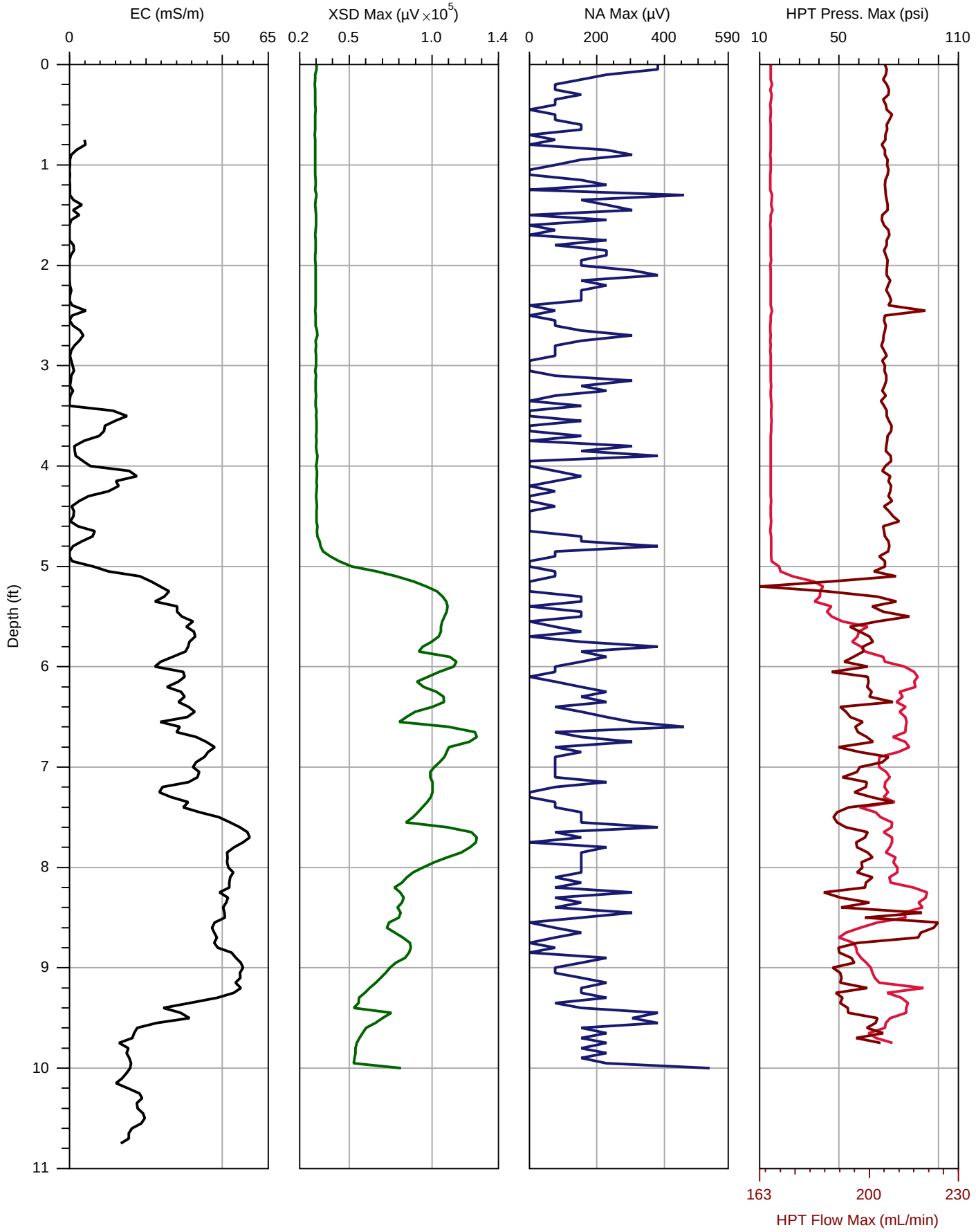
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.458	0.0	106.580
TOP with FLOW>0	15.890	212.0	109.550
BOTTOM with FLOW=0	15.259	0.0	105.200
BOTTOM with FLOW>0	15.808	210.9	108.990

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

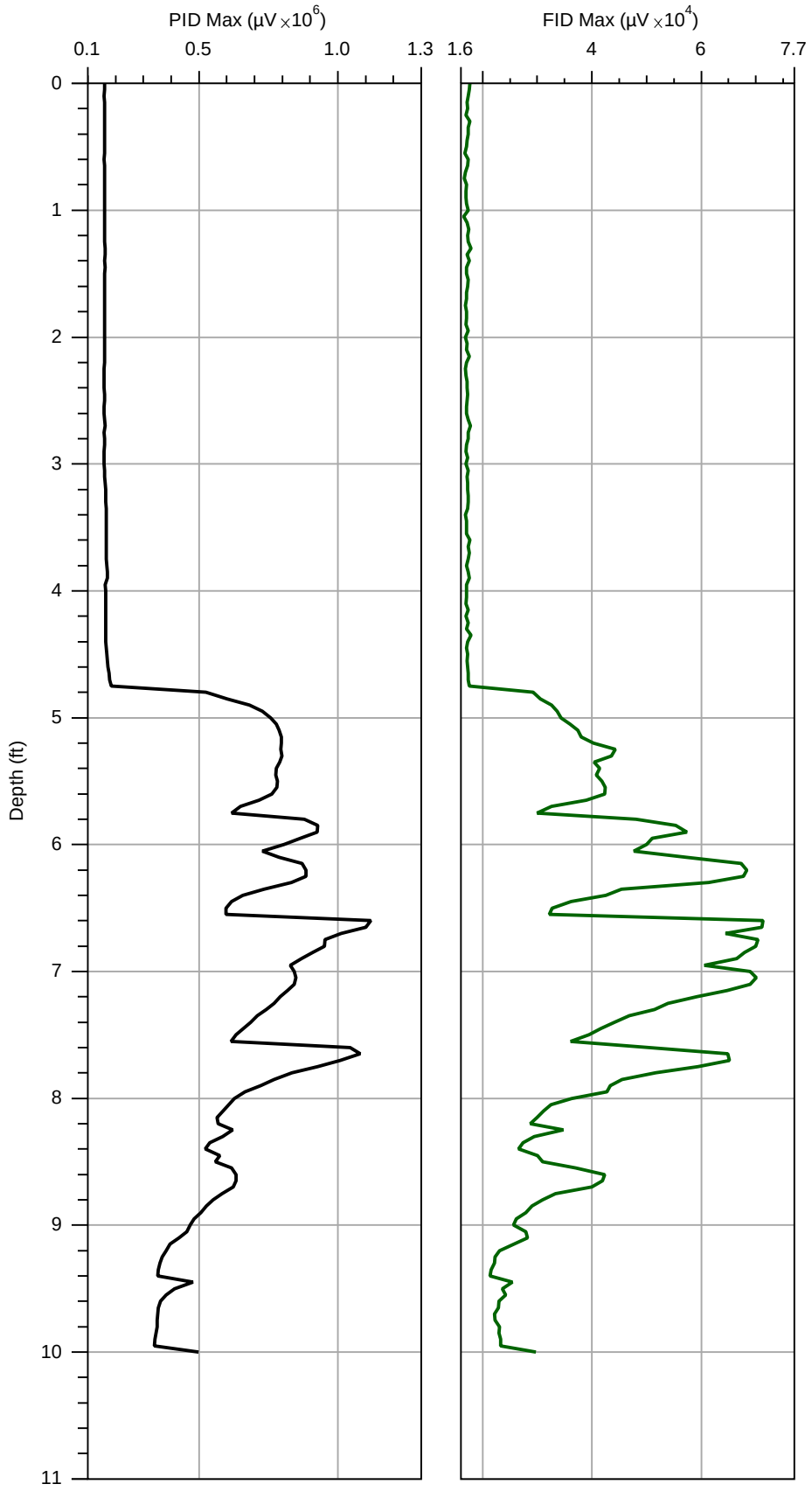
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.0	1.8	PASS
High	290.0	302.0	4.1	PASS



Direct Image® By Geoprobe Systems®

		File: MIHPT B-11.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-11.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/21/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-11.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	55.5	0.9	PASS
High	290.0	301.6	4.0	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST

FILENAME: MiHPT B-11.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 08:18:14

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES

PRE TEST TIME: Thu Sep 21 2017 08:21:43

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.413	0.0	106.270
TOP with FLOW>0	15.855	204.9	109.320
BOTTOM with FLOW=0	15.202	0.0	104.820
BOTTOM with FLOW>0	15.725	203.4	108.420

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (43.4 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Thu Sep 21 2017 08:24:38

ATTENUATION CHANGES

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

LOG END DEPTH: 10.00 ft (3.048 m)
LOG END TIME: Thu Sep 21 2017 08:42:55

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-11.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Thu Sep 21 2017 08:54:00

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Thu Sep 21 2017 08:57:25

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.452	0.0	106.540
TOP with FLOW>0	15.921	204.4	109.770
BOTTOM with FLOW=0	15.229	0.0	105.000
BOTTOM with FLOW>0	15.725	205.1	108.420

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

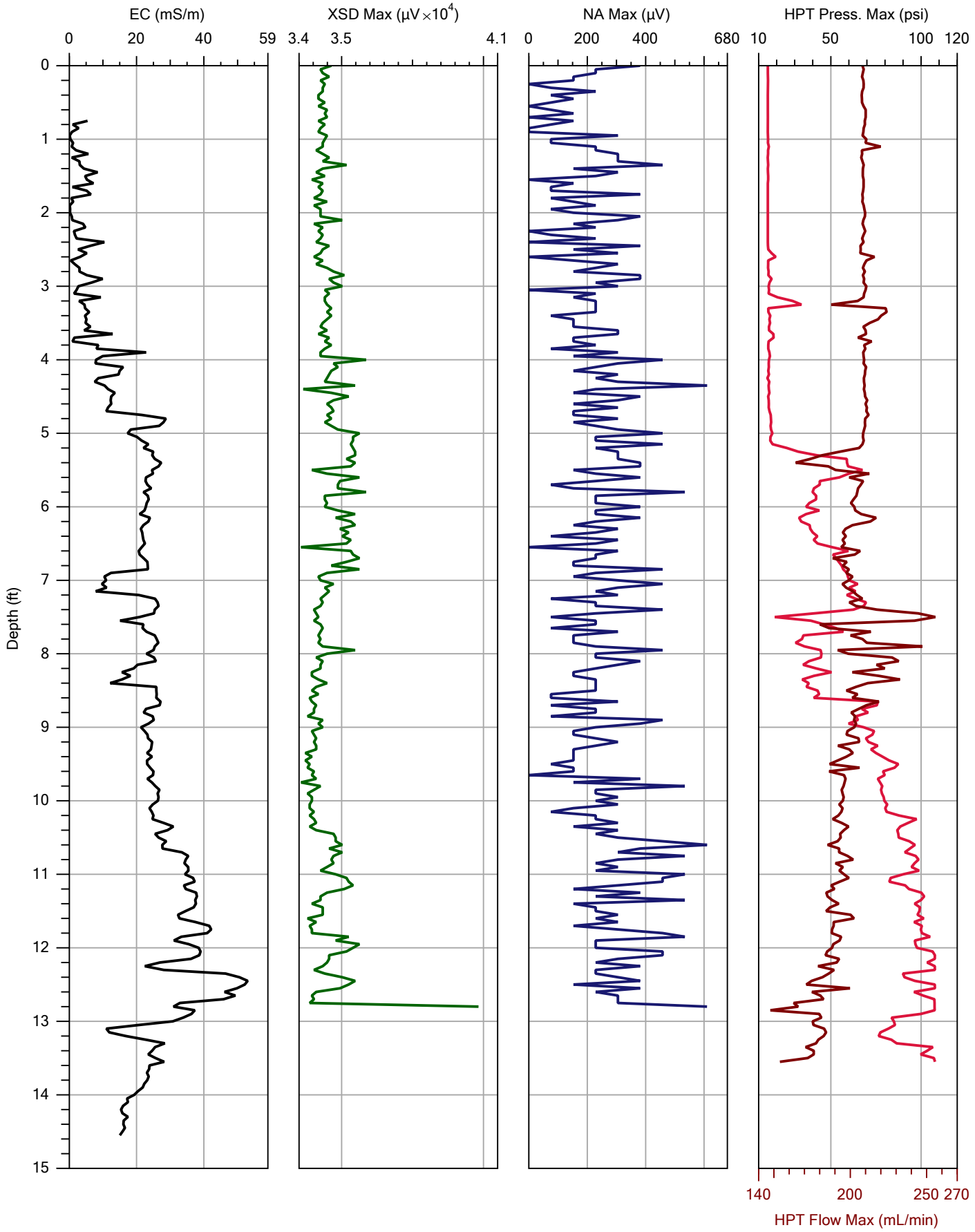
TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	54.1	1.6	PASS
High	290.0	302.5	4.3	PASS

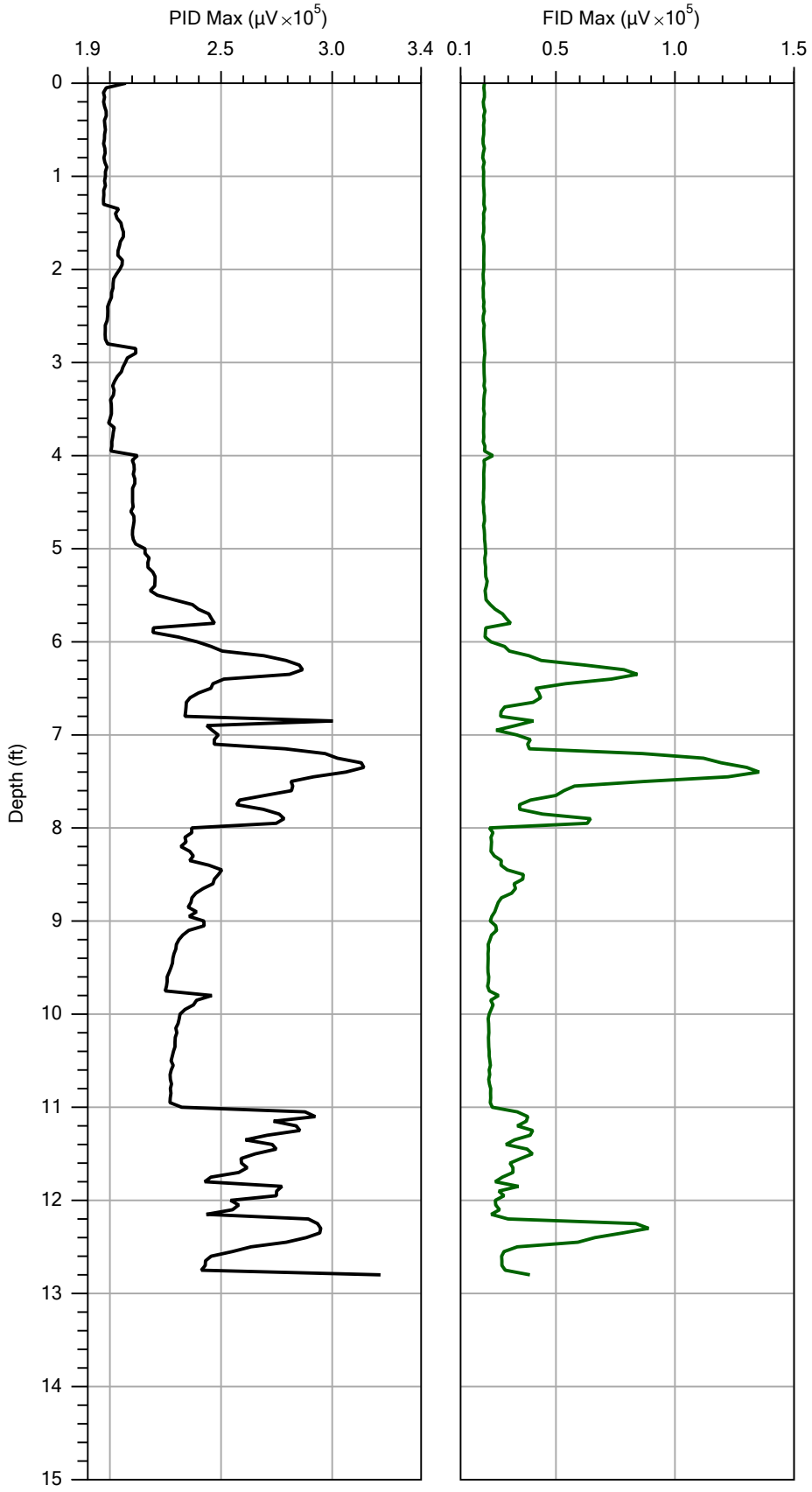
********** USER NOTES **********

Refusal at 11'



Direct Image® By Geoprobe Systems®

		File: MIHPT B-15.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101	Client: Aecom	Location: Sanborn, NY



			File: MIHPT B-15.MHP
Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson		Date: 9/22/2017
Project ID: 17101	Client: Aecom		Location: Sanborn, NY

MiHPT B-15.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-13A.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	2.9	PASS
High	290.0	302.8	4.4	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-13A.zip)

FILENAME: MiHPT B-15.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 09:44:09

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-13A.zip)

PRE TEST TIME: Fri Sep 22 2017 09:48:05

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.124	0.0	104.280
TOP with FLOW>0	15.514	205.9	106.970
BOTTOM with FLOW=0	14.905	0.0	102.770
BOTTOM with FLOW>0	15.321	205.9	105.630

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (32.2 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 10:02:18

ATTENUATION CHANGES

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

LOG END DEPTH: 13.80 ft (4.206 m)
LOG END TIME: Fri Sep 22 2017 10:35:28

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-15.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 10:47:51

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 10:51:23

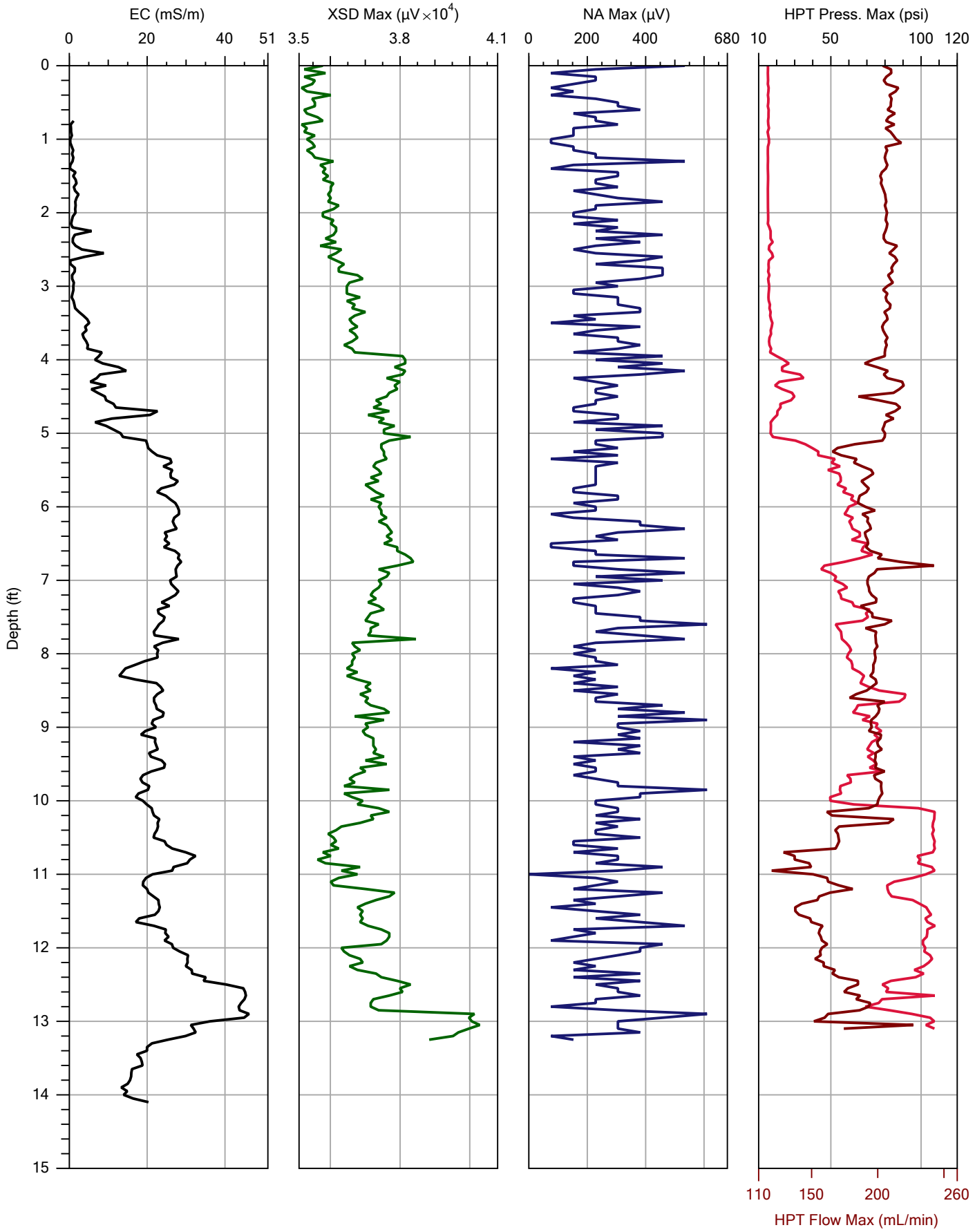
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.132	0.0	104.330
TOP with FLOW>0	15.522	205.0	107.020
BOTTOM with FLOW=0	14.928	0.0	102.930
BOTTOM with FLOW>0	15.331	206.7	105.710

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

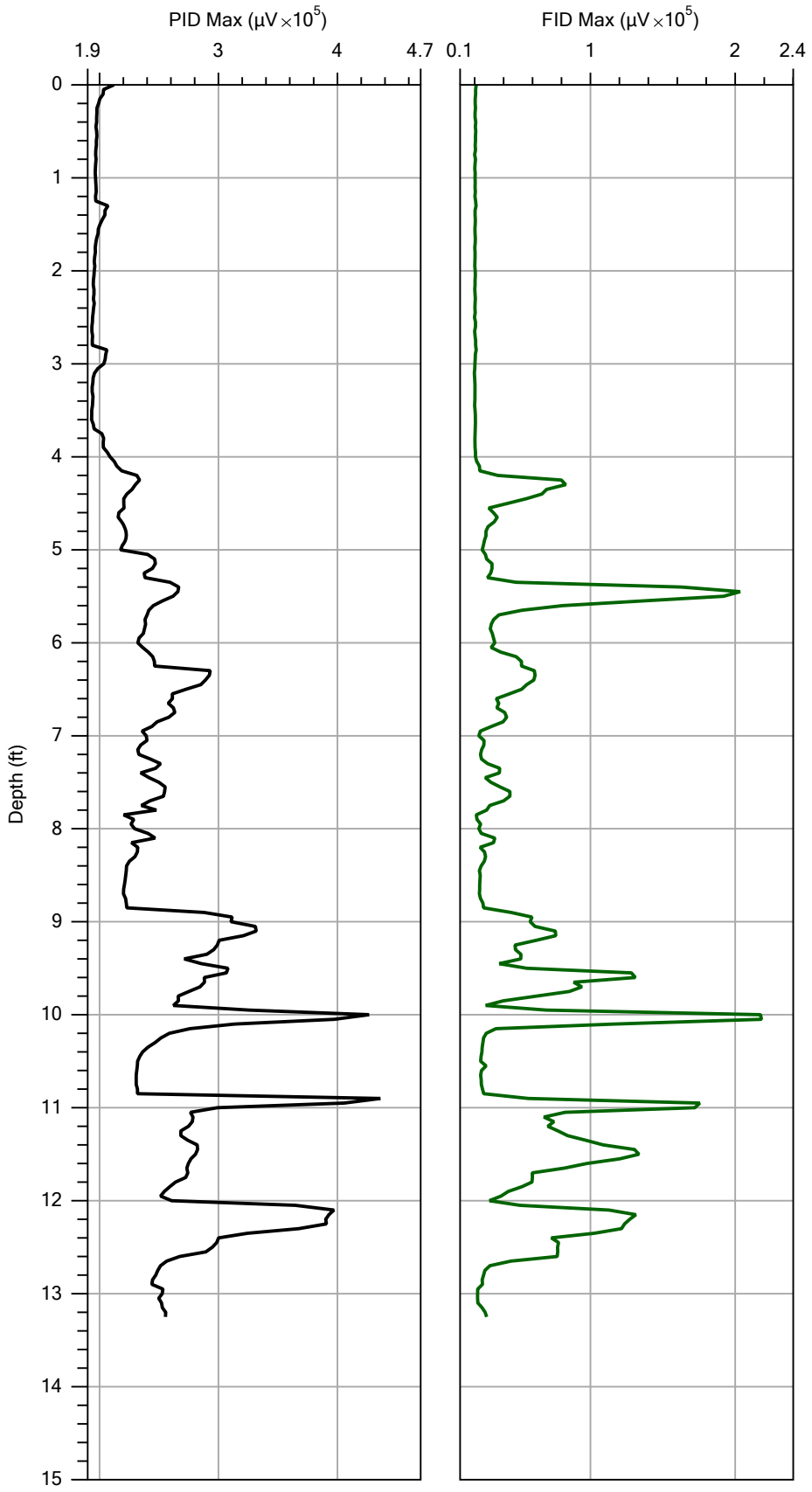
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	3.0	PASS
High	290.0	303.7	4.7	PASS



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	File: MIHPT B-13.MHP
Project ID: 17101	Client: Aecom	Date: 9/22/2017
		Location: Sanborn, NY



			File: MIHPT B-13.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-13.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-15.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.6	3.0	PASS
High	290.0	303.7	4.7	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-15.zip)

FILENAME: MiHPT B-13.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 10:47:51

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-15.zip)

PRE TEST TIME: Fri Sep 22 2017 10:51:23

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.132	0.0	104.330
TOP with FLOW>0	15.522	205.0	107.020
BOTTOM with FLOW=0	14.928	0.0	102.930
BOTTOM with FLOW>0	15.331	206.7	105.710

EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
  ACTUAL FLOW=0 HPT DIFF.: 0.20 psi (1.4 kPa)

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (55.1 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 10:56:21

ATTENUATION CHANGES

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

LOG END DEPTH: 13.35 ft (4.069 m)
LOG END TIME: Fri Sep 22 2017 11:15:32

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-13.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 11:27:10

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 11:30:49

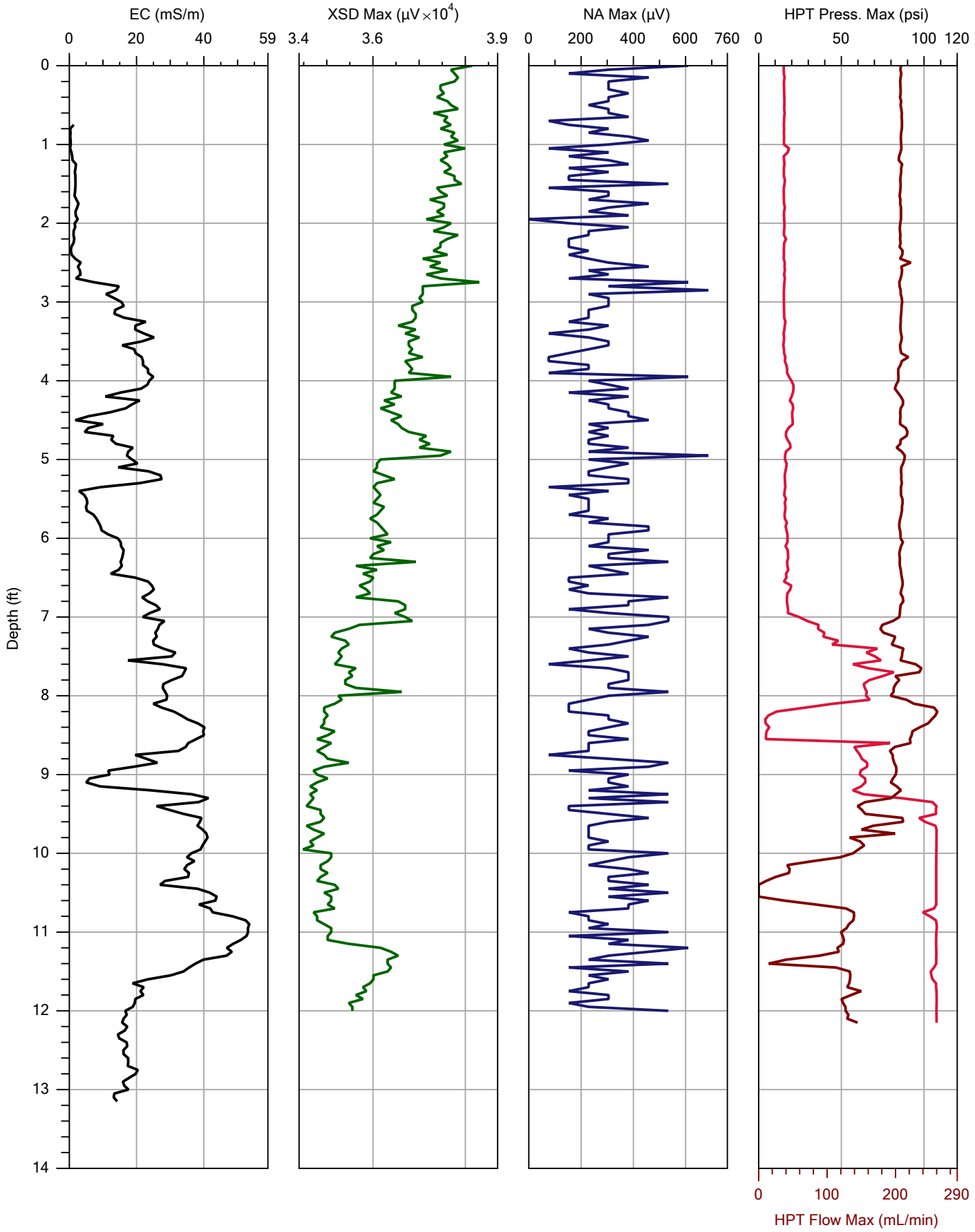
TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.144	0.0	104.420
TOP with FLOW>0	15.603	208.6	107.580
BOTTOM with FLOW=0	14.925	0.0	102.900
BOTTOM with FLOW>0	15.415	207.5	106.290

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

TRANSDUCER TEST PASSED

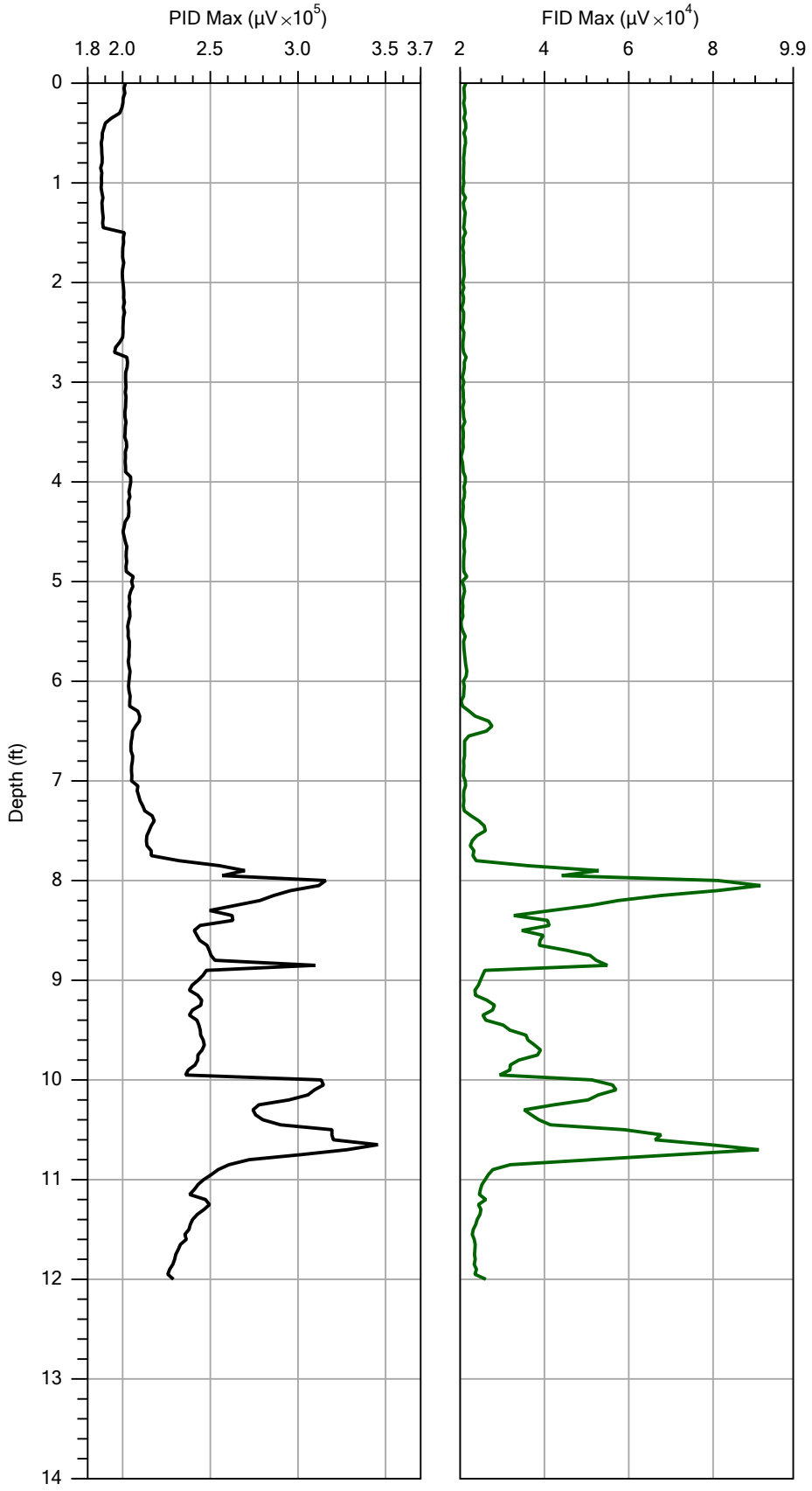
Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.8	3.3	PASS
High	290.0	302.1	4.2	PASS



Direct Image® By Geoprobe Systems®

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson	File: MIHPT B-14.MHP
Project ID: 17101	Client: Aecom	Date: 9/22/2017
		Location: Sanborn, NY



			File: MIHPT B-14.MHP
Company: Parratt-Wolff, Inc.		Operator: Danylo Kulczycky/ Wayne Nielson	Date: 9/22/2017
Project ID: 17101		Client: Aecom	Location: Sanborn, NY

MiHPT B-14.zip

SITE INFORMATION -- DIRECT IMAGE MIP+HPT PROBE

Geoprobe DI Acquisition Software for Windows
Version: 1.7 Build: 15012

Pre-Log EC Load Tests (Post-Log From MiHPT B-13.zip)

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	56.8	3.3	PASS
High	290.0	302.1	4.2	PASS

COMPANY: Parratt-Wolff, Inc.
OPERATOR: Danylo Kulczycky/ Wayne Nielson
PROJECT ID: 17101
CLIENT: Aecom
UNITS: ENGLISH
PROBE AND ARRAY: MH6530/6532 MiHPT Probe with Top Dipole
LOCATION: Sanborn, NY
100 INCH STRING POT USED
ROD LENGTH: 5 feet

MIP PRE-LOG RESPONSE TEST (Post-Log From MiHPT B-13.zip)

FILENAME: MiHPT B-14.pre.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 11:27:10

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

TRIP TIME: 45 sec
Gas Used: nitrogen

PRE-LOG HPT REFERENCE TEST VALUES (Post-Log From MiHPT B-13.zip)

PRE TEST TIME: Fri Sep 22 2017 11:30:49

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.144	0.0	104.420
TOP with FLOW>0	15.603	208.6	107.580
BOTTOM with FLOW=0	14.925	0.0	102.900
BOTTOM with FLOW>0	15.415	207.5	106.290

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

TRANSDUCER TEST PASSED

DETECTOR NAME: XSD NA PID FID
HPT IDEAL COEFFS: 2.2696e1,-2.2356
HPT SENSOR CAL NUMBERS: XD20613A,0.0000,0.0000,0.0000,0.0000,9.9050e-1,-1.3930

Temperature out of range (45.5 deg C) at 0.00 ft (0.000 m)

LOG START TIME: Fri Sep 22 2017 11:34:52

ATTENUATION CHANGES

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

LOG END DEPTH: 12.40 ft (3.780 m)
LOG END TIME: Fri Sep 22 2017 11:55:09

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

MIP POST-LOG RESPONSE TEST

FILENAME: MiHPT B-14.post.tim
COMPOUND: TCE
CONCENTRATION: 20 ppm
FLOW: 40 mL/min
RESPONSE TEST START TIME: Fri Sep 22 2017 12:08:37

RESPONSE TEST ATTENUATION CHANGES

TIME	DET1	DET2	DET3	DET4
0	1	1	1	1

POST-LOG HPT REFERENCE TEST VALUES

POST TEST TIME: Fri Sep 22 2017 12:12:07

TEST	HPT PRESSURE (psi)	FLOW (mL/min)	HPT PRESSURE (kPa)
TOP with FLOW=0	15.158	0.0	104.510
TOP with FLOW>0	15.570	202.7	107.350
BOTTOM with FLOW=0	14.943	0.0	103.030
BOTTOM with FLOW>0	15.372	202.9	105.990

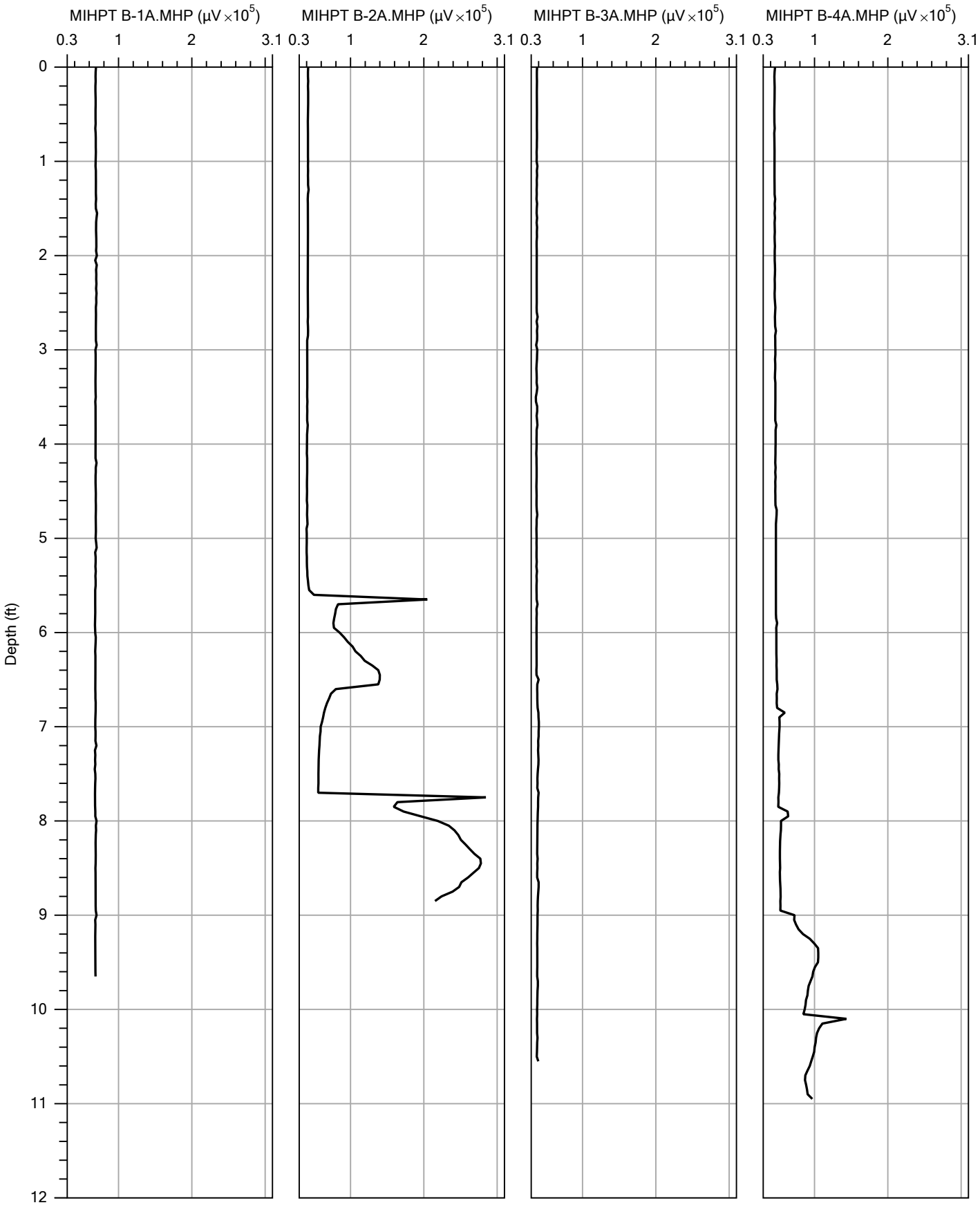
EXPECTED FLOW=0 HPT DIFF.: 0.22 psi (1.5 kPa) +/- 10%
ACTUAL FLOW=0 HPT DIFF.: 0.21 psi (1.5 kPa)

TRANSDUCER TEST PASSED

Post-Log EC Load Tests

Test	Target (mS/m)	Actual (mS/m)	% Diff	P/F
Low	55.0	57.0	3.6	PASS
High	290.0	300.0	3.5	PASS

Attachment 4

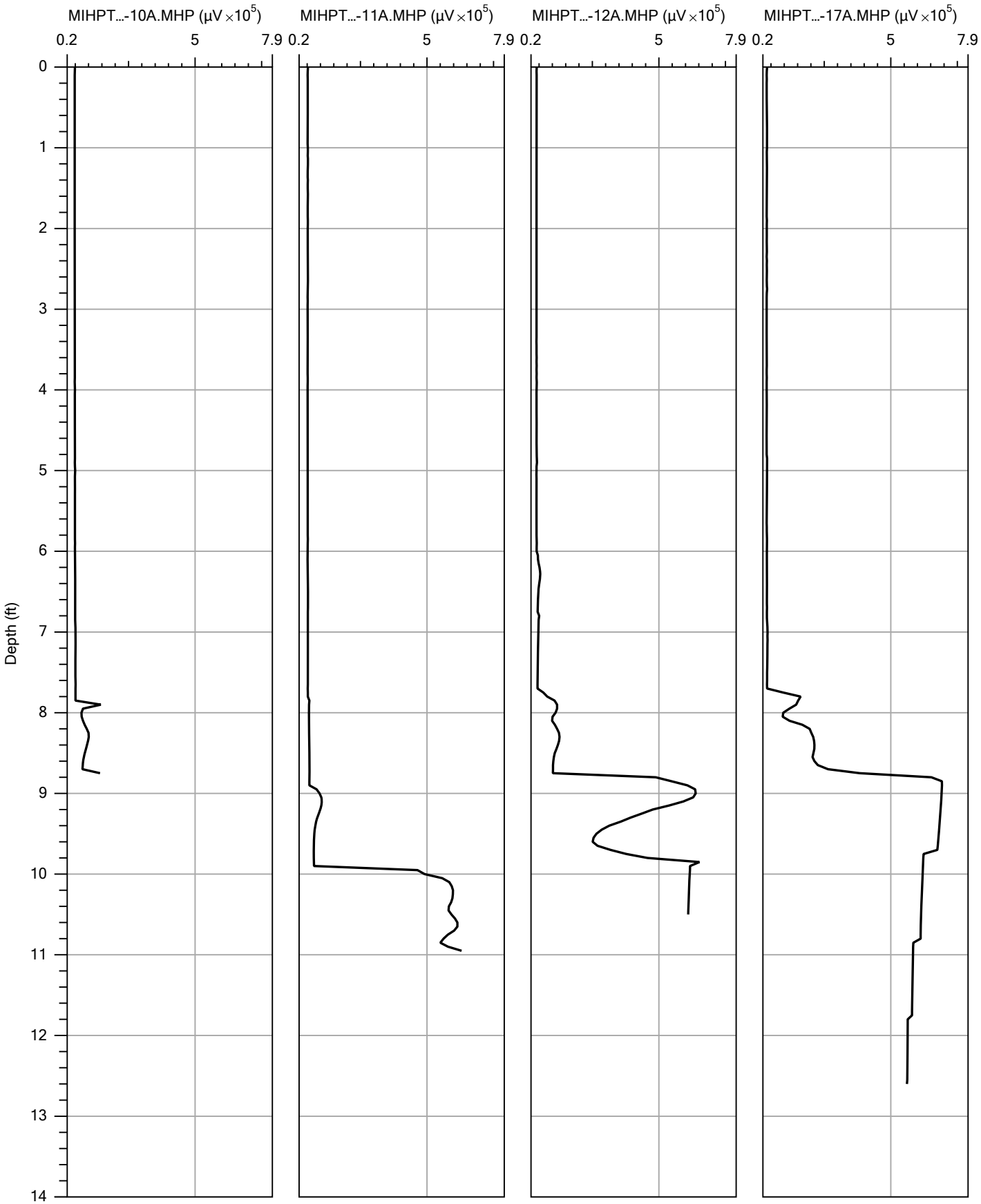


Direct Image® By Geoprobe Systems®

XSD Max

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson
Project ID: 17101	Client: Aecom

MIHPT B-1A.MHP	9/19/2017
MIHPT B-2A.MHP	9/21/2017
MIHPT B-3A.MHP	9/21/2017
MIHPT B-4A.MHP	9/21/2017

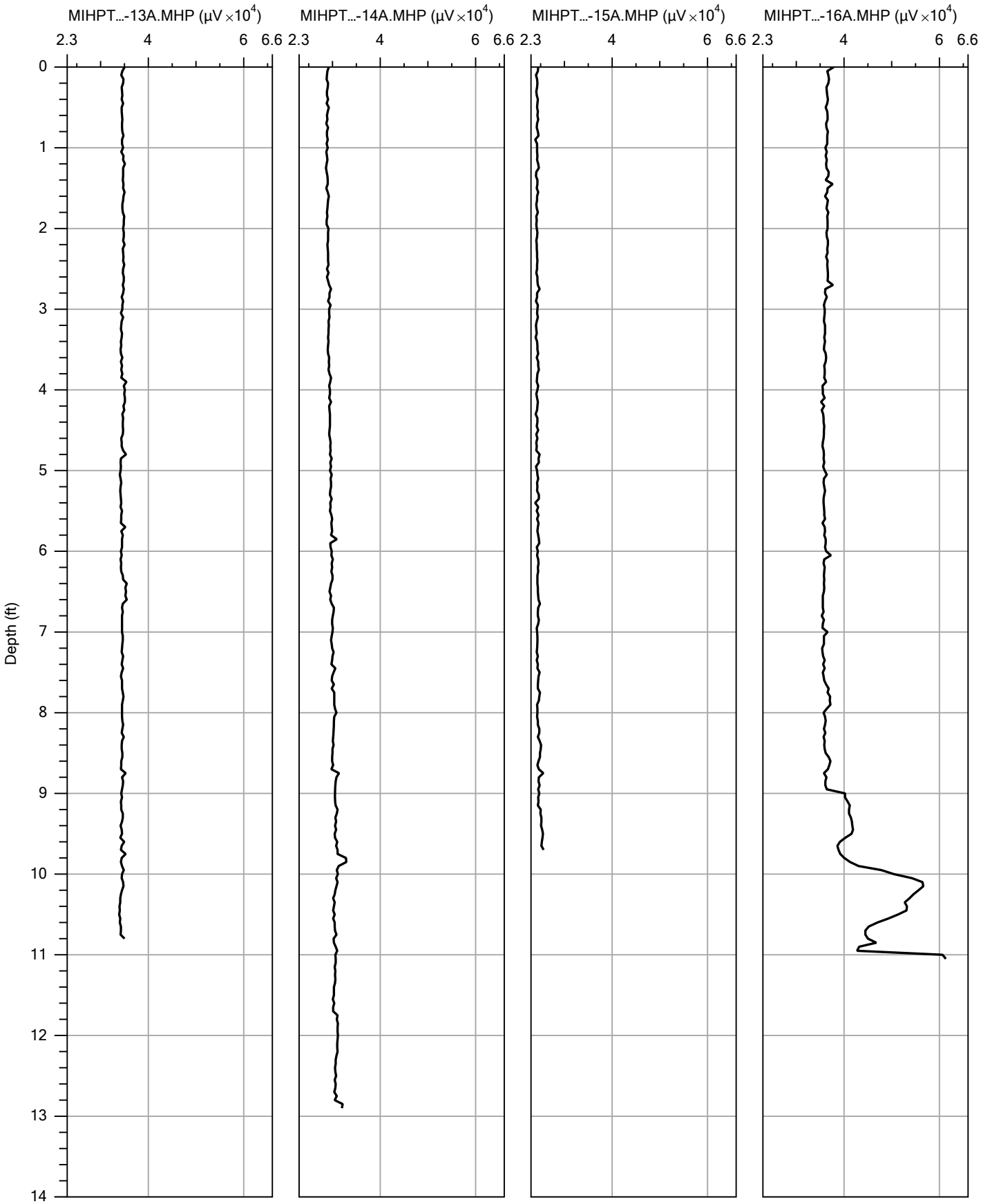


Direct Image® By Geoprobe Systems®

XSD Max

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson
Project ID: 17101	Client: Aecom

MIHPT B-10A.MHP	9/20/2017
MIHPT B-11A.MHP	9/20/2017
MIHPT B-12A.MHP	9/21/2017
MIHPT B-17A.MHP	9/22/2017

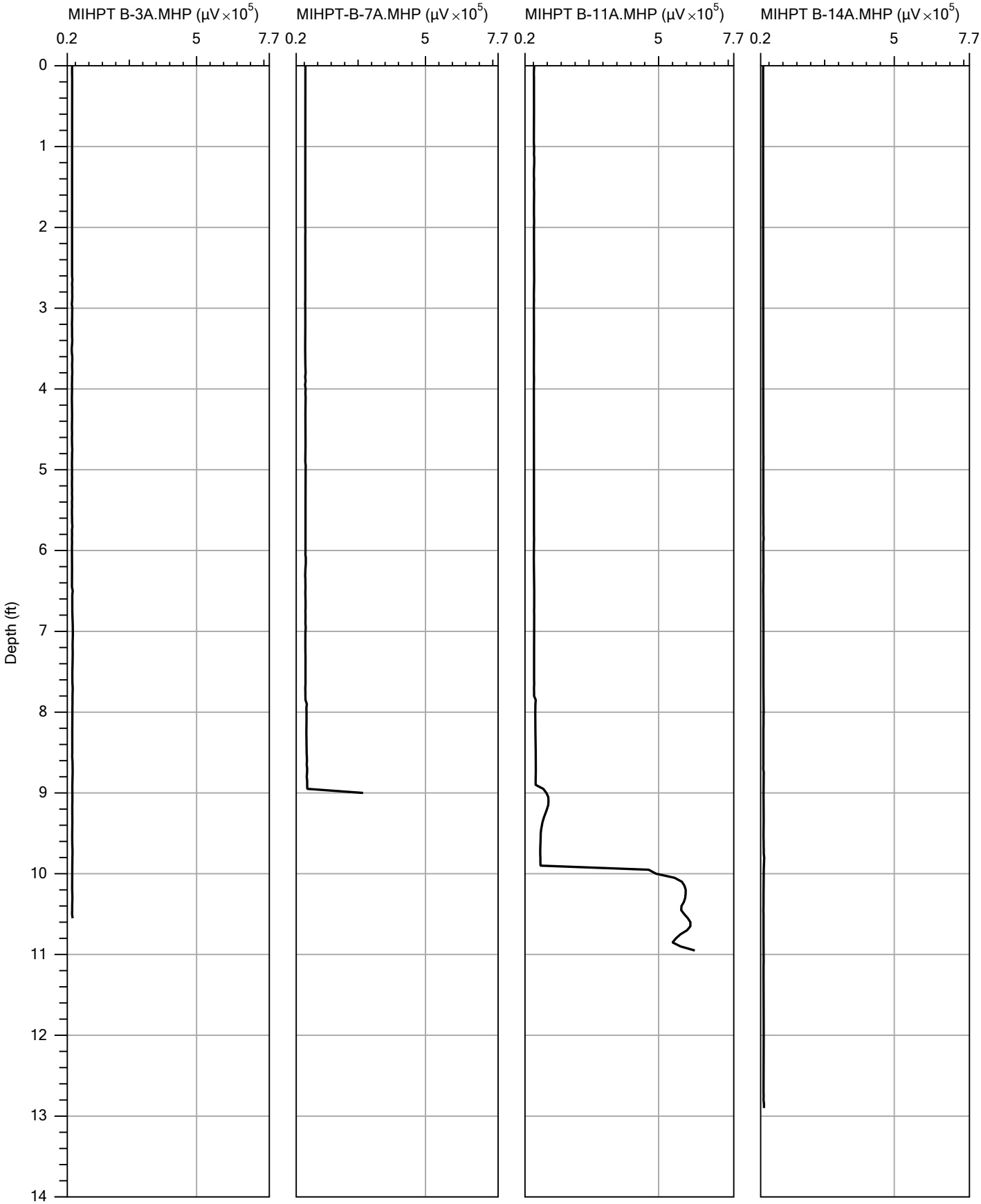


Direct Image® By Geoprobe Systems®

XSD Max

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson
Project ID: 17101	Client: Aecom

MIHPT B-13A.MHP	9/22/2017
MIHPT B-14A.MHP	9/22/2017
MIHPT B-15A.MHP	9/22/2017
MIHPT B-16A.MHP	9/21/2017

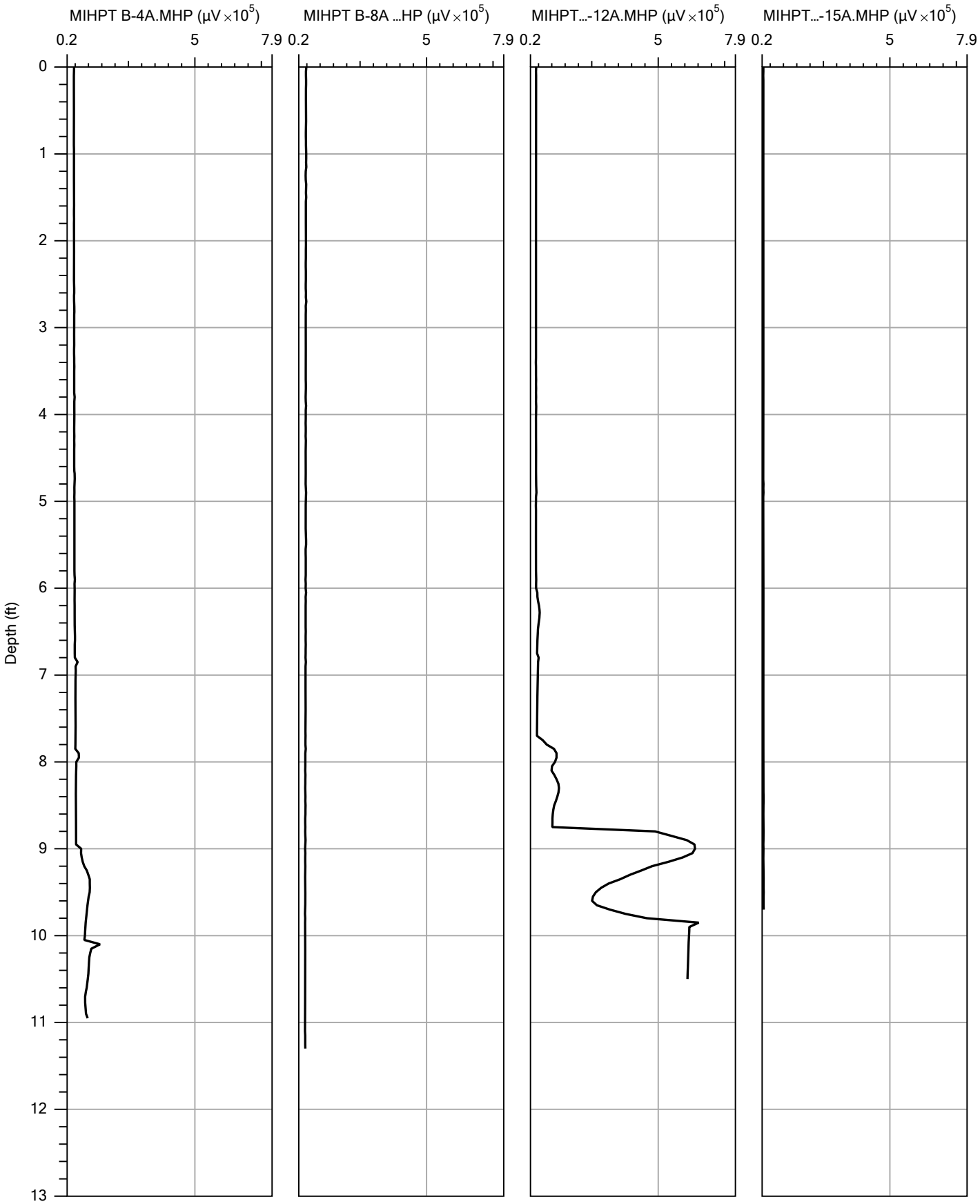


Direct Image® By Geoprobe Systems®

XSD Max

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson
Project ID: 17101	Client: Aecom

MIHPT B-3A.MHP	9/21/2017
MIHPT-B-7A.MHP	9/20/2017
MIHPT B-11A.MHP	9/20/2017
MIHPT B-14A.MHP	9/22/2017



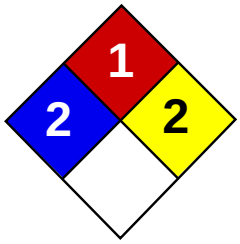
Direct Image® By Geoprobe Systems®

XSD Max

Company: Parratt-Wolff, Inc.	Operator: Danylo Kulczycky/ Wayne Nielson
Project ID: 17101	Client: Aecom

MIHPT B-4A.MHP	9/21/2017
MIHPT B-8A 2ND ATTEMPT.MHP	9/21/2017
MIHPT B-12A.MHP	9/21/2017
MIHPT B-15A.MHP	9/22/2017

Attachment 5



Material Safety Data Sheet
Sodium permanganate monohydrate MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium permanganate monohydrate

Catalog Codes: SLS4345

CAS#: 10101-50-5

RTECS: SD6650000

TSCA: TSCA 8(b) inventory: Sodium permanganate monohydrate

CI#: Not applicable.

Synonym: Permanganic acid, sodium salt

Chemical Name: Sodium permanganate monohydrate

Chemical Formula: NaMnO4.H2O

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium permanganate monohydrate	10101-50-5	100

Toxicological Data on Ingredients: Sodium permanganate monohydrate: ORAL (LD50): Acute: 9000 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant). Hazardous in case of skin contact (permeator), of ingestion, of inhalation. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of combustible materials. Flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Oxidizing material. Do not use water jet. Use flooding quantities of water. Avoid contact with organic materials.

Special Remarks on Fire Hazards: When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Keep away from combustible material Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as reducing agents, organic materials, metals, acids, moisture.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Oxidizing materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 5 (mg/m3) from ACGIH (TLV) [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Powdered solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 159.94 g/mole

Color: Red.

pH (1% soln/water): 7 [Neutral.]

Boiling Point: Not available.

Melting Point: Decomposes.

Critical Temperature: Not available.

Specific Gravity: 2.47 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances:
Highly reactive with reducing agents, organic materials, metals, acids. Reactive with moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 9000 mg/kg [Rat].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant). Hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Exposure can cause nausea, headache and vomiting. Material is corrosive to the mucous membranes.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 5.1: Oxidizing material.

Identification: : Sodium permanganate : UN1503 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Sodium permanganate monohydrate Massachusetts RTK: Sodium permanganate monohydrate TSCA 8(b) inventory: Sodium permanganate monohydrate SARA 313 toxic chemical notification and release reporting: Sodium permanganate monohydrate

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS C: Oxidizing material. CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 06:34 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Attachment 6

Type or print all information. See reverse for instructions. OMB No. 2040-0042 Approval Expires 12/31/2018

INVENTORY OF INJECTION WELLS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GROUND WATER AND DRINKING WATER

(This information is collected under the authority of the Safe Drinking Water Act)

1. DATE PREPARED *(Year, Month, Day)*

2. FACILITY ID NUMBER

PAPERWORK REDUCTION ACT NOTICE

The public reporting burden for this collection of information is estimated at about 0.5 hour per response including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, includingsuggestions for reducing this burden, Director, Collection Strategies Division (2822), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC20503.

3. TRANSACTION TYPE *(Please mark one of the following)*

☐ Deletion ☐ First Time Entry
☐ Entry Change ☐ Replacement

4. FACILITY NAME AND LOCATION

A. NAME *(last, first, and middle initial)*

B. STREET ADDRESS/ROUTE NUMBER

C. LATITUDE

DEG	MIN	SEC
		.

D. LONGITUDE

DEG	MIN	SEC
		.

E. TOWNSHIP/RANGE

TOWNSHIP	RANGE	SECT	1/4 SECT

F. CITY/TOWN

G. STATE

H. ZIP CODE

I. NUMERIC COUNTY CODE

J. INDIAN LAND *(mark "x")* ☐ Yes ☐ No

5. LEGAL CONTACT:

A. TYPE *(mark "x")* ☐ Owner ☐ Operator

B. NAME *(last, first, and middle initial)*

C. PHONE *(area code and number)*

D. ORGANIZATION

E. STREET/P.O. BOX

F. CITY/TOWN

G. STATE

H. ZIP CODE

I. OWNERSHIP *(mark "x")*

☐ PRIVATE ☐ PUBLIC ☐ SPECIFY OTHER
☐ STATE ☐ FEDERAL

6. WELL INFORMATION:

A. CLASS AND TYPE		B. NUMBER OF WELLS		C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS				
		COMM	NON-COMM		UC	AC	TA	PA	AN
				0					
				0					
				0					
				0					
				0					
				0					
				0					

COMMENTS *(Optional):*

KEY:

DEG = Degree
MIN = Minute
SEC = Second
SECT = Section
1/4 SECT = Quarter Section

COMM = Commercial
NON-COMM = Non-Commercial
AC = Active
UC = Under Construction
TA = Temporarily Abandoned
PA = Permanently Abandoned and Approved by State
AN = Permanently Abandoned and not Approved by State

INSTRUCTIONS AND DEFINITIONS

SECTION 1. DATE PREPARED: Enter date in order of year, month, and day.

SECTION 2. FACILITY ID NUMBER: In the first two spaces, insert the appropriate U.S. Postal Service State Code. In the third space, insert one of the following one letter alphabetic identifiers:

D - DUNS Number,
G - GSA Number, or
S - State Facility Number.

In the remaining spaces, insert the appropriate nine digit DUNS, GSA, or State Facility Number. For example, A Federal facility (GSA - 123456789) located in Virginia would be entered as : VAG123456789.

SECTION 3. TRANSACTION TYPE: Place an "x" in the applicable box. See below for further instructions.

Deletion. Fill in the Facility ID Number.
First Time Entry. Fill in all the appropriate information.
Entry Change. Fill in the Facility ID Number and the information that has changed.
Replacement.

SECTION 4. FACILITY NAME AND LOCATION:

A. Name. Fill in the facility's official or legal name.
B. Street Address. Self Explanatory.
C. Latitude. Enter the facility's latitude (all latitudes assume North Except for American Samoa).
D. Longitude. Enter the facility's longitude (all longitudes assume West except Guam).
E. Township/Range. Fill in the complete township and range. The first 3 spaces are numerical and the fourth is a letter (N,S,E,W) specifying a compass direction. A township is North or South of the baseline, and a range is East or West of the principal meridian (e.g., 132N, 343W).
F. City/Town. Self Explanatory.
G. State. Insert the U.S. Postal Service State abbreviation.
H. Zip Code. Insert the five digit zip code plus any extension.

SECTION 4. FACILITY NAME & LOCATION (CONT'D.):

I. Numeric County Code. Insert the numeric county code from the Federal Information Processing Standards Publication (FIPS Pub 6-1) June 15, 1970, U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.
J. Indian Land. Mark an "x" in the appropriate box (Yes or No) to indicate if the facility is located on Indian land.

SECTION 5. LEGAL CONTACT:

A. Type. Mark an "x" in the appropriate box to indicate the type of legal contact (Owner or Operator). For wells operated by lease, the operator is the legal contact.
B. Name. Self Explanatory.
C. Phone. Self Explanatory.
D. Organization. If the legal contact is an individual, give the name of the business organization to expedite mail distribution.
E. Street/P.O. Box. Self Explanatory.
F. City/Town. Self Explanatory.
G. State. Insert the U.S. Postal Service State abbreviation.
H. Zip Code. Insert the five digit zip code plus any extension.
I. Ownership. Place an "x" in the appropriate box to indicate ownership status.

SECTION 6. WELL INFORMATION:

A. Class and Type. Fill in the Class and Type of injection wells located at the listed facility. Use the most pertinent code (specified below) to accurately describe each type of injection well. For example, 2R for a Class II Enhanced Recovery Well, or 3M for a Class III Solution Mining Well, etc.
B. Number of Commercial and Non-Commercial Wells. Enter the total number of commercial and non-commercial wells for each Class/Type, as applicable.
C. Total Number of Wells. Enter the total number of injection wells for each specified Class/Type.
D. Well Operation Status. Enter the number of wells for each Class/Type under each operation status (see key on other side).

INJECTION WELL CLASS AND TYPE CODES

CLASS I Industrial, Municipal, and Radioactive Waste Disposal Wells used to inject waste below the lowermost Underground Source of Drinking Water (USDW).

TYPE	**1I**	Non-Hazardous Industrial Disposal Well.
	1M	Non-Hazardous Municipal Disposal Well.
	1H	Hazardous Waste Disposal Well injecting below the lowermost USDW.
	1R	Radioactive Waste Disposal Well.
	1X	Other Class I Wells.

CLASS II Oil and Gas Production and Storage Related Injection Wells.

TYPE	**2A**	Annular Disposal Well.
	2D	Produced Fluid Disposal Well.
	2H	Hydrocarbon Storage Well.
	2R	Enhanced Recovery Well.
	2X	Other Class II Wells.

CLASS III Special Process Injection Wells.

TYPE	**3G**	*In Situ* Gasification Well
	3M	Solution Mining Well.

CLASS III (CONT'D.)

TYPE	**3S**	Sulfur Mining Well by Frasch Process.
	3T	Geothermal Well.
	3U	Uranium Mining Well.
	3X	Other Class III Wells.

CLASS IV Wells that inject hazardous waste into/above USDWs.

TYPE	**4H**	Hazardous Facility Injection Well.
	4R	Remediation Well at RCRA or CERCLA site.

CLASS V Any Underground Injection Well not included in Classes I through IV.

TYPE	**5A**	Industrial Well.
	5B	Beneficial Use Well.
	5C	Fluid Return Well.
	5D	Sewage Treatment Effluent Well.
	5E	Cesspools (non-domestic).
	5F	Septic Systems.
	5G	Experimental Technology Well.
	5H	Drainage Well.
	5I	Mine Backfill Well.
	5J	Waste Discharge Well.

PAPERWORK REDUCTION ACT The public reporting and record keeping burden for this collection of information is estimated to average 0.5 hours per response. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

Attachment 7

Injection Field Log

Project Name: _____ **Injection Logs Recorded By:** _____

Boring ID Number	Date	Start Time	End Time	Injection Interval (ft to ft)	Maximum PSI	Average PSI	Average Flow Rate (gpm)	Volume Per Interval (gal)	Volume per Boring Running Total (gal)	Check if Reagent Surfaced	Notes
IP1											

Total Volume Injected: _____

Boring ID Number	Date	Start Time	End Time	Injection Interval (ft to ft)	Maximum PSI	Average PSI	Average Flow Rate (gpm)	Volume Per Interval (gal)	Volume per Boring Running Total (gal)	Check if Reagent Surfaced	Notes
IP2											

Total Volume Injected: _____

Boring ID Number	Date	Start Time	End Time	Injection Interval (ft to ft)	Maximum PSI	Average PSI	Average Flow Rate (gpm)	Volume Per Interval (gal)	Volume per Boring Running Total (gal)	Check if Reagent Surfaced	Notes
IP3											

Total Volume Injected: _____