

**Western Refining Southwest LLC**

A subsidiary of Marathon Petroleum Corporation

October 27, 2021

I-40 Exit 39

Jamestown, NM 87347

Mr. Kevin Pierard, Chief
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505-6303

**RE: Tank 570 Release and Additional Areas LIF/HP Investigation Report
Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery
EPA ID# NMD000333211**

Dear Mr. Pierard:

Western Refining Southwest LLC (D/B/A Marathon Gallup Refinery) (Refinery) is submitting this *Tank 570 Release and Additional Areas Laser-Induced Fluorescence/Hydraulic Profiling (LIF/HP) Investigation Report*.

This is the third investigation completed at the Refinery to identify areas where residual and/or mobile separate phase hydrocarbons exist. Previous investigations were completed during the weeks of November 18, 2019 and February 1, 2021, primarily in the Marketing Tank Farm Area. This investigation, conducted the week of May 11, 2021, was focused in the eastern, northern, and northwestern areas of the refinery. Additional borings were located within the Marketing Tank Farm Area where data gaps were identified during preparation of the *Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report* submitted March 31, 2021. These additional borings in the Marketing Tank Farm Area will be submitted in an addendum to the Marketing Tank Farm LIF Report.

If you have any questions or comments regarding the information contained herein, please do not hesitate to contact Mr. John Moore at (505) 879-7643.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,
Western Refining Southwest LLC, Marathon Gallup Refinery

Ruth Cade
Vice-President

Enclosure

cc: D. Cobrain, NMED HWB
L. Barr, NMOCD
M. Bracey, Marathon Petroleum Company
H. Jones, Trihydro

M. Suzuki, NMED HWB
K. Luka, Marathon Petroleum Company
J. Moore, Marathon Gallup Refinery



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**WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
TANK 570 RELEASE AND ADDITIONAL AREAS
LASER-INDUCED FLUORESCENCE/HYDRAULIC
PROFILING INVESTIGATION REPORT
OCTOBER 27, 2021**



Western Refining Southwest LLC
(D/B/A Marathon Gallup Refinery)
Tank 570 Release and Additional Areas Laser-Induced Fluorescence/Hydraulic Profiling Investigation
Report

Executive Summary

The Western Refining Southwest LLC (dba Marathon Gallup Refinery) (Refinery) is submitting this Tank 570 Release and Additional Areas laser-induced fluorescence (LIF) and hydraulic profiling (HP) investigation to identify areas where residual and/or mobile separate phase hydrocarbons (SPH) from releases may potentially exist. This investigation was conducted to further evaluate the extent of SPH at the Refinery and to assist in remedial design.

As a result of two releases in 2019, Marketing Tank Farm release and Tank 570 release, LIF/HP was proposed to investigate the extents. Three investigations have been conducted between November 2019 and May 2021. The investigations are summarized as follows:

- Week of November 18, 2019: Borings were drilled in the Marketing Tank Farm and around Tank 570 to address the releases in these areas.
- Week of February 1, 2021: Borings were drilled in the Marketing Tank Farm and the Process Area to address data gaps in the Marketing Tank Farm area. The results for the Marketing Tank Farm investigations (November 2019 and February 2021) were summarized in the "Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report" (MKTF Report) submitted on March 31, 2021 and disapproved in the New Mexico Environment Department (NMED) letter dated June 2, 2021.
- Week of May 10, 2021: Borings were drilled at various locations around the refinery, including the northern and eastern boundary, Tank Farm, Marketing Tank Farm, and in and around the wastewater treatment area to further address the Tank 570 area, refinery boundaries, and other areas with data gaps. The Tank 570 (November 2019 and May 2021), Process Area (February 2021), and additional areas (May 2021) data are discussed in this report. The additional Marketing Tank Farm data collected in May 2021 will be presented in an addendum to the MKTF Report (MPC 2021), which will be submitted by November 19, 2021.

The investigation scope was conducted in accordance with a series of verbal discussions and agreements between the NMED and the Refinery. In total, 139 LIF/HP borings have been drilled at the site: 46 borings in November 2019, 45 borings in February 2021, and 48 borings in May 2021. Refer to Section 1.0, Table 1-1 for the LIF boring designations, associated investigation dates, and cross-references to the applicable report where data analysis is provided. Refer to Section 3.0, Figure 3-1 for the locations and extent of the SPH occurrences.

This report presents the Tank 570 and the additional areas data collected in November 2019, February 2021, and May 2021. This report can be considered complimentary to the March 2021 MKTF Report and addendum.



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The LIF/HP investigation for the Tank 570 release and the additional areas spanned the three field events and consisted of advancing 28 direct push (DP) borings in November 2019, 8 DP borings in February 2021, and 41 DP borings in May 2021. In conjunction with the LIF/HP borings, soil samples were collected at eight locations. The February and May 2021 locations were selected to close data gaps identified during the November 2019 LIF/HP investigation located on the Eastern Boundary of the Refinery and near the 2019 Tank 570 release. Utility clearance using ground-penetrating radar was completed by Ground Penetrating Radar Systems in the week prior to the drilling activities. Gallup Pipeline and Compliance Services performed borehole clearance using air-knife excavation in a V-trench formation. Terracon performed the DP drilling and Dakota Technologies, LLC performed LIF/HP probing activities.

Significant conclusions include:

- SPH impacts appear to follow relatively coarser lithologies (sandy clays, sands, and gravel dominated lithologies).
- These appear to occur as lenses, filled in erosional surfaces, or possible paleochannels
- Product types are mixed in some areas and lighter product types are widely dispersed across the site. Releases of some lighter-end product types such as gasoline and naphtha have occurred in the last 5 years.
- To verify saturation and to aid in the design of future remedial alternatives, collection of soil cores and verification of fuel types will be evaluated.

Based on the information collected during this investigation, the recommendations include:

- Process Area: The potential SPH is bounded to the north by the Eastern Boundary LIF borings. Future investigations in the Process Area will be addressed in the Process Area Work Plan, requested by NMED in Comment 9 of the Marketing Tank Farm LIF report disapproval letter (NMED 2021).
- Western Boundary Area: Additional groundwater monitoring wells were completed in July and August 2021 along the North Drainage Ditch and near the Evaporation Ponds for dissolved-phase groundwater assessment and monitoring of these Refinery features. Based on the data presented in this report, sufficient data have been collected to aid in remedial design.
- Eastern Boundary Area: Hydraulic gradient and the dip of the Chinle Formation suggest that the primary direction of SPH migration in this area is toward the north, where the extent of impacts is well delineated. To verify the extent of SPH along the eastern boundary (east of EB-LIF-07, EB-LIF-12, and EB-LIF-13), additional assessment will be conducted off site once access is obtained from property owners. An assessment of shallow soils in the vicinity of the Rail Car Release is planned for 2021 and also would provide some information near EB-LIF-07.



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- Tank Farm Area: Data from borings EB-LIF-103, EB-LIF-105, and EB-LIF-107 indicate that SPH above residual saturation exists. Groundwater monitoring wells OW-30, OW-55, and OW-13, located down gradient of the LIF borings, show no evidence of SPH, indicating that the SPH terminates in the area between the LIF borings and the wells. Based on the data presented in this report, sufficient data have been collected to aid in remedial design.



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List of Acronyms and Abbreviations

% RE	percent of reference emitter
bgs	below ground surface
cm/sec	centimeters per second
DP	direct push
EC	electrical conductivity
ft	foot or feet
GPS	Global Positioning System
HP	hydraulic profiling
K	hydraulic conductivity
LIF	laser-induced fluorescence
Refinery	Marathon Gallup Refinery
mS/m	millisiemens per meter
NM	New Mexico
NMED	New Mexico Environment Department
P Dwn	downhole hydraulic pressure
SPH	separate phase hydrocarbon



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1.0 INTRODUCTION AND BACKGROUND

This report summarizes the Tank 570 release and additional areas Laser-Induced Fluorescence/Hydraulic Profiling (LIF/HP) investigation conducted at the Western Refining Southwest LLC (dba Marathon Gallup Refinery) (Refinery) in Gallup, New Mexico (NM) (Figure 1-1). This investigation was conducted to identify areas where residual and/or mobile separate phase hydrocarbons (SPH) may exist due to hydrocarbon releases and to assist in remedial design.

As a result of two releases in 2019, Marketing Tank Farm release and Tank 570 release, LIF/HP was proposed to investigate the extents. The investigation scope was conducted in accordance with a series of verbal discussions and agreements between the New Mexico Environment Department (NMED) and the Refinery. Three investigations have been conducted between November 2019 and May 2021. In total, 139 LIF/HP borings have been drilled at the site: 46 borings in November 2019, 45 borings in February 2021, and 48 borings in May 2021.

The investigations are summarized as follows:

- Week of November 18, 2019: Borings were drilled in the Marketing Tank Farm and around Tank 570 to address the releases in these areas.
- Week of February 1, 2021: Borings were drilled in the Marketing Tank Farm and the Process Area to address data gaps in the Marketing Tank Farm area. The results for the Marketing Tank Farm investigations (November 2019 and February 2021) were summarized in the "Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report" (MKTF Report) (MPC 2021) submitted on March 31, 2021 and disapproved in the NMED letter dated June 2, 2021.
- Week of May 10, 2021: Borings were drilled at various locations around the refinery, including the northern and eastern boundary, Tank Farm, Marketing Tank Farm, and in and around the wastewater treatment area to further address the Tank 570 area, refinery boundaries, and other areas with data gaps. The Tank 570 (November 2019 and May 2021), Process Area (February 2021), and additional areas (May 2021) data are discussed in this report. The additional Marketing Tank Farm data collected in May 2021 will be presented in an addendum to the MKTF Report (MPC 2021), which will be submitted by November 19, 2021.

This report presents the Tank 570 and the additional areas data collected in November 2019, February 2021, and May 2021. This report can be considered complimentary to the March 2021 MKTF Report and addendum. Table 1-1 presents the LIF boring designations, associated investigation dates, and cross-referenced to the applicable report where data analysis is provided.



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1.1 Background

The Refinery is located approximately 17 miles east of Gallup, McKinley County, NM along the north side of Interstate Highway I-40 (Figure 1-1). The physical address is I-40, Exit #39 Jamestown, NM, 87347. The Refinery property covers approximately 810 acres. The Refinery was officially idled indefinitely on October 9, 2020. While operating, the Refinery processed crude oil transported by pipeline or tanker truck from the Four Corners region. Various process units operated at the Refinery included crude distillation, reformer, fluidized catalytic cracker, alkylation, sulfur recovery, merox treater, and hydrotreater. Past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel. Refinery operations were idled in April 2020.

1.2 Investigation Objectives

As determined by the Refinery, the objectives of the LIF investigation were to:

- Identify areas where residual and/or mobile SPH may exist.
- Use the investigation results to assist in the selection of remedial alternatives for evaluation.

1.3 Site Surface and Subsurface Conditions

Site topographic features include high ground in the southeast gradually decreasing to a lowland fluvial plain to the northwest. Elevations on the refinery property range from 7,040 feet (ft) to 6,860 ft. Surface soils within most of the area of investigation are primarily Rehobeth silty clay loam, which is a common soil type in the area.

Based on existing boring logs, shallow subsurface fluvial and alluvial soils are comprised of primarily clays and silts with minor inter-bedded sand layers. Very low permeability bedrock (e.g., claystones and siltstones) underlie the surface soils and effectively form an aquitard. The Chinle Group, from the Upper Triassic period, crops out over a large area on the southern margin of the San Juan Basin. The uppermost recognized local Formation is the Petrified Forest Formation. The Sonsela Sandstone Bed is the uppermost recognized regional aquifer. Aquifer tests of the Sonsela Bed northeast of Prewitt indicated a transmissivity of greater than 100 ft²/day (Stone et al., 1983). The Sonsela Sandstone's highest point occurs southeast of the site and slopes downward to the northwest as it passes under the



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Refinery. The Sonsela Sandstone forms a water-bearing reservoir with artesian conditions throughout the central and western portions of the Refinery property. The regional stratigraphy around the Refinery is shown on Figure 1-2.

The diverse properties and complex, irregular stratigraphy of the surface soils across the Refinery cause a wide range of hydraulic conductivity (K) ranging from less than 10^{-2} centimeters per second (cm/sec) for gravel-like sands immediately overlying the Petrified Forest Formation to 10^{-8} cm/sec in the clay soils located near the surface. Generally, shallow groundwater at the Refinery follows the upper contact of the Petrified Forest Formation (Chinle Group) with prevailing flow from the southeast to the northwest, although localized areas may have varying flow directions based on the subsurface geology.

1.4 Existing Data

Historically, releases have occurred in the investigation area, including an October 2019 gasoline release from a subsurface pipeline between the Truck Loading Rack and the Marketing Tank Farm. During this investigation, the project scope was expanded from the 2019 gasoline release to evaluate other releases in the area, including the Tank 570 release, and diesel and naphtha occurrences. Historical measurements of SPH thickness and depth in monitoring wells across the Refinery were used to develop the scope of work for the three LIF/HP investigations. SPH thicknesses in the Refinery monitoring wells are shown on Figure 1-3. Measurements of SPH thickness and depth in the monitoring wells are in Appendix A.



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2.0 INVESTIGATION METHODS

During these investigations, site characterization was conducted with LIF. At a subset of the LIF borings, an HP tool was added to the probe. Details on the LIF/HP technique are described in Appendix B. The investigation results are presented in Section 3.0. The concepts of mobility and migration are discussed with respect to the investigation results in Sections 3.0 and 4.0.

LIF is a DP site characterization method in which a transparent sapphire window is fitted into the side of a DP probe that is pushed through the soil column. As this sapphire-windowed probe is advanced steadily down into the soil column, pulses of laser light are emitted onto passing soil. The laser light excites fluorescent molecules that exist in most petroleum fuels and oils. At this site, the type of LIF probe utilized was an Ultra-Violet Optical Screening Tool (UVOST®) probe, which is designed for detecting light to mid-weight fuels and oils containing 2- to 4-ring polycyclic aromatic hydrocarbons (PAH), such as gasoline, diesel, kerosene, motor oils, cutting fluids, hydraulic fluid, light crude oils, and fuel oils.

The HP tool is used to assess formation permeability and hydrostratigraphy. During advancement, water is injected at a controlled rate into the formation through a screened port on the side of the HP probe. A transducer in the probe measures the total pressure required to inject the water into the formation while a flow controller at the surface monitors the injection flow rate. These data can be used to estimate K in the formation. The HP tool also measures electrical conductivity (EC). EC is the proportionality factor relating to the current that flows in a medium to the electric force field that is applied. It is a measure of the ability of the material to conduct an electrical current to move through the material. The EC of subsurface materials is influenced by metal content, porosity, permeability, and clay content, among other factors. The EC log is reviewed to better define formation permeability and hydrostratigraphy.

The combination of LIF and HP tools on a single DP probe facilitates investigation of SPH while simultaneously characterizing lithologic variability that influences SPH mass storage and transport. This combination reduces time and cost, while eliminating the need to integrate LIF and HP data from adjacent borings.

The LIF/HP probing output provides a comparison of the LIF response to that of a known reference standard and is presented as percent of the reference emitter (% RE). LIF response intensity (i.e., % RE) is influenced by the quantity of SPH present and the waveform pattern is a function of the relative proportions of the PAHs present.

For clarity, in discussing the migration potential of SPH, a distinction should be drawn between potential SPH mobility and migration, as these terms can be confused (ITRC 2009). In this report, mobility and migration potential refer to the potential of SPH to gravity drain from the soil pore space, which can only occur if the residual saturation is exceeded. This gravity drainage typically manifests itself as SPH in a



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monitoring well. In contrast, SPH migration refers to the lateral spread of SPH under the influence of SPH characteristics, the prevailing groundwater hydraulic gradient, and permeability, as governed by Darcy's Law. Exceedance of local residual saturation is a necessary condition for migration, but it is not alone sufficient for migration. Sufficient SPH head and other conditions described in this report must be present for SPH to migrate downgradient.



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3.0 INVESTIGATION RESULTS

In total, 139 LIF/HP borings have been drilled at the site: 46 borings in November 2019, 45 borings in February 2021, and 48 borings in May 2021. The locations are presented on Figure 3-1 and the LIF/HP logs are provided in Appendix C. Elevation data for the LIF borings are provided in Appendix D.

The LIF/HP Investigations were conducted because of two simultaneous releases in the Marketing Tank Farm and the Tank 570 area. The November 2019 data addressed both the Marketing Tank Farm and Tank 570 releases. The February 2021 data addressed the Marketing Tank Farm Release. The May 2021 data addressed the Tank 570 Release and the refinery boundaries per NMED comments and other data gaps. The November 2019 and February 2021 LIF data associated with the Marketing Tank Farm (designated MKTF-LIF) were discussed in the Marketing Tank Farm LIF report (MPC 2021). The additional Marketing Tank Farm data collected in May 2021 will be presented in an addendum to the MKTF Report (MPC 2021), which will be submitted by November 19, 2021.

The Tank 570 and additional areas data collected in November 2019, February 2021, and May 2021 are discussed in the following sections. This report can be considered a complimentary to the March 2021 MKTF Report and addendum.

3.1 Utility Clearance

During the November 2019 and February 2021 investigations, utility clearance was conducted using air-knifing from 0 to 5 ft. In the December 18, 2020 "Response to Comments Approval with Modifications OW-61 through OW-65 Well Installation Report" submitted to the NMED, the Refinery proposed to hydro-excavate v-trenches to locate subsurface utilities as requested by NMED. The advantage of v-trenching is that undisturbed shallow soils can be evaluated for potential impacts. NMED approved the method and requested additional information in the "Approval, Response to Comments Approval with Modifications OW-61 through OW-65 Well Installation Report" letter dated January 13, 2021. Per the NMED approval letter, v-trenching was to be performed for the February 2021 LIF investigation. The NMED approval letter was received after planning and scheduling for the February 2021 LIF event was completed. Therefore, v-trenching was not used in the February 2021 investigation.

During the May 2021 investigation, v-trenching clearance activities were completed and LIF/HP intervals from 0 to 5 ft are representative of undisturbed subsurface conditions as required by NMED. Terracon performed the DP drilling and Dakota Technologies, LLC performed LIF/HP probing activities. Borings completed during the May 2021 investigation were abandoned using bentonite chips emplaced from the bottom of the borehole to the surface. During the November 2019 and February 2021 investigations, soil borings with no LIF response were abandoned with soil cuttings from the borehole and a bentonite plug was placed from 2 ft below ground surface (bgs) to ground surface. Impacted borings were abandoned using bentonite chips.



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3.2 Laser-Induced Fluorescence Results

LIF borings discussed in this Tank 570 Release and Additional Areas LIF/HP Investigation Report (Table 1-1) were distributed as follows:

- Eight borings (designated PA-LIF) were advanced in the Process Area.
- Twenty borings (designated WB-LIF) were advanced along the Active Refinery Western Boundary.
- Forty-nine borings (designated EB-LIF) were advanced along the Eastern Boundary.

Based on the LIF logs (Appendix C), SPH type and extent are presented on Figure 3-1. LIF fluorescence intensity is likely to increase with SPH saturation magnitude. However, LIF data should not be taken as an indication of SPH mobility. The distinction between residual and mobile SPH is complex and depends on fine scale hydrostatic conditions which can change over time. The primary output variable of the LIF borings and the % RE from the UVOST®, is a measure of fluorescence relative to a standard reference. While it is influenced by the SPH saturation of pore space within the subsurface it is also affected by the nature of aquifer materials, and the type and composition of the SPH.

For qualitative analysis of the LIF data, values of approximately 20 % RE or less are considered a minimal response, i.e., SPH present at low levels. Values of 0 % RE were considered to have no SPH. This was determined by:

- Potential for LIF false positives having been documented for certain waveform patterns and at low % RE (Dakota 2021)
- Collection of soil samples for comparison to % RE values in general correlate to concentrations of TPH, 50% of the samples that contained Total TPH of 1000 mg/kg correlated in general to a 20 % RE threshold.

3.2.1 Marketing Tank Farm Area

In May 2021, seven LIF borings were advanced in the Marketing Tank Farm area to further assess the boundaries of gasoline- and diesel-type SPH. MKTF-LIF-124 and MKTF-LIF-126 were advanced as the northern most MKTF borings. No response was noted in MKTF-LIF-124, and a gasoline-type waveform was noted for MKTF-LIF-126 (41.6%). Active refinery western boundary borings WB-LIF-125 and WB-LIF-127 both showed no response and are north of MKTF-LIF-126.

MKTF-LIF-131, MKTF-LIF-132, MKTF-LIF-133, MKTF-LIF-134, and MKTF-LIF-135 were advanced to delineate the western portion of the gasoline plume near borings MKTF-LIF-77 and MKTF-LIF-90. No response was noted in MKTF-LIF-133, MKTF-LIF-134, and MKTF-LIF-135. A gasoline-type waveform was noted in borings MKTF-LIF-131 (37.2%) and MKTF-LIF-132 (23%). These borings are bound on the south by MKTF-LIF-78, MKTF-LIF-79, MKTF-LIF-80, and MKTF-LIF-134.



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Based on the data presented in the Marketing Tank Farm LIF report (MPC 2021) and this report, sufficient data have been collected for future engineering remediation evaluations.

3.2.2 Process Area

In February 2021, eight LIF borings were advanced in the Process Area in the southeast area of the Refinery. No additional Process Area LIF borings were drilled in May 2021. PA-LIF-1 has a waveform signature similar to a diesel-type product peaking at 464.7 % RE between 12.25 and 13.5 ft and a smaller diesel-type product signature between 16 and 17 ft bgs. To the west of this location, PA-LIF-2 has a gasoline-type waveform signature with 77.7 % RE between 16 and 17 ft bgs. South of these two locations, a mixture of gasoline-type and diesel-type waveform signatures were identified in PA-LIF-4, PA-LIF-7, and PA-LIF-8. Directly south of PA-LIF-1, PA-LIF-6 has a diesel-type waveform signature with 562.8 % RE and was shown to cover a much broader depth range from 14 to 22 ft bgs. Two of the locations, PA-LIF-3 and PA-LIF-5, had no response and were advanced east of PA-LIF-4 and PA-LIF-7, respectively.

Soil samples were collected from PA-LIF-7 at depths of 11-13 ft bgs and 13-14 ft bgs. Results are included in Table 3-1 and discussed in Section 3.4.

The potential SPH in the Process Area is bounded to the north by the Eastern Boundary LIF borings and to the west by the Marketing Tank Farm LIF borings. Future investigations in the Process Area towards the east and south will be addressed in the Process Area Work Plan, requested by NMED in Comment 9 of the Marketing Tank Farm LIF report disapproval letter (NMED 2021).

3.2.3 Active Refinery Western Boundary

The active refinery western boundary LIF borings are generally north of the Marketing Tank Farm within the wastewater treatment area. Of the 20 active refinery western boundary LIF borings completed, 15 had a response of less than 20 % RE. The waveform detections were noted as being a diesel-type in the following borings: WB-LIF-112 (58.3 %), WB-LIF-114 (78.7 %), WB-LIF-119 (350.5 %), WB-LIF-128 (329.6 %), and WB-LIF-136 (144.5 %).

Access to install additional borings was difficult due to pond slopes within the area. It is likely that the ponds function as a migration barrier to the SPH impacts within the subsurface. Based on the data presented in this report, sufficient data have been collected for future engineering evaluation.

3.2.4 Eastern Boundary

The eastern boundary is generally the area north of the Process Area and in the Tank Farm. In May 2021, 21 LIF borings were advanced in the eastern boundary to supplement the 28 LIF borings collected in November 2019/February 2021. Initial LIF borings were done around Tank 570, which had a documented gasoline release in 2019. LIF waveforms from EB-LIF-02 (west of the tank, 255 % RE) indicate gasoline- and diesel-type product mixed at depths between 10 and 36 ft bgs. Gasoline-type LIF



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waveforms were also noted in the following borings above 100 % RE: EB-LIF-12 (401 %), EB-LIF-18 (272.3 %), EB-LIF-20 (185.7 %), EB-LIF-21 (217.3 %), EB-LIF-28 (304 %). LIF waveforms similar to a diesel-type product were detected above 100 % RE in EB-LIF-03 (179.2 %), EB-LIF-04 (711.7 %), and EB-LIF-26 (435.9 %), which were all adjacent to and east and south of Tank 570. A mix of diesel- and gasoline-type waveforms were also noted in several locations east of Tank 570 in EB-LIF-05, EB-LIF-06, and EB-LIF-07. To the south of these three locations, a % RE response less than 20 % was noted in LIF borings EB-LIF-08, EB-LIF-09, and EB-LIF-23, as well as the area to the north of the diesel- and gasoline-type waveform borings (EB-LIF-05, EB-LIF-06, EB-LIF-07) in EB-LIF-11 and EB-LIF-122 (May 2021).

The May 2021 LIF borings advanced in the eastern boundary further assessed:

- The northern portion of the refinery (EB-LIF-96, EB-LIF-99, EB-LIF-101, EB-LIF-102, EB-LIF-103, EB-LIF-104, EB-LIF-105, EB-LIF-106, EB-LIF -107, EB-LIF-121, and EB-LIF-138)
- The western portion of the Tank Farm (EB-LIF-93, EB-LIF-94, EB-LIF-97, and EB-LIF-98)
- The northern area of the Marketing Tank Farm (EB-LIF-91 and EB-LIF-109)
- The area between the Process Area and Tank 570 (EB-LIF-108)

For the northern portion of the eastern boundary, gasoline-type LIF waveforms were noted in the following borings above 100 % RE: EB-LIF-99 (353.3 %), EB-LIF-103 (174.3 %), EB-LIF-104 (191.2 %). A diesel- and gasoline-type mixed waveform was noted in EB-LIF-101 (77.5 %), which is between the detected waveforms similar to a diesel-type product in LIF borings south of EB-LIF-97 and EB-LIF-98. The northernmost eastern boundary LIFs did have waveforms similar to a gasoline-type product in 2 of the 3 borings (EB-LIF-105 and EB-LIF-107), and were less than 100 % RE. These borings are south of wells OW-55 and OW-30 where no SPH has been observed.

For the western portion of the Tank Farm, diesel-type waveforms were observed in EB-LIF-97 (50.4 %), and EB-LIF-98 (150.5 %). A gasoline-type waveform was noted in EB-LIF-93 (27 %) near the Marketing Tank Farm area. LIF responses below 20 % RE were observed in EB-LIF-94 and EB-LIF-95.

For the area north of the Market Tank Farm, EB-LIF-109 contained a waveform similar to a gasoline- and diesel-type mix. This location had one of the highest responses in the eastern boundary borings, and was measured at 703.6 % RE. To the north of this location, EB-LIF-91 had a diesel-type only waveform with a response of 23.3 %.

LIF boring EB-LIF-108 (320 %) was located between the Process Area and Tank 570, just south of EB-LIF-25 (435.9 % diesel type). The waveform for the LIF was noted as a diesel type. This boring suggests that there may be some mixing of product types between Tank 570 and the Process Area (PA-LIF-01 [464.7 % diesel type]).



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Data suggest that SPH impacts may exist east of EB-LIF-07, EB-LIF-12, and EB-LIF-13 and further delineation may be warranted. Additional assessment of the eastern boundary would be offsite. The Refinery has attempted to contact the adjacent property owner regarding access but has not received any response.

3.3 Hydraulic Profiling Results

The HP data were collected from 107 of the borings drilled during the November 2019, February 2021, and May 2021 field events (Appendix C) and the data are included on the right-hand side of the LIF/HP logs, if applicable.

During HP, water is pumped through a down-hole transducer at approximately 250 milliliters per minute into the formation. Pressure and flow are measured as the tool is advanced. A calibration procedure called a dissipation test is performed at one or more discrete depths within each boring logged with the HP tool. The dissipation test allows the pressure to equilibrate to hydrostatic pressure for a particular depth, and from that measurement, a potentiometric surface (water table) can be calculated. Once the water table surface is calculated, estimated K values can be calculated for the saturated portion of the boring. Ideally, dissipation tests are performed in subsurface zones below the water table, which have low pressure and high flow. The hydrostatic pressure gradient increases with depth and permeability decreases with depth, making deeper zones less ideal for dissipation testing. In deeper zones with higher pressure and/or very low permeability zones, little flow occurs even during the initiation of a dissipation test and a response signal is difficult to measure. If a dissipation test could not be completed at a boring, K values are not provided on the HP log. The coefficients used to calculate K are displayed in the equation at the bottom of the HP log.

HP data were used to evaluate subsurface geology with respect to potential SPH flow. Cross sections were developed using all three investigations HP and LIF data for the entire Refinery (Marketing Tank Farm release area, Tank 570 release area, and additional areas). Figure 3-2 presents the cross-section location map. Figures 3-3 through 3-7 present the cross sections with maximum historical SPH thickness. The northing and easting locations of the borings were determined with Global Positioning System (GPS) following completion of LIF investigation and the data are included as Appendix D. Ground surface elevations were determined using unmanned aerial vehicle data.

Based on the log signatures, low K values (high downhole hydraulic pressure [P Dwn]) on the HP logs appear to represent a low K boundary between the alluvium/Chinle Group contact as seen on the cross sections. Bedding planes and changes in soil material are possible pathways for SPH migration in the subsurface and are indicated by a slight decrease in P Dwn on the HP logs.

3.4 Electrical Conductivity Results

EC was measured in 32 of the November 2019 and February 2021 LIF borings and the data are included on the right-hand side of the LIF/EC log (Appendix C). EC logs were not collected during the May 2021



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investigation due to probe malfunctioning. The conductivity value on the EC log represents the electrical conductivity of the soils. EC in the 0 to 50 millisiemens per meter (mS/m) range can be interpreted as sand (coarser to finer), silts are normally in the 50 to 100 mS/m range, clayey silts and silty clays range up to 200 mS/m, and clays are normally greater than 200 mS/m (Christy, et al., 1994).

The EC data were used to evaluate subsurface geology with respect to potential SPH flow. High conductivity on the EC logs roughly correlates with the Chinle Group contact as shown on the cross sections. All soil K data gathered via HP or EC tools should be correlated with physical soil samples to ensure that the tools are accurately representing subsurface conditions.

3.5 Soil Sampling Results

Soil cores were collected using a Geoprobe® by driving a 5-ft long by 2-inch diameter macro-core barrel within 2 ft of the selected LIF/HP boring locations. Locations were determined by the on-site Professional Geologist after interpretation of the May LIF/HP logs (Figure 3-8). LIF data are a better indicator of the presence or absence as well as location of SPH than the TPH data. TPH data are a better indicator of SPH saturation than the LIF data. Therefore, soil samples were collected to represent a variety of % RE and waveform types. Soil samples were collected from the following locations:

- Process Area
 - o EB-LIF-34 (20 to 21 ft)
 - o EB-LIF-108 (10 to 11 ft)
 - o EB-LIF-109 (11.5 to 12 ft and 15 to 15.5 ft)
 - o PA-LIF-7 (11 to 13 ft and 13 to 14 ft)
- Tank Farm
 - o EB-LIF-19 (16 to 18 ft)
 - o EB-LIF-20 (27 to 28 ft)
 - o EB-LIF-28 (20 to 21 ft and 21 to 23 ft)
 - o EB-LIF-99 (19 to 20 ft and 20 to 21 ft)

Samples were analyzed for total petroleum hydrocarbon-diesel range organics (TPH-DRO) and total petroleum hydrocarbon-motor oil range organics (TPH-MRO) analysis by the United States Environmental Protection Agency (USEPA) Method 8015M, and total petroleum hydrocarbon-gasoline range organics (TPH-GRO) analysis by the USEPA Method 8260B. In addition, a subset of the samples was collected for particle size analysis by American Society of Agronomy Method 15-5. Laboratory analytical results are presented in Table 3-1 (TPH analysis) and Table 3-2 (grain-size analysis). Laboratory data are provided in Appendix E.



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In the Process Area (EB-LIF-34, EB-LIF-108, EB-LIF-109, and PA-LIF-7), TPH-DRO concentrations ranged from 130 milligrams per kilogram (mg/kg) to 2,500 mg/kg. TPH-GRO concentrations ranged from 17 mg/kg to 300 mg/kg. TPH-MRO was non-detect for all Process Area samples. In the Tank Farm (EB-LIF-19, EB-LIF-20, EB-LIF-28, EB-LIF-99), TPH-DRO ranged from non-detect to 3,200 mg/kg. TPH-GRO concentrations ranged from 7.6 mg/kg to 18,000 mg/kg. TPH-MRO was non-detect for all Tank Farm samples.

Four samples in the Process Area were analyzed for grain size.

- PA-LIF-7 (11 to 13 ft) consisted of gravel and sand with some finer material.
- EB-LIF-108 (12 to 13 ft) and EB-LIF-109 (10.5 to 11.5 ft) consisted of silts and clays with some sand and gravel.
- EB-LIF-34 (20 to 21 ft) consisted primarily of sand, silts, and clays.

Five samples in the Tank Farm were also analyzed for grain size.

- EB-LIF-19 (16 to 18 ft) and EB-LIF-99 (18 to 19 ft) consisted of sands, silts, and clays.
- EB-LIF-28 (20 to 21 ft and 21 to 23 ft) consisted of sands and gravels with some finer material.
- EB-LIF-20 (27 to 28 ft) was mostly sand with some fines and gravel.



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4.0 CONCLUSIONS and RECOMMENDATIONS

Significant conclusions include:

- SPH impacts appear to follow relatively coarser lithologies (sandy clays, sands, and gravel dominated lithologies).
- These appear to occur as lenses, filled in erosional surfaces, or possible paleochannels.
- Product types are mixed in some areas and lighter product types are widely dispersed across the site. Releases of some lighter-end product types such as gasoline and naphtha have occurred in the last 5 years.
- To verify saturation and to aid in the design of future remedial alternatives, collection of soil cores and verification of fuel types will be evaluated.

Based on the information collected during this investigation, the recommendations include:

- Process Area: The potential SPH is bounded to the north by the Eastern Boundary LIF borings. Future investigations in the Process Area will be addressed in the Process Area Work Plan, requested by NMED in Comment 9 of the Marketing Tank Farm LIF report disapproval letter (NMED 2021).
- Western Boundary Area: Additional groundwater monitoring wells were completed in July and August 2021 along the North Drainage Ditch and near the Evaporation Ponds for dissolved-phase groundwater assessment and monitoring of these Refinery features. Based on the data presented in this report, sufficient data have been collected for future engineering evaluations.
- Eastern Boundary Area: Hydraulic gradient and the dip of the Chinle Formation suggest that the primary direction of SPH migration in this area is toward the north, where the extent of impacts is well delineated. To verify the extent of SPH along the eastern boundary (east of EB-LIF-07, EB-LIF-12, and EB-LIF-13), additional assessment will be conducted off site once access is obtained from property owners. An assessment of shallow soils in the vicinity of the Rail Car Release is planned for 2021 and also would provide some information near EB-LIF-07.
- Tank Farm Area: Data from borings EB-LIF-103, EB-LIF-105, and EB-LIF-107 indicate that SPH above residual saturation exists. Groundwater monitoring wells OW-30, OW-55, and OW-13, located down gradient of the LIF borings, show no evidence of SPH, indicating that the SPH terminates in the area between the LIF borings and the wells. Based on the data presented in this report, sufficient data have been collected to aid in remedial design.



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Report

5.0 REFERENCES

- Christy, Colin D., Christy, Thomas M., and Volker, Wittig. 1994. A Percussion Probing Tool for the Direct Sensing of Soil Conductivity. Technical Paper No. 94-100. Geoprobe Systems. Salina, Kansas. 16 p.
- Dakota Technologies Company, LLC (Dakota). 2021.
<https://www.dakotatechnologies.com/info/newsletters/article/2013/07/12/interpreting-lif-way-eforms>, viewed July 7.
- Interstate Technology & Regulatory Council (ITRC). 2009. Evaluating SPH Remedial Technologies for Achieving Project Goals. SPH-2. Washington, D.C. Interstate Technology & Regulatory Council, SPHs Team. www.itrcweb.org.
- New Mexico Environment Department (NMED). 2021. Disapproval, Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report. June 2.
- Marathon Petroleum Corporation (MPC). 2021. Marathon Petroleum Corporation, Gallup Refining Division, Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report. March 31.
- Stone, W. J., Lyford, F. P., Frenzel, P.F., Mizell, N. H., and Padgett, E. T. 1983. Hydrogeology and Water Resources of San Juan Basin, New Mexico. Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p.
- Teramoto, E.H., Isler, E., Polese, L., Baessa, M.P.M., and Chang, H.K. 2019. LNAPL saturation derived from laser induced fluorescence method. Science of the Total Environment. September 15;683:762-772. doi: 10.1016/j.scitotenv.2019.05.262. Epub 2019 May 22. PMID: 31150896.

Figures

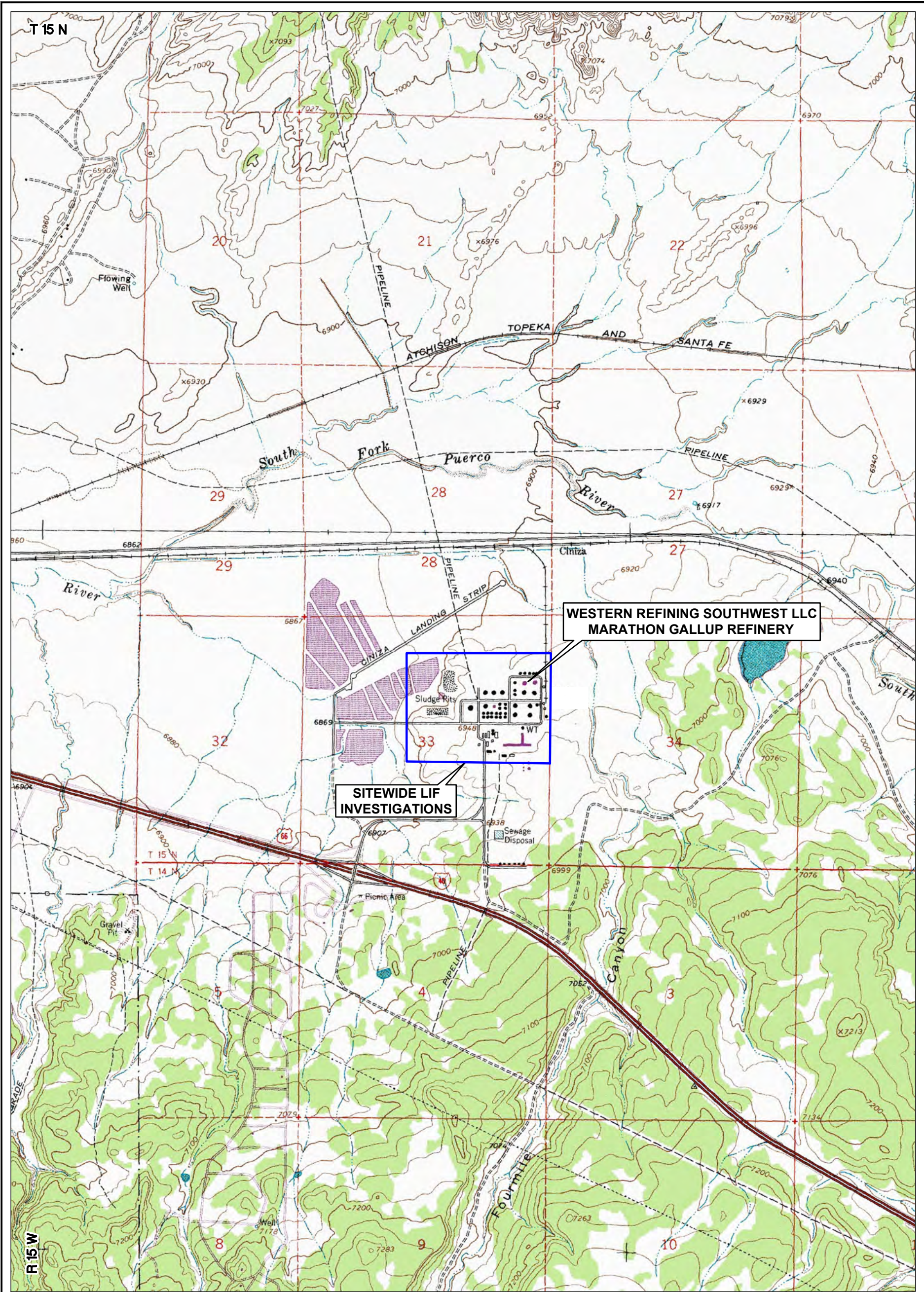
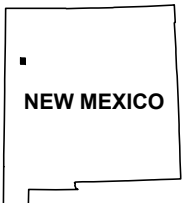


Image Cite: U.S. Geological Survey, 1:24,000—Scale 7.5 Minute Digital Raster Graphic Quadrangle, McKinley County, Publication: 2004



NOTES:

1. SITE LEGAL DESCRIPTION - TOWNSHIP 15 NORTH, RANGE 15 WEST, SECTION 33
2. LIF = LASER-INDUCED FLUORESCENCE



0 2,000'



FIGURE 1-1

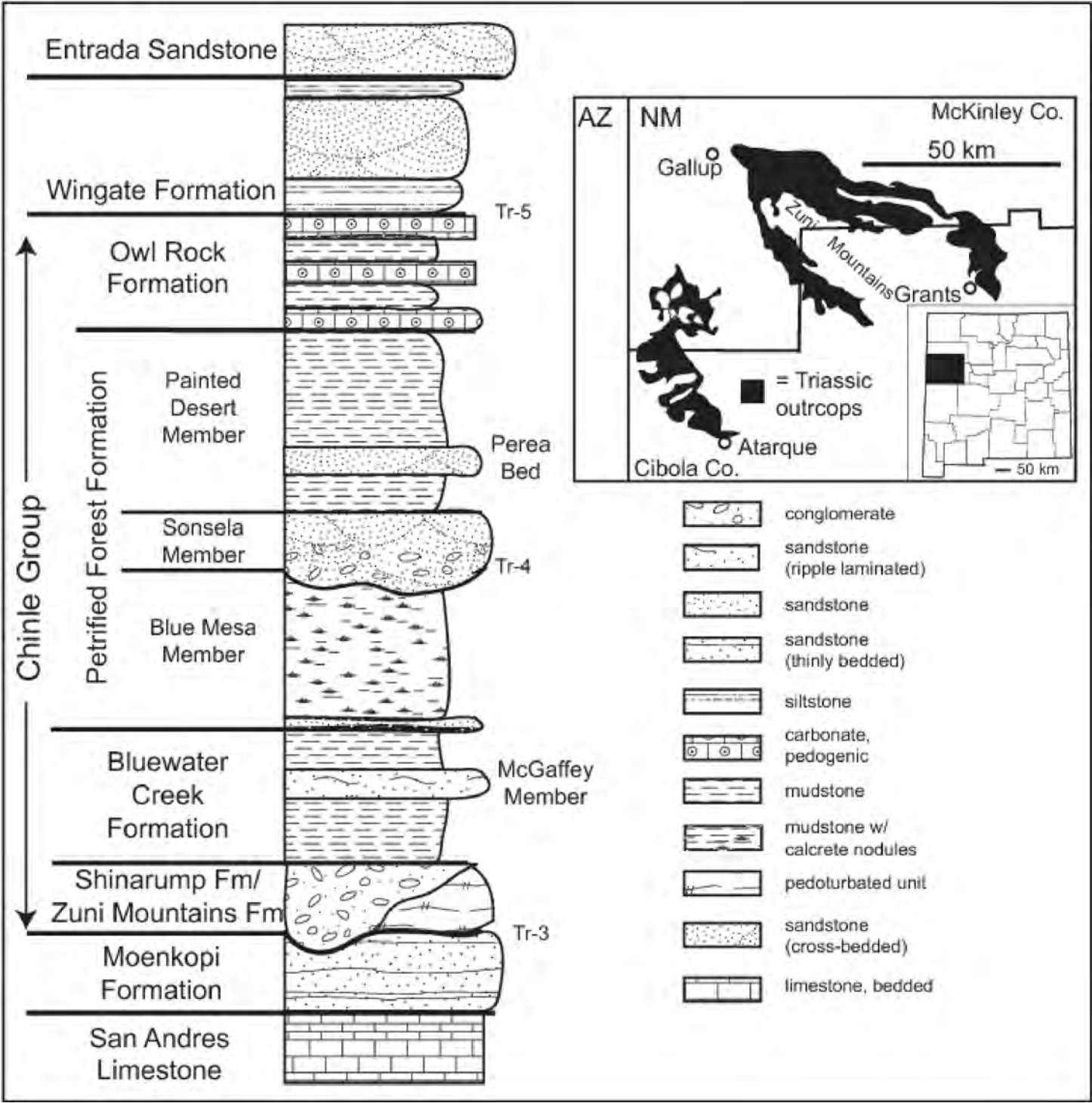
REFINERY AND LIF INVESTIGATION LOCATIONS

**WESTERN REFINING SOUTHWEST LLC
MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO**

Drawn By: REP Checked By: WG Scale: 1" = 2,000' Date: 7/15/2021 File: 697-SITELOC-202103

M:\N\T\MARATHON\CADD\GALLUP\REPORTS\LIF_202102_ADDITIONAL_LIF_697-SITELOC-202103

I:\TRIHYRO.COM\CLIENTS\TONMARATHONGS\PROJECTS\GALLUPREFINERY\LASER INDUCED FLUORESCENCE LIFE\UF REPORT\3 MARCH 2021\1-2 GALLUPSTRATIGRAPHY FIG 1-2.MXD



SOURCE:

TRIASSIC STRATIGRAPHY IN THE ZUNI MOUNTAINS, WEST-CENTRAL NEW MEXICO, A.B. HECKERT, 2011

 1252 Commerce Drive Laramie, WY 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729	FIGURE 1-2			
	GALLUP REGIONAL STRATIGRAPHY			
	WESTERN REFINING SOUTHWEST LLC MARATHON GALLUP REFINERY GALLUP, NEW MEXICO			
Drawn By: KEJ	Checked By: PH		Date: 8/13/21	File: 1-2_GallupStratigraphy_Fig1-2.mxd



EXPLANATION

- MONITORING WELL - FOLLOWED BY SPH (SEPARATE PHASE HYDROCARBON) IN FEET
- MONITORING WELL - SPH NOT DETECTED
- SITE FEATURE

NOTES:

- SPH - SEPARATE PHASE HYDROCARBON
- MAXIMUM SPH THICKNESS BETWEEN 2019 - 2021

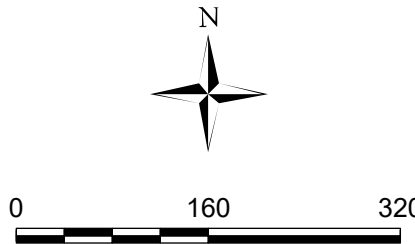


FIGURE 1-3

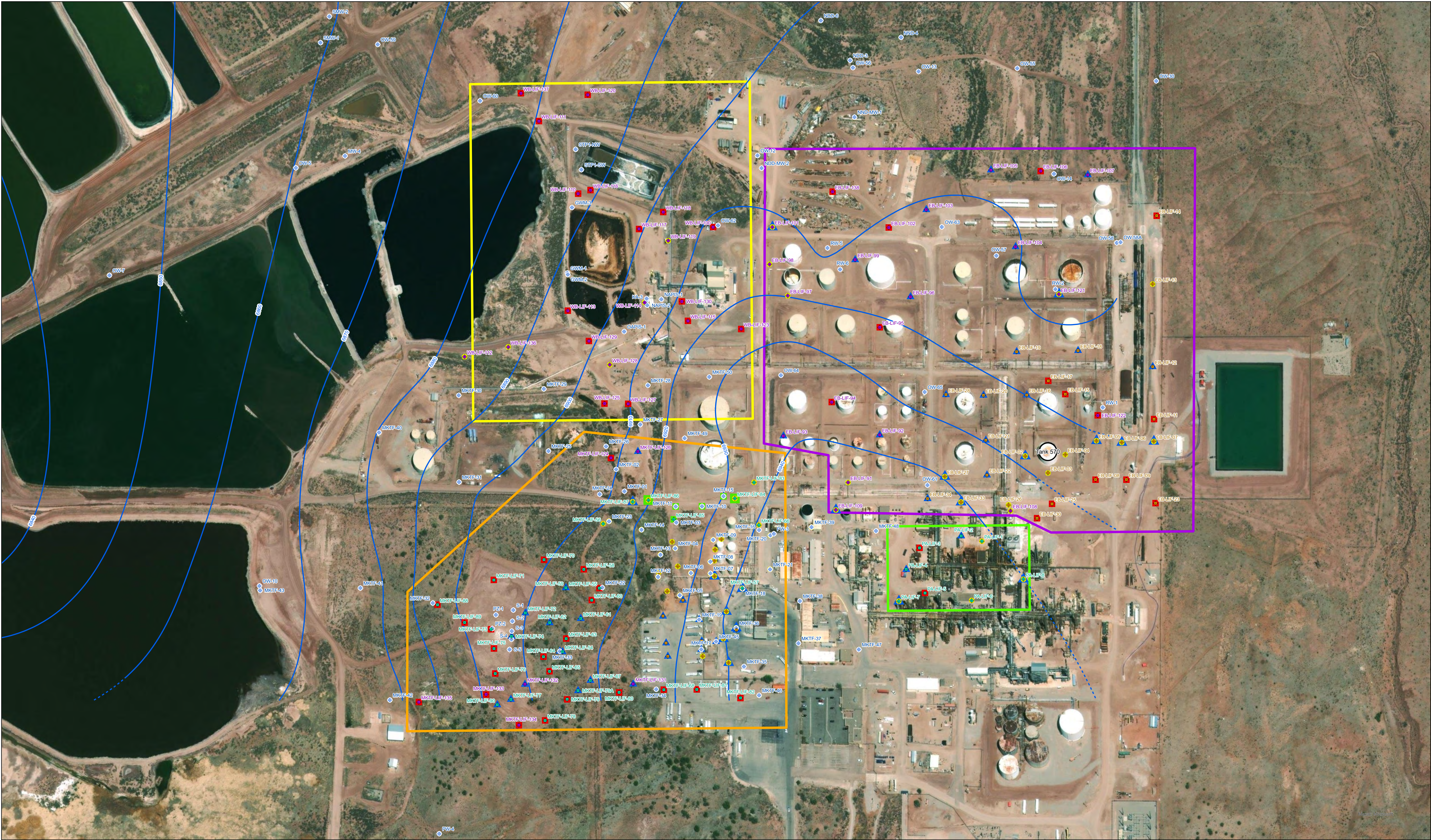
SITEWIDE MAXIMUM SPH THICKNESS

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Drawn By: KEJ | Checked By: MS | Scale: 1" = 160' | Date: 10/20/21 | File: 1-3_Sitewide_SPH_Thickness_Fig1-3_Dsize

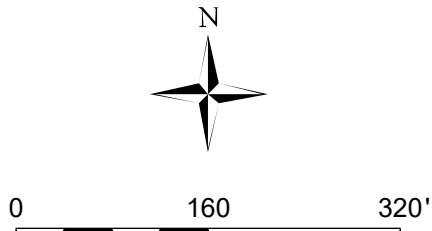


- 05/2021 LIF BORING LOCATION
- 02/2021 LIF BORING LOCATION
- 11/2019 LIF BORING LOCATION
- MONITORING WELL

- EXPLANATION**
- SPH OCCURRENCE
- DIESEL
 - GASOLINE
 - NAPHTHA
 - RESIDUAL/NO RESPONSE

- DECEMBER 2020 GROUNDWATER ELEVATION IN FT AMSL, DASHED WHERE INFERRED
- ACTIVE REFINERY WESTERN BOUNDARY LIF AREA (05/2021)
- EASTERN BOUNDARY LIF AREA (05/2021)
- MKTFF LIF AREA (11/2019, 02/2021, AND 05/2021)
- PROCESS AREA LIF AREA (02/2021)

- NOTES:**
- LIF - LASER-INDUCED FLORESCENCE
 - SPH - SEPARATE PHASE HYDROCARBON
 - FT AMSL - FEET ABOVE MEAN SEA LEVEL



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FIGURE 3-1

2019 AND 2021 LIF SAMPLE LOCATIONS AND RESIDUAL PRODUCT TYPE

**WESTERN REFINING SOUTHWEST LLC
MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO**



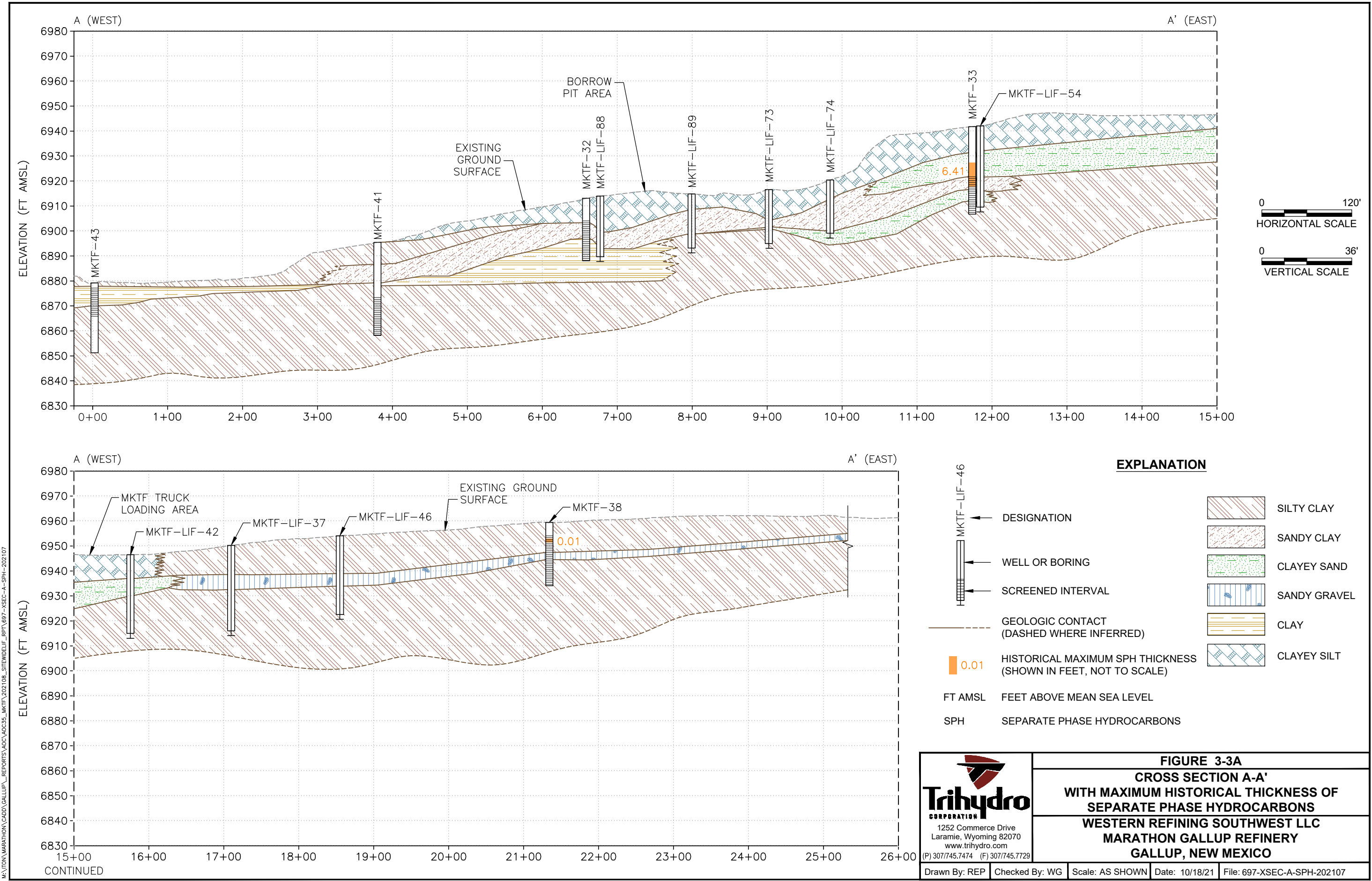
NOTES:

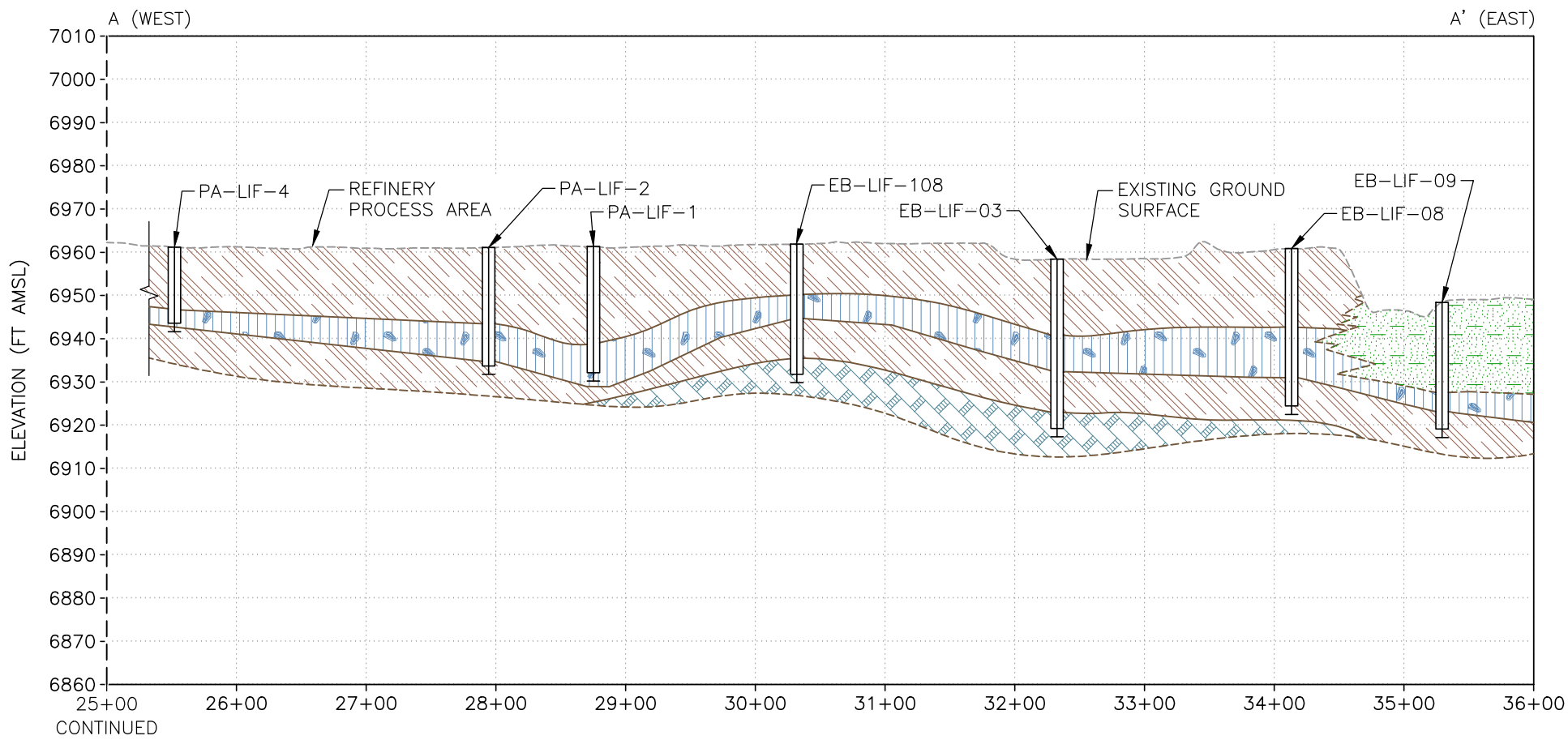
- LIF - LASER-INDUCED FLORESCENCE
-SPH - SEPARATE PHASE HYDROCARBON



**WESTERN REFINING SOUTHWEST LLC
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GALLUP, NEW MEXICO**

Drawn By: KEJ	Checked By: MS	Scale: 1" = 160'	Date: 8/13/21	File: 3-2_XSect_Fig3-2_Dsize.mxd
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EXPLANATION

DESIGNATION

WELL OR BORING

SCREENED INTERVAL

GEOLOGIC CONTACT
(DASHED WHERE INFERRED)

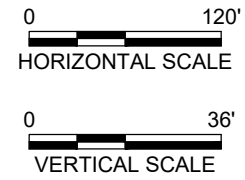
FT AMSL FEET ABOVE MEAN SEA LEVEL

SILTY CLAY

CLAYEY SAND

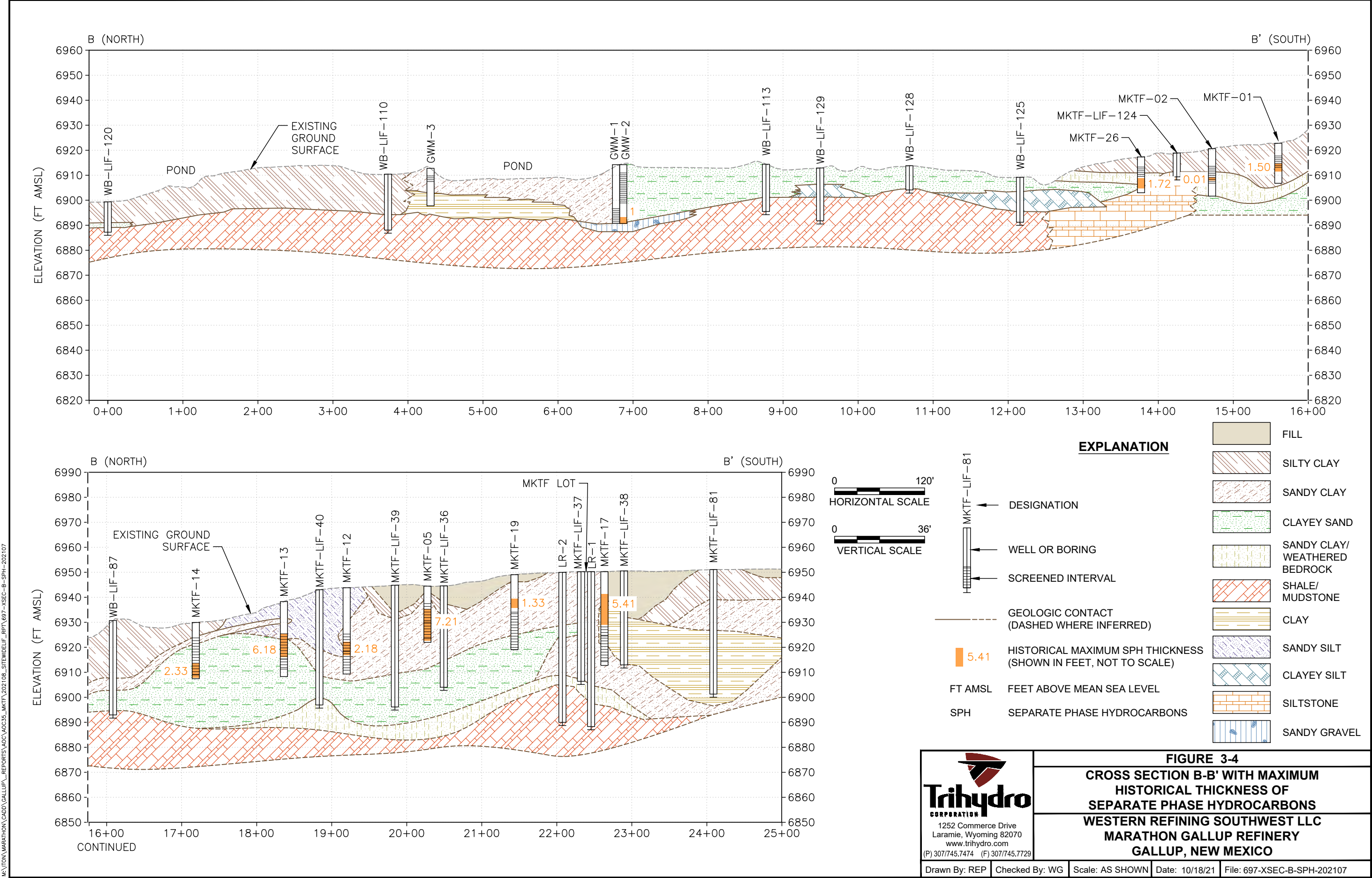
SANDY GRAVEL

CLAYEY SILT

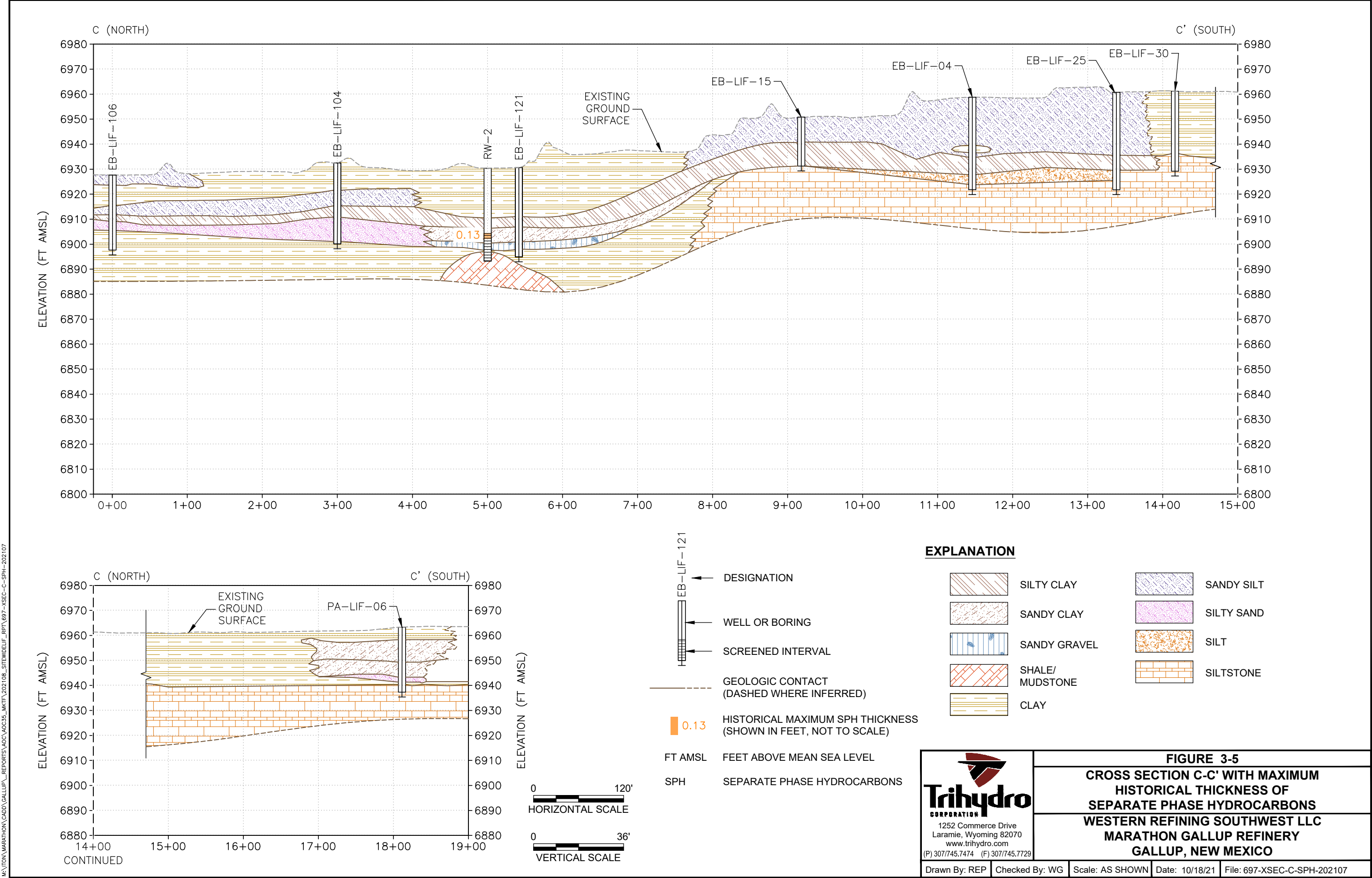


 1252 Commerce Drive Laramie, Wyoming 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729	FIGURE 3-3B			
	CROSS SECTION A-A' (CONTINUED)			
	WITH MAXIMUM HISTORICAL THICKNESS OF SEPARATE PHASE HYDROCARBONS			
WESTERN REFINING SOUTHWEST LLC MARATHON GALLUP REFINERY GALLUP, NEW MEXICO				
Drawn By: REP	Checked By: WG	Scale: AS SHOWN	Date: 10/18/21	File: 697-XSEC-A-SPH-202107

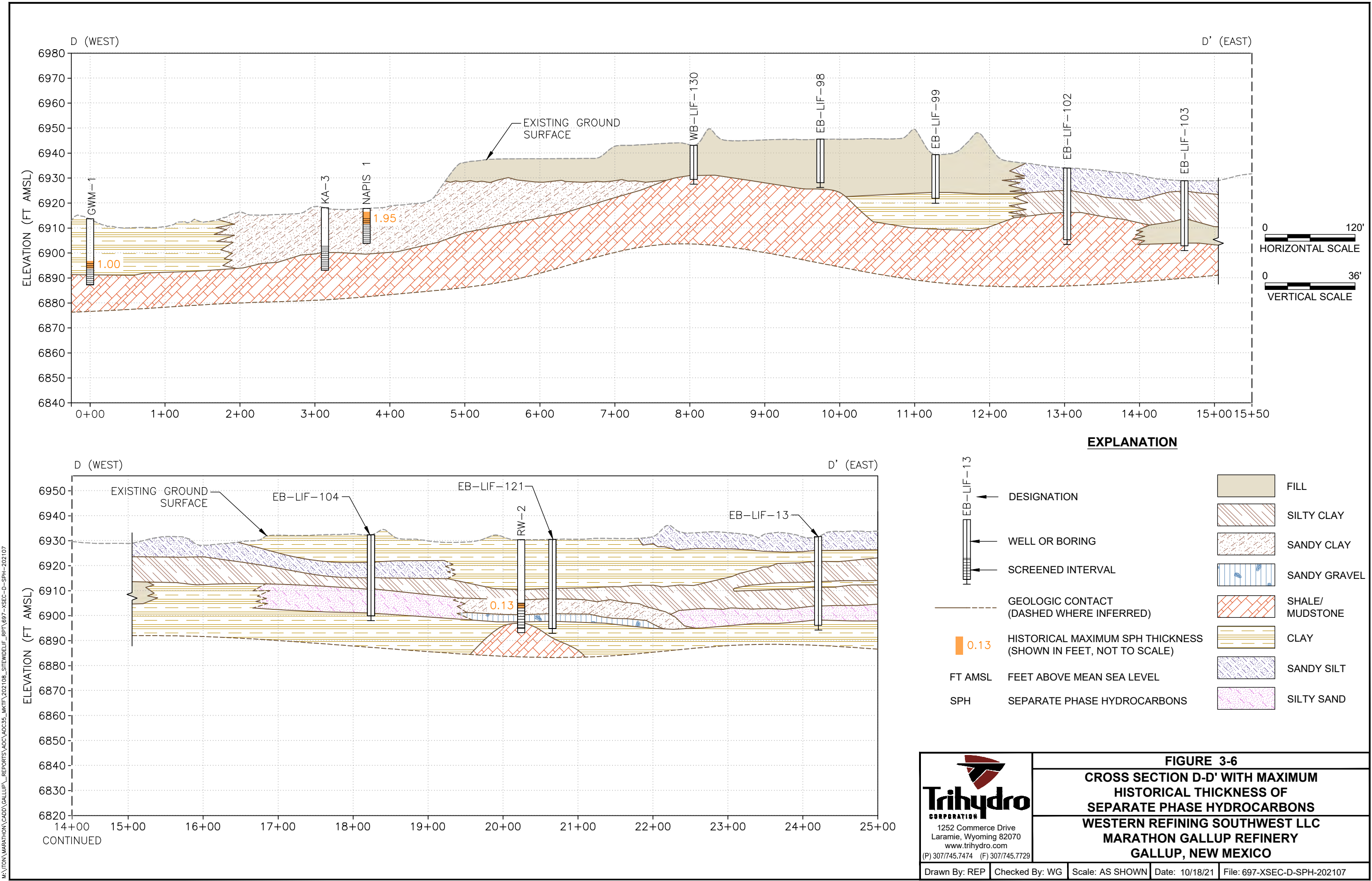
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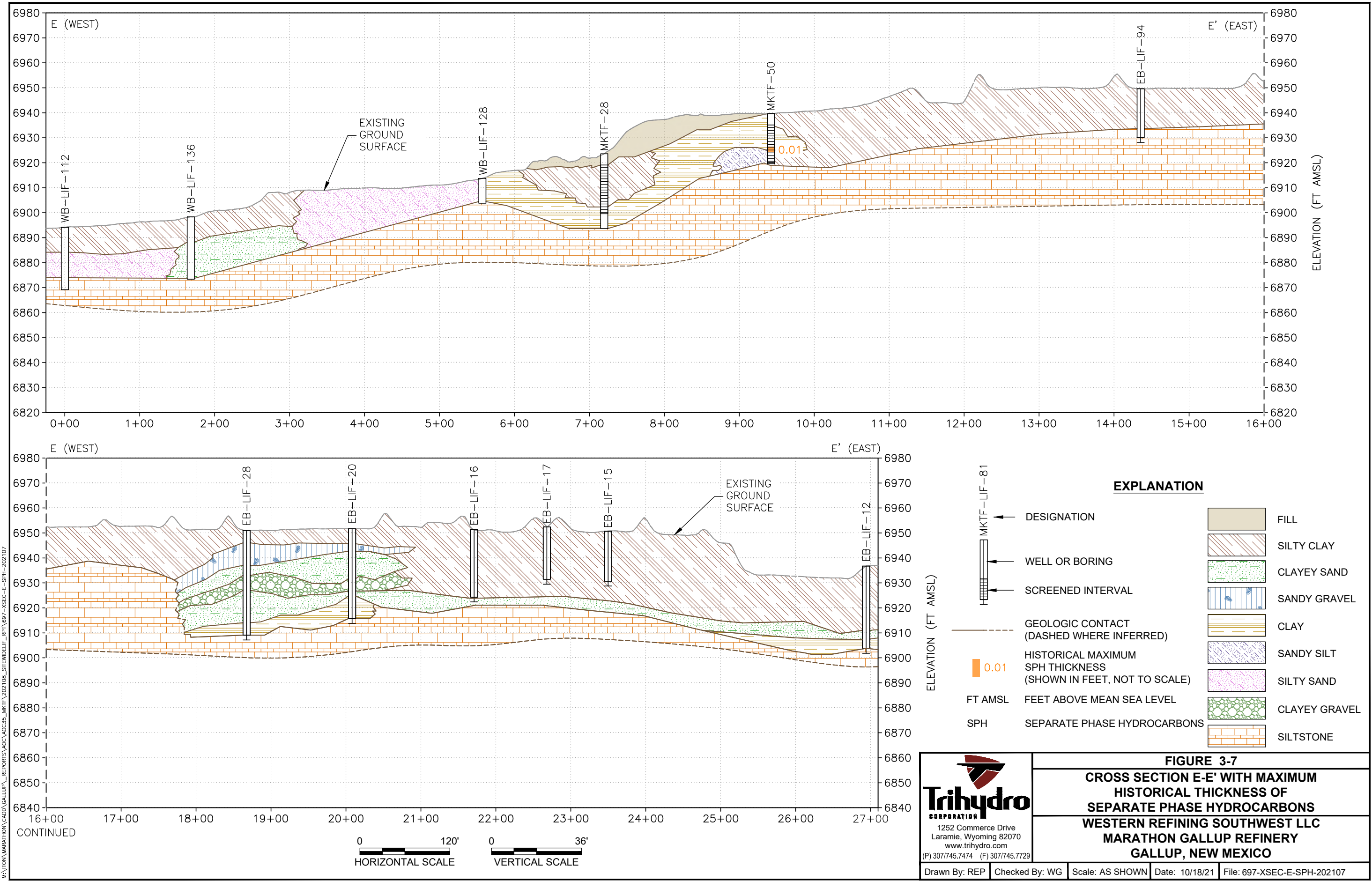
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M:\N\TON\MARATHON\GALLUP\REPORTS\AOC\AOC35_MKTF\202108_SITEWIDE\LIF_RPT\697-XSEC-E-SPH-202107



EXPLANATION

- ◆

05/2021 LIF BORING LOCATION
- ◆

02/2021 LIF BORING LOCATION
- ◆

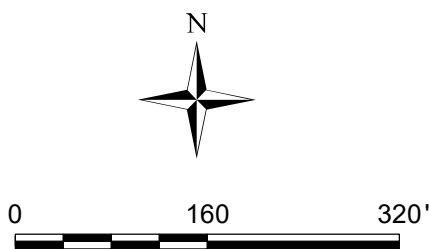
11/2019 LIF BORING LOCATION
- ◆

MONITORING WELL
- SOIL SAMPLE LOCATION
- ▭

SITE FEATURE

NOTES:

- LIF - LASER-INDUCED FLORESCENCE
- SPH - SEPARATE PHASE HYDROCARBON



 1252 Commerce Drive Laramie, WY 82070 www.tribhydro.com (P) 307/745.7474 (F) 307/745.7729	FIGURE 3-8			
	SITEWIDE LIF SOIL SAMPLE LOCATIONS			
	WESTERN REFINING SOUTHWEST LLC MARATHON GALLUP REFINERY GALLUP, NEW MEXICO			
Drawn By: KEJ	Checked By: MS	Scale: 1" = 160'	Date: 8/13/21	File: 3-8_SiteWideSoilSamplesFig3-8_Datze.mxd

Tables

**TABLE 1-1. LIF BORING DESTINATION AND INVESTIGATION DATE
WESTERN REFINING SOUTHWEST LLC, MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

Location Name	LIF Investigation Date	Reported in Marketing Tank Farm Report ¹	Reported in Tank 570 Release and Additional Areas Report ²	Reported in Marketing Tank Farm Report Addendum ³
EB-LIF-02	Nov-19	--	Y	--
EB-LIF-03	Nov-19	--	Y	--
EB-LIF-04	Nov-19	--	Y	--
EB-LIF-05	Nov-19	--	Y	--
EB-LIF-06	Nov-19	--	Y	--
EB-LIF-07	Nov-19	--	Y	--
EB-LIF-08	Nov-19	--	Y	--
EB-LIF-09	Nov-19	--	Y	--
EB-LIF-11	Nov-19	--	Y	--
EB-LIF-12	Nov-19	--	Y	--
EB-LIF-13	Nov-19	--	Y	--
EB-LIF-14	Nov-19	--	Y	--
EB-LIF-15	Nov-19	--	Y	--
EB-LIF-16	Nov-19	--	Y	--
EB-LIF-17	Nov-19	--	Y	--
EB-LIF-18	Nov-19	--	Y	--
EB-LIF-19	Nov-19	--	Y	--
EB-LIF-20	Nov-19	--	Y	--
EB-LIF-21	Nov-19	--	Y	--
EB-LIF-22	Nov-19	--	Y	--
EB-LIF-23	Nov-19	--	Y	--
EB-LIF-25	Nov-19	--	Y	--
EB-LIF-26	Nov-19	--	Y	--
EB-LIF-27	Nov-19	--	Y	--
EB-LIF-28	Nov-19	--	Y	--
EB-LIF-30	Nov-19	--	Y	--
EB-LIF-33	Nov-19	--	Y	--
EB-LIF-34	Nov-19	--	Y	--
EB-LIF-91	May-21	--	Y	--
EB-LIF-92	May-21	--	Y	--
EB-LIF-93	May-21	--	Y	--
EB-LIF-94	May-21	--	Y	--
EB-LIF-95	May-21	--	Y	--
EB-LIF-96	May-21	--	Y	--
EB-LIF-97	May-21	--	Y	--
EB-LIF-98	May-21	--	Y	--
EB-LIF-99	May-21	--	Y	--
EB-LIF-101	May-21	--	Y	--
EB-LIF-102	May-21	--	Y	--
EB-LIF-103	May-21	--	Y	--
EB-LIF-104	May-21	--	Y	--
EB-LIF-105	May-21	--	Y	--

**TABLE 1-1. LIF BORING DESTINATION AND INVESTIGATION DATE
WESTERN REFINING SOUTHWEST LLC, MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

Location Name	LIF Investigation Date	Reported in Marketing Tank Farm Report ¹	Reported in Tank 570 Release and Additional Areas Report ²	Reported in Marketing Tank Farm Report Addendum ³
EB-LIF-106	May-21	--	Y	--
EB-LIF-107	May-21	--	Y	--
EB-LIF-108	May-21	--	Y	--
EB-LIF-109	May-21	--	Y	--
EB-LIF-121	May-21	--	Y	--
EB-LIF-122	May-21	--	Y	--
EB-LIF-138	May-21	--	Y	--
MKTF-LIF-36	Nov-19	Y	--	--
MKTF-LIF-37	Nov-19	Y	--	--
MKTF-LIF-38	Nov-19	Y	--	--
MKTF-LIF-39	Nov-19	Y	--	--
MKTF-LIF-40	Nov-19	Y	--	--
MKTF-LIF-41	Nov-19	Y	--	--
MKTF-LIF-42	Nov-19	Y	--	--
MKTF-LIF-43	Nov-19	Y	--	--
MKTF-LIF-44	Nov-19	Y	--	--
MKTF-LIF-45	Nov-19	Y	--	--
MKTF-LIF-46	Nov-19	Y	--	--
MKTF-LIF-47	Nov-19	Y	--	--
MKTF-LIF-48	Nov-19	Y	--	--
MKTF-LIF-49	Nov-19	Y	--	--
MKTF-LIF-50	Nov-19	Y	--	--
MKTF-LIF-51	Nov-19	Y	--	--
MKTF-LIF-52	Nov-19	Y	--	--
MKTF-LIF-53	Nov-19	Y	--	--
MKTF-LIF-54	Feb-21	Y	--	--
MKTF-LIF-55	Feb-21	Y	--	--
MKTF-LIF-56	Feb-21	Y	--	--
MKTF-LIF-57	Feb-21	Y	--	--
MKTF-LIF-58	Feb-21	Y	--	--
MKTF-LIF-59	Feb-21	Y	--	--
MKTF-LIF-60	Feb-21	Y	--	--
MKTF-LIF-61	Feb-21	Y	--	--
MKTF-LIF-62	Feb-21	Y	--	--
MKTF-LIF-63	Feb-21	Y	--	--
MKTF-LIF-64	Feb-21	Y	--	--
MKTF-LIF-65	Feb-21	Y	--	--
MKTF-LIF-66	Feb-21	Y	--	--
MKTF-LIF-67	Feb-21	Y	--	--
MKTF-LIF-68	Feb-21	Y	--	--
MKTF-LIF-70	Feb-21	Y	--	--
MKTF-LIF-71	Feb-21	Y	--	--

**TABLE 1-1. LIF BORING DESTINATION AND INVESTIGATION DATE
WESTERN REFINING SOUTHWEST LLC, MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

Location Name	LIF Investigation Date	Reported in Marketing Tank Farm Report ¹	Reported in Tank 570 Release and Additional Areas Report ²	Reported in Marketing Tank Farm Report Addendum ³
MKTF-LIF-72	Feb-21	Y	--	--
MKTF-LIF-73	Feb-21	Y	--	--
MKTF-LIF-74	Feb-21	Y	--	--
MKTF-LIF-75	Feb-21	Y	--	--
MKTF-LIF-76	Feb-21	Y	--	--
MKTF-LIF-77	Feb-21	Y	--	--
MKTF-LIF-78	Feb-21	Y	--	--
MKTF-LIF-79	Feb-21	Y	--	--
MKTF-LIF-79A	Feb-21	Y	--	--
MKTF-LIF-80	Feb-21	Y	--	--
MKTF-LIF-81	Feb-21	Y	--	--
MKTF-LIF-82	Feb-21	Y	--	--
MKTF-LIF-83	Feb-21	Y	--	--
MKTF-LIF-84	Feb-21	Y	--	--
MKTF-LIF-85	Feb-21	Y	--	--
MKTF-LIF-86	Feb-21	Y	--	--
MKTF-LIF-87	Feb-21	Y	--	--
MKTF-LIF-88	Feb-21	Y	--	--
MKTF-LIF-89	Feb-21	Y	--	--
MKTF-LIF-90	Feb-21	Y	--	--
MKTF-LIF-124	May-21	--	--	Y
MKTF-LIF-126	May-21	--	--	Y
MKTF-LIF-131	May-21	--	--	Y
MKTF-LIF-132	May-21	--	--	Y
MKTF-LIF-133	May-21	--	--	Y
MKTF-LIF-134	May-21	--	--	Y
MKTF-LIF-135	May-21	--	--	Y
PA-LIF-1	Feb-21	Y	--	--
PA-LIF-2	Feb-21	Y	--	--
PA-LIF-3	Feb-21	Y	--	--
PA-LIF-4	Feb-21	Y	--	--
PA-LIF-5	Feb-21	Y	--	--
PA-LIF-6	Feb-21	Y	--	--
PA-LIF-7	Feb-21	Y	--	--
PA-LIF-8	Feb-21	Y	--	--
WB-LIF-100	May-21	--	Y	--
WB-LIF-110	May-21	--	Y	--
WB-LIF-111	May-21	--	Y	--
WB-LIF-112	May-21	--	Y	--
WB-LIF-113	May-21	--	Y	--
WB-LIF-114	May-21	--	Y	--
WB-LIF-115	May-21	--	Y	--

**TABLE 1-1. LIF BORING DESTINATION AND INVESTIGATION DATE
WESTERN REFINING SOUTHWEST LLC, MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

Location Name	LIF Investigation Date	Reported in Marketing Tank Farm Report ¹	Reported in Tank 570 Release and Additional Areas Report ²	Reported in Marketing Tank Farm Report Addendum ³
WB-LIF-116	May-21	--	Y	--
WB-LIF-117	May-21	--	Y	--
WB-LIF-118	May-21	--	Y	--
WB-LIF-119	May-21	--	Y	--
WB-LIF-120	May-21	--	Y	--
WB-LIF-123	May-21	--	Y	--
WB-LIF-125	May-21	--	Y	--
WB-LIF-127	May-21	--	Y	--
WB-LIF-128	May-21	--	Y	--
WB-LIF-129	May-21	--	Y	--
WB-LIF-130	May-21	--	Y	--
WB-LIF-136	May-21	--	Y	--
WB-LIF-137	May-21	--	Y	--

Notes:

-- - Not applicable

LIF/HP - Laser-Induced Fluorescence/Hydraulic Profiling

Y - Yes

¹ Marketing Tank Farm LIF/HP Investigation Report. March 31, 2021.

² Tank 570 Release and Additional Areas LIF/HP Investigation Report. October 31, 2021.

³ These data will be included in an Addendum to the Marketing Tank Farm LIF/HP Investigation Report, which will be submitted by November 19, 2021

TABLE 3-1. SOIL SAMPLE RESULTS
WESTERN REFINING SOUTHWEST LLC, MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Sample ID	Date Sampled	Sample Depth (ft)	DRO (mg/kg)	GRO (mg/kg)	MRO (mg/kg)
EB-LIF-19	11/25/2019	16 - 18	2100	18000	ND(580)
EB-LIF-20	11/25/2019	27 - 28	200	670	ND(56)
EB-LIF-28	11/25/2019	20 - 21	240	1800	ND(550)
EB-LIF-28	11/25/2019	21 - 23	781	2100	ND(500)
EB-LIF-34	11/25/2019	20 - 21	1300	210	ND(540)
PA-LIF-07	2/5/2021	11 - 13	130	300	ND(50)
PA-LIF-07	2/5/2021	13 - 14	11	82	ND(53)
EB-LIF-99	5/14/2021	19 - 20	ND(9.8)	7.6	ND(49)
EB-LIF-99	5/14/2021	21 - 22	3200	2100	ND(240)
EB-LIF-108	5/14/2021	10 - 11	2500	110	ND(480)
EB-LIF-109	5/14/2021	11.5 - 12	630	24	ND(49)
EB-LIF-109	5/14/2021	15 - 15.5	730	17	ND(50)
NMED Industrial Soil Screening Levels			3000	500	3000

Notes:

DRO = Diesel range organics

mg/kg = Milligrams per kilogram

ft = Feet

MRO = Motor oil range organics

GRO = Gasoline range organics

ND = Not detected at the reporting limit

ID = Identification

NMED = New Mexico Environment Department

LIF = Laser induced fluorescence

SSL = Soil Screening Level

Bolded values indicated exceedance above the NMED Industrial SSL

TABLE 3-2. GRAIN SIZE ANALYSIS
WESTERN REFINING SOUTHWEST LLC, MARATHON GALLUP REFINERY, GALLUP NEW MEXICO

Sample ID	Date Sampled	Sample Depth (ft)	% Med-Coarse Gravel (> 8mm)	% Fine Gravel (8mm-2mm)	% Gravel (> 4.75mm)	% Coarse Sand (2mm-0.5mm)	% Medium Sand (0.5mm-0.25mm)	% Fine Sand (0.25mm-0.125mm)	% Very Fine Sand (0.125mm-0.063mm)	% Sand (4.75mm-0.075mm)	% Coarse Silt (0.063mm-0.038mm)	% Fine Silt (0.038mm-0.002mm)	% Silt (0.075mm-0.002mm)	% Clay ¹ (<0.002mm)
EB-LIF-19	11/25/2019	16 - 18	0.0	0.1	NA	2.5	7.2	9.1	9.7	NA	7.1	30.6	NA	33.7
EB-LIF-20	11/25/2019	27 - 28	1.3	7.6	NA	13.1	26.9	20.1	8.9	NA	3.4	11.1	NA	7.7
EB-LIF-28	11/25/2019	20 - 21	18.3	9.5	NA	11.5	19.2	14.4	4.9	NA	2.3	10.5	NA	9.4
EB-LIF-28	11/25/2019	21 - 23	14.6	20.9	NA	19.5	14.4	8.7	4.0	NA	1.9	9.1	NA	6.9
EB-LIF-34	11/25/2019	20 - 21	1.8	3.2	NA	4.8	10.7	13.6	14.6	NA	8.0	23.9	NA	19.6
EB-LIF-99	5/14/2021	18 - 19	NA	NA	1.3	NA	NA	NA	NA	33.3	NA	NA	42.0	23.4
EB-LIF-108	5/14/2021	12 - 13	NA	NA	1.6	NA	NA	NA	NA	18.7	NA	NA	56.0	23.8
EB-LIF-109	5/14/2021	10.5 - 11.5	NA	NA	0.0	NA	NA	NA	NA	14.2	NA	NA	54.2	31.6
PA-LIF-07	2/5/2021	11 - 13	NA	NA	13.5	NA	NA	NA	NA	59.0	NA	NA	19.4	8.1

¹ United Soil Classification System does not classify clay fraction based on particle size. United States Department of Agriculture definition of clay (< 0.002mm) used in this table.

Notes:
> = Greater than
< = Less than
% = Percent
ft - Feet
ID = Identification
LIF = Laser induced fluorescence
mm = Millimeter
NA = Not analyzed

Appendices

Appendix A – Fluid Level Measurements

Appendix B – LIF/HP Methods

Appendix C – LIF/HP Logs

Appendix D – LIF/HP Elevation Data

Appendix E – Laboratory Analytical Reports

Appendix A – Fluid Level Measurements

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
BW-1A	9/8/2014	6885.12	NA	Dry	Dry	ND	NA	46.06
BW-1A	8/10/2015	6885.12	NA	Dry	Dry	ND	NA	46.06
BW-1A	9/8/2016	6885.12	NA	Dry	Dry	ND	NA	46.06
BW-1A	9/13/2017	6885.12	NA	Dry	Dry	ND	NA	46.06
BW-1A	8/15/2018	6885.12	NA	Dry	Dry	ND	NA	42.61
BW-1A	8/14/2019	6885.12	NA	Dry	Dry	ND	NA	42.61
BW-1A	9/14/2020	6885.12	NA	Dry	Dry	ND	NA	43.70
BW-1B	9/8/2014	6885.78	NA	Dry	Dry	ND	NA	76.29
BW-1B	8/10/2015	6885.78	NA	Dry	Dry	ND	NA	76.29
BW-1B	9/8/2016	6885.78	NA	Dry	Dry	ND	NA	76.29
BW-1B	9/13/2017	6885.78	NA	Dry	Dry	ND	NA	76.29
BW-1B	8/15/2018	6885.78	NA	Dry	Dry	ND	NA	73.55
BW-1B	8/14/2019	6885.78	NA	6813.56	72.22	ND	NA	73.55
BW-1B	9/14/2020	6885.78	NA	Dry	Dry	ND	NA	73.38
BW-1C	9/10/2014	6885.68	NA	6872.71	12.97	ND	NA	145.29
BW-1C	8/10/2015	6885.68	NA	6873.35	12.33	ND	NA	145.29
BW-1C	9/8/2016	6885.68	NA	6873.13	12.55	ND	NA	145.29
BW-1C	9/13/2017	6885.68	NA	6873.08	12.60	ND	NA	145.29
BW-1C	8/15/2018	6885.68	NA	6872.78	12.90	ND	NA	145.29
BW-1C	8/14/2019	6885.68	NA	6873.29	12.39	ND	NA	145.29
BW-1C	9/14/2020	6885.68	NA	6871.79	13.89	ND	NA	145.29
BW-2A	9/9/2014	6874.69	NA	6842.44	32.25	ND	NA	67.57
BW-2A	8/10/2015	6874.69	NA	6842.69	32.00	ND	NA	67.57
BW-2A	9/8/2016	6874.69	NA	6842.40	32.29	ND	NA	67.57
BW-2A	9/13/2017	6874.69	NA	6842.25	32.44	ND	NA	67.57
BW-2A	8/15/2018	6874.69	NA	6842.35	32.34	ND	NA	67.57
BW-2A	8/14/2019	6874.69	NA	6842.43	32.26	ND	NA	67.57
BW-2A	9/14/2020	6874.69	NA	6841.76	32.93	ND	NA	67.21
BW-2B	9/9/2014	6874.50	NA	6846.35	28.15	ND	NA	92.26
BW-2B	8/10/2015	6874.50	NA	6846.50	28.00	ND	NA	92.26
BW-2B	9/8/2016	6874.50	NA	6846.66	27.84	ND	NA	92.26
BW-2B	9/13/2017	6874.50	NA	6846.22	28.28	ND	NA	92.26
BW-2B	8/15/2018	6874.50	NA	6846.25	28.25	ND	NA	92.26
BW-2B	8/14/2019	6874.50	NA	6846.05	28.45	ND	NA	92.26
BW-2B	9/14/2020	6874.50	NA	6845.71	28.79	ND	NA	92.26
BW-2C	9/10/2014	6875.30	NA	6854.60	20.70	ND	NA	152.84
BW-2C	8/10/2015	6875.30	NA	6854.74	20.56	ND	NA	152.84
BW-2C	9/8/2016	6875.30	NA	6854.67	20.63	ND	NA	152.84
BW-2C	9/13/2017	6875.30	NA	6854.40	20.90	ND	NA	152.84
BW-2C	8/15/2018	6875.30	NA	6854.45	20.85	ND	NA	152.84
BW-2C	8/14/2019	6875.30	NA	6854.10	21.20	ND	NA	152.84
BW-2C	9/14/2020	6875.30	NA	6853.98	21.32	ND	NA	149.10
BW-3A	9/8/2014	6878.39	NA	Dry	Dry	ND	NA	52.35
BW-3A	8/10/2015	6878.39	NA	Dry	Dry	ND	NA	52.35
BW-3A	9/8/2016	6878.39	NA	Dry	Dry	ND	NA	52.35
BW-3A	9/13/2017	6878.39	NA	Dry	Dry	ND	NA	52.35
BW-3A	8/15/2018	6878.39	NA	Dry	Dry	ND	NA	52.38

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
BW-3A	8/14/2019	6878.39	NA	Dry	Dry	ND	NA	52.38
BW-3A	9/14/2020	6878.39	NA	Dry	Dry	ND	NA	53.30
BW-3B	9/10/2014	6878.59	NA	6845.34	33.25	ND	NA	69.40
BW-3B	8/10/2015	6878.59	NA	6845.59	33.00	ND	NA	69.40
BW-3B	9/8/2016	6878.59	NA	6845.17	33.42	ND	NA	69.40
BW-3B	9/13/2017	6878.59	NA	6845.21	33.38	ND	NA	69.40
BW-3B	8/15/2018	6878.59	NA	6845.24	33.35	ND	NA	69.40
BW-3B	8/14/2019	6878.59	NA	6845.28	33.31	ND	NA	69.40
BW-3B	9/14/2020	6878.59	NA	6844.35	34.24	ND	NA	69.54
BW-3C	9/10/2014	6877.95	NA	6870.12	7.83	ND	NA	154.55
BW-3C	8/10/2015	6877.95	NA	6870.20	7.75	ND	NA	154.55
BW-3C	9/8/2016	6877.95	NA	6869.65	8.30	ND	NA	154.55
BW-3C	9/13/2017	6877.95	NA	6870.15	7.80	ND	NA	154.55
BW-3C	8/15/2018	6877.95	NA	6869.77	8.18	ND	NA	154.55
BW-3C	8/14/2019	6877.95	NA	6870.09	7.86	ND	NA	154.55
BW-3C	9/14/2020	6877.95	NA	6869.43	8.52	ND	NA	150.20
BW-4A	9/21/2017	6873.18	NA	Dry	Dry	ND	NA	38.80
BW-4A	12/8/2017	6873.18	NA	Dry	Dry	ND	NA	38.30
BW-4A	2/26/2018	6873.18	NA	Dry	Dry	ND	NA	38.80
BW-4A	4/25/2018	6873.18	NA	Dry	Dry	ND	NA	38.80
BW-4A	8/15/2018	6873.18	NA	Dry	Dry	ND	NA	38.80
BW-4A	11/7/2018	6873.18	NA	Dry	Dry	ND	NA	38.30
BW-4A	3/27/2019	6873.18	NA	Dry	Dry	ND	NA	38.32
BW-4A	5/21/2019	6873.18	NA	Dry	Dry	ND	NA	38.32
BW-4A	8/23/2019	6873.18	NA	Dry	Dry	ND	NA	38.32
BW-4A	10/16/2019	6873.18	NA	Dry	Dry	ND	NA	38.32
BW-4A	9/14/2020	6873.18	NA	Dry	Dry	ND	NA	38.90
BW-4A	12/7/2020	6873.18	NA	Dry	Dry	ND	NA	38.90
BW-4B	9/21/2017	6873.23	NA	6841.65	31.58	ND	NA	63.50
BW-4B	12/8/2017	6873.23	NA	6835.28	37.95	ND	NA	63.50
BW-4B	2/26/2018	6873.23	NA	6834.80	38.43	ND	NA	63.50
BW-4B	4/25/2018	6873.23	NA	6829.63	43.60	ND	NA	63.50
BW-4B	8/15/2018	6873.23	NA	6834.18	39.05	ND	NA	63.50
BW-4B	11/13/2018	6873.23	NA	6828.36	44.87	ND	NA	63.50
BW-4B	3/27/2019	6873.23	NA	6833.93	39.30	ND	NA	63.50
BW-4B	5/21/2019	6873.23	NA	6827.22	46.01	ND	NA	63.50
BW-4B	8/23/2019	6873.23	NA	6827.23	46.00	ND	NA	63.50
BW-4B	10/16/2019	6873.23	NA	6825.73	47.50	ND	NA	63.50
BW-4B	9/14/2020	6873.23	6833.38	6833.37	39.86	39.85	0.01	63.50
BW-4B	12/7/2020	6873.23	NA	6837.37	35.86	ND	NA	63.50
BW-5A	9/21/2017	6877.00	NA	Dry	Dry	ND	NA	23.00
BW-5A	12/8/2017	6877.00	NA	Dry	Dry	ND	NA	23.02
BW-5A	2/26/2018	6877.00	NA	Dry	Dry	ND	NA	23.02
BW-5A	4/25/2018	6877.00	NA	Dry	Dry	ND	NA	23.02
BW-5A	8/15/2018	6877.00	NA	Dry	Dry	ND	NA	23.02
BW-5A	11/13/2018	6877.00	NA	Dry	Dry	ND	NA	23.02
BW-5A	3/27/2019	6877.00	NA	6853.75	23.25	ND	NA	23.00

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
BW-5A	5/21/2019	6877.00	NA	6853.70	23.30	ND	NA	23.00
BW-5A	8/15/2019	6877.00	NA	6855.74	21.26	ND	NA	23.02
BW-5A	10/16/2019	6877.00	NA	6853.75	23.25	ND	NA	23.30
BW-5A	9/14/2020	6877.00	NA	Dry	Dry	ND	NA	23.40
BW-5A	12/7/2020	6877.00	NA	6853.73	23.27	ND	NA	23.40
BW-5B	9/21/2017	6876.82	NA	6868.17	8.65	ND	NA	61.45
BW-5B	12/8/2017	6876.82	NA	6867.82	9.00	ND	NA	61.45
BW-5B	2/26/2018	6876.82	NA	6866.54	10.28	ND	NA	61.45
BW-5B	4/25/2018	6876.82	NA	6867.07	9.75	ND	NA	61.45
BW-5B	8/15/2018	6876.82	NA	6866.78	10.04	ND	NA	61.45
BW-5B	11/13/2018	6876.82	NA	6866.25	10.57	ND	NA	61.45
BW-5B	3/27/2019	6876.82	NA	6867.44	9.38	ND	NA	61.45
BW-5B	5/21/2019	6876.82	NA	6867.62	9.20	ND	NA	61.45
BW-5B	8/15/2019	6876.82	NA	6867.15	9.67	ND	NA	61.45
BW-5B	10/16/2019	6876.82	NA	6866.55	10.27	ND	NA	61.45
BW-5B	9/14/2020	6876.82	NA	6866.21	10.61	ND	NA	61.45
BW-5B	12/7/2020	6876.82	NA	6866.29	10.53	ND	NA	61.45
BW-5C	9/21/2017	6876.85	NA	6873.86	2.99	ND	NA	76.35
BW-5C	12/8/2017	6876.85	NA	6874.05	2.80	ND	NA	76.35
BW-5C	2/26/2018	6876.85	NA	6874.22	2.63	ND	NA	76.35
BW-5C	4/25/2018	6876.85	NA	6874.30	2.55	ND	NA	76.35
BW-5C	8/15/2018	6876.85	NA	6873.53	3.32	ND	NA	76.35
BW-5C	11/13/2018	6876.85	NA	6873.36	3.49	ND	NA	76.35
BW-5C	3/27/2019	6876.85	NA	6874.86	1.99	ND	NA	76.35
BW-5C	5/21/2019	6876.85	NA	6875.25	1.60	ND	NA	76.35
BW-5C	8/15/2019	6876.85	NA	6874.16	2.69	ND	NA	76.35
BW-5C	10/16/2019	6876.85	NA	6873.35	3.50	ND	NA	76.35
BW-5C	9/14/2020	6876.85	NA	6872.49	4.36	ND	NA	76.35
BW-5C	12/7/2020	6876.85	NA	6872.58	4.27	ND	NA	76.35
GWM-1	3/11/2014	6912.61	NA	6893.69	18.92	ND	NA	26.20
GWM-1	6/5/2014	6912.61	NA	6893.51	19.10	ND	NA	26.20
GWM-1	9/12/2014	6912.61	NA	6893.05	19.56	ND	NA	26.20
GWM-1	11/13/2014	6912.61	NA	6892.53	20.08	ND	NA	26.20
GWM-1	3/10/2015	6912.61	NA	6891.62	20.99	ND	NA	26.20
GWM-1	6/2/2015	6912.61	NA	6891.69	20.92	ND	NA	26.20
GWM-1	8/11/2015	6912.61	6891.21	NA	NA	21.40	NA	26.20
GWM-1	8/24/2015	6912.61	6891.61	6891.16	21.45	21.00	0.45	26.20
GWM-1	10/29/2015	6912.61	6891.48	6891.14	21.47	21.13	0.34	26.20
GWM-1	3/1/2016	6912.61	6889.77	6889.73	22.88	22.84	0.04	26.20
GWM-1	6/7/2016	6912.61	6891.25	6891.22	21.39	21.36	0.03	26.20
GWM-1	9/13/2016	6912.61	6891.32	NA	NA	21.29	NA	26.20
GWM-1	11/14/2016	6912.61	6891.11	6891.09	21.52	21.50	0.02	26.20
GWM-1	3/16/2017	6912.61	6890.87	6890.57	22.04	21.74	0.30	26.20
GWM-1	6/2/2017	6912.61	6891.07	6890.63	21.98	21.54	0.44	26.20
GWM-1	9/8/2017	6912.61	6891.12	6890.90	21.71	21.49	0.22	26.20
GWM-1	12/4/2017	6912.61	6892.91	6891.91	20.70	19.70	1.00	26.20
GWM-1	2/12/2018	6912.61	6890.78	6890.41	22.20	21.83	0.37	26.20

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
GWM-1	4/26/2018	6912.61	6890.76	6890.36	22.25	21.85	0.40	26.38
GWM-1	8/15/2018	6912.61	6891.11	6891.07	21.54	21.50	0.04	26.42
GWM-1	11/19/2018	6912.61	6891.19	6891.06	21.55	21.42	0.13	26.20
GWM-1	3/28/2019	6912.61	6891.02	6890.54	22.07	21.59	0.48	26.20
GWM-1	5/8/2019	6912.61	6891.29	6891.00	21.61	21.32	0.29	26.20
GWM-1	8/6/2019	6912.61	6891.84	6891.71	20.90	20.77	0.13	26.42
GWM-1	10/21/2019	6912.61	6891.97	6891.78	20.83	20.64	0.19	26.20
GWM-1	9/15/2020	6912.61	6891.88	6891.21	21.40	20.73	0.67	26.65
GWM-1	11/9/2020	6912.61	6891.73	6890.89	21.72	20.88	0.84	26.65
GWM-1	12/7/2020	6912.61	6891.70	6890.76	21.85	20.91	0.94	26.45
GWM-2	3/11/2014	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	6/5/2014	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	9/12/2014	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	11/11/2014	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	3/10/2015	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	6/2/2015	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	8/11/2015	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	10/29/2015	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	3/1/2016	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	6/7/2016	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	9/13/2016	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	11/14/2016	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	3/16/2017	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	6/2/2017	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	9/5/2017	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	12/4/2017	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	2/12/2018	6913.09	NA	Dry	Dry	ND	NA	19.05
GWM-2	4/26/2018	6913.09	NA	Dry	Dry	ND	NA	19.01
GWM-2	8/15/2018	6913.09	NA	Dry	Dry	ND	NA	19.04
GWM-2	11/19/2018	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	3/28/2019	6913.09	NA	Dry	Dry	ND	NA	19.09
GWM-2	5/8/2019	6913.09	NA	Dry	Dry	ND	NA	19.09
GWM-2	8/6/2019	6913.09	NA	Dry	Dry	ND	NA	19.04
GWM-2	10/19/2019	6913.09	NA	Dry	Dry	ND	NA	18.81
GWM-2	9/15/2020	6913.09	NA	Dry	Dry	ND	NA	18.08
GWM-2	11/10/2020	6913.09	NA	Dry	Dry	ND	NA	18.08
GWM-2	12/7/2020	6913.09	NA	Dry	Dry	ND	NA	18.08
GWM-3	3/11/2014	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	6/5/2014	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	9/12/2014	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	11/11/2014	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	3/10/2015	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	6/2/2015	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	8/11/2015	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	10/29/2015	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	3/1/2016	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	6/7/2016	6910.25	NA	Dry	Dry	ND	NA	17.80

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
GWM-3	9/13/2016	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	11/14/2016	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	3/16/2017	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	6/2/2017	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	9/5/2017	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	12/4/2017	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	2/12/2018	6910.25	NA	Dry	Dry	ND	NA	18.05
GWM-3	4/26/2018	6910.25	NA	Dry	Dry	ND	NA	18.02
GWM-3	8/15/2018	6910.25	NA	Dry	Dry	ND	NA	18.04
GWM-3	11/19/2018	6910.25	NA	Dry	Dry	ND	NA	17.80
GWM-3	3/28/2019	6910.25	NA	Dry	Dry	ND	NA	18.06
GWM-3	5/8/2019	6910.25	NA	Dry	Dry	ND	NA	18.06
GWM-3	8/6/2019	6910.25	NA	Dry	Dry	ND	NA	18.04
GWM-3	9/15/2020	6910.25	NA	Dry	Dry	ND	NA	19.15
GWM-3	10/11/2020	6910.25	NA	Dry	Dry	ND	NA	19.15
GWM-3	12/7/2020	6910.25	NA	Dry	Dry	ND	NA	19.15
KA-3	3/10/2014	6912.52	NA	6904.49	8.03	ND	NA	23.20
KA-3	6/5/2014	6912.52	NA	6904.57	7.95	ND	NA	23.20
KA-3	9/11/2014	6912.52	NA	6903.52	9.00	ND	NA	23.20
KA-3	11/11/2014	6912.52	NA	6904.52	8.00	ND	NA	23.20
KA-3	3/10/2015	6912.52	NA	6904.28	8.24	ND	NA	23.20
KA-3	6/2/2015	6912.52	NA	6903.93	8.59	ND	NA	23.20
KA-3	8/10/2015	6912.52	NA	6903.74	8.78	ND	NA	23.20
KA-3	10/28/2015	6912.52	NA	6904.32	8.20	ND	NA	23.20
KA-3	3/3/2016	6912.52	NA	6904.84	7.68	ND	NA	23.20
KA-3	6/6/2016	6912.52	NA	6905.10	7.42	ND	NA	23.20
KA-3	9/1/2016	6912.52	NA	6904.39	8.13	ND	NA	23.20
KA-3	11/14/2016	6912.52	NA	6904.24	8.28	ND	NA	23.20
KA-3	2/21/2017	6912.52	NA	6905.15	7.37	ND	NA	23.20
KA-3	6/1/2017	6912.52	NA	6904.30	8.22	ND	NA	23.20
KA-3	9/5/2017	6912.52	NA	6904.31	8.21	ND	NA	23.20
KA-3	12/4/2017	6912.52	NA	6904.52	8.00	ND	NA	24.28
KA-3	2/9/2018	6912.52	NA	6904.12	8.40	ND	NA	24.30
KA-3	4/26/2018	6912.52	NA	6904.02	8.50	ND	NA	24.24
KA-3	8/15/2018	6912.52	NA	NA	NA	NA	NA	24.24
KA-3	11/8/2018	6912.52	NA	NA	NA	NA	NA	24.24
KA-3	3/28/2019	6912.52	NA	NA	NA	NA	NA	24.24
KA-3	5/28/2019	6912.52	NA	6902.57	9.95	ND	NA	23.20
KA-3	8/22/2019	6912.52	NA	6903.47	9.05	ND	NA	23.20
KA-3	10/21/2019	6912.52	NA	6903.36	9.16	ND	NA	23.20
KA-3	12/7/2020	6912.52	NA	6902.96	9.56	ND	NA	23.20
MKTF-01	1/13/2014	6920.67	6912.77	6912.33	8.34	7.90	0.44	17.42
MKTF-01	2/12/2014	6920.67	6913.94	6913.19	7.48	6.73	0.75	17.42
MKTF-01	3/11/2014	6920.67	6914.57	6914.29	6.38	6.10	0.28	17.42
MKTF-01	6/6/2014	6920.67	NA	6913.67	7.00	ND	NA	17.42
MKTF-01	9/15/2014	6920.67	6913.73	6913.69	6.98	6.94	0.04	17.42
MKTF-01	11/14/2014	6920.67	6913.37	6913.35	7.32	7.30	0.02	17.42

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-01	3/11/2015	6920.67	NA	6914.82	5.85	ND	NA	17.42
MKTF-01	6/9/2015	6920.67	NA	6913.52	7.15	ND	NA	17.42
MKTF-01	8/21/2015	6920.67	NA	6914.44	6.23	ND	NA	17.42
MKTF-01	11/4/2015	6920.67	NA	6914.80	5.87	ND	NA	17.42
MKTF-01	2/24/2016	6920.67	NA	6914.83	5.84	ND	NA	17.42
MKTF-01	6/10/2016	6920.67	NA	6913.65	7.02	ND	NA	17.42
MKTF-01	9/7/2016	6920.67	6913.55	6912.05	8.62	7.12	1.50	17.42
MKTF-01	11/4/2016	6920.67	NA	6914.80	5.87	ND	NA	17.42
MKTF-01	3/14/2017	6920.67	6916.02	6915.86	4.81	4.65	0.16	17.42
MKTF-01	6/7/2017	6920.67	6915.78	6915.25	5.42	4.89	0.53	17.42
MKTF-01	10/3/2017	6920.67	6914.47	6914.11	6.56	6.20	0.36	17.42
MKTF-01	11/20/2017	6920.67	6916.05	6915.72	4.95	4.62	0.33	17.42
MKTF-01	2/7/2018	6920.67	6915.62	6915.27	5.40	5.05	0.35	17.42
MKTF-01	4/25/2018	6920.67	6914.45	6914.15	6.52	6.22	0.30	17.35
MKTF-01	8/15/2018	6920.67	6914.27	6913.96	6.71	6.40	0.31	17.27
MKTF-01	11/27/2018	6920.67	6915.17	6914.80	5.87	5.50	0.37	17.42
MKTF-01	2/19/2019	6920.67	6916.27	6915.93	4.74	4.40	0.34	17.42
MKTF-01	5/6/2019	6920.67	6916.28	6915.93	4.74	4.39	0.35	17.42
MKTF-01	8/30/2019	6920.67	6916.09	6915.72	4.95	4.58	0.37	17.42
MKTF-01	11/19/2019	6920.67	6915.53	6915.22	5.45	5.14	0.31	17.42
MKTF-01	2/24/2020	6920.67	6915.80	6915.51	5.16	4.87	0.29	17.42
MKTF-01	6/26/2020	6920.67	6915.17	6914.96	5.71	5.50	0.21	17.42
MKTF-01	9/15/2020	6920.67	6915.06	6915.05	5.62	5.61	0.01	17.48
MKTF-01	11/10/2020	6920.67	6915.06	6914.78	5.89	5.61	0.28	17.48
MKTF-01	12/3/2020	6920.67	6914.93	6914.65	6.02	5.74	0.28	17.43
MKTF-02	1/13/2014	6917.45	NA	6909.96	7.49	ND	NA	20.48
MKTF-02	2/12/2014	6917.45	NA	6909.97	7.48	ND	NA	20.48
MKTF-02	3/11/2014	6917.45	NA	6910.42	7.03	ND	NA	20.48
MKTF-02	6/6/2014	6917.45	NA	6909.85	7.60	ND	NA	20.48
MKTF-02	9/15/2014	6917.45	NA	6909.04	8.41	ND	NA	20.48
MKTF-02	11/14/2014	6917.45	NA	6909.24	8.21	ND	NA	20.48
MKTF-02	3/11/2015	6917.45	NA	6910.57	6.88	ND	NA	20.48
MKTF-02	6/9/2015	6917.45	NA	6909.90	7.55	ND	NA	20.48
MKTF-02	8/21/2015	6917.45	NA	6910.15	7.30	ND	NA	20.48
MKTF-02	11/4/2015	6917.45	NA	6910.20	7.25	ND	NA	20.48
MKTF-02	2/24/2016	6917.45	NA	6910.23	7.22	ND	NA	20.48
MKTF-02	6/10/2016	6917.45	NA	6909.36	8.09	ND	NA	20.48
MKTF-02	9/7/2016	6917.45	NA	6909.17	8.28	ND	NA	20.48
MKTF-02	11/4/2016	6917.45	NA	6910.20	7.25	ND	NA	20.48
MKTF-02	3/16/2017	6917.45	NA	6910.11	7.34	ND	NA	20.48
MKTF-02	6/7/2017	6917.45	6910.35	6910.34	7.11	7.10	0.01	20.48
MKTF-02	10/3/2017	6917.45	NA	6910.78	6.67	ND	NA	20.48
MKTF-02	11/20/2017	6917.45	NA	6910.45	7.00	ND	NA	20.35
MKTF-02	2/6/2018	6917.45	NA	6910.01	7.44	ND	NA	20.34
MKTF-02	4/25/2018	6917.45	NA	6909.50	7.95	ND	NA	20.36
MKTF-02	8/15/2018	6917.45	NA	6909.05	8.40	ND	NA	20.43
MKTF-02	11/27/2018	6917.45	NA	6909.05	8.40	ND	NA	20.35

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-02	3/28/2019	6917.45	NA	6911.11	6.34	ND	NA	20.48
MKTF-02	5/6/2019	6917.45	NA	6911.21	6.24	ND	NA	20.48
MKTF-02	8/23/2019	6917.45	NA	6910.40	7.05	ND	NA	20.43
MKTF-02	11/19/2019	6917.45	NA	6910.31	7.14	ND	NA	20.35
MKTF-02	2/24/2020	6917.45	NA	6910.93	6.52	ND	NA	20.48
MKTF-02	6/26/2020	6917.45	NA	6909.75	7.70	ND	NA	20.48
MKTF-02	9/15/2020	6917.45	NA	6909.57	7.88	ND	NA	20.54
MKTF-02	11/10/2020	6917.45	NA	6910.02	7.43	ND	NA	20.54
MKTF-02	12/3/2020	6917.45	NA	6909.73	7.72	ND	NA	20.54
MKTF-03	1/15/2014	6931.69	6923.59	6922.29	9.40	8.10	1.30	18.45
MKTF-03	2/13/2014	6931.69	NA	6923.36	8.33	ND	NA	18.45
MKTF-03	3/11/2014	6931.69	6923.54	6922.62	9.07	8.15	0.92	18.45
MKTF-03	6/4/2014	6931.69	6922.84	6922.37	9.32	8.85	0.47	18.45
MKTF-03	9/15/2014	6931.69	6922.63	6922.53	9.16	9.06	0.10	18.45
MKTF-03	11/13/2014	6931.69	6922.38	NA	NA	9.31	NA	18.45
MKTF-03	3/17/2015	6931.69	6923.23	6922.43	9.26	8.46	0.80	18.45
MKTF-03	6/4/2015	6931.69	6922.99	6922.37	9.32	8.70	0.62	18.45
MKTF-03	8/18/2015	6931.69	6923.60	6922.78	8.91	8.09	0.82	18.45
MKTF-03	11/3/2015	6931.69	6923.39	6922.29	9.40	8.30	1.10	18.45
MKTF-03	3/17/2016	6931.69	6923.23	6922.43	9.26	8.46	0.80	18.45
MKTF-03	6/9/2016	6931.69	6924.14	6919.86	11.83	7.55	4.28	18.45
MKTF-03	9/12/2016	6931.69	6923.77	6921.37	10.32	7.92	2.40	18.45
MKTF-03	11/3/2016	6931.69	6923.39	6922.29	9.40	8.30	1.10	18.45
MKTF-03	3/2/2017	6931.69	6925.27	6924.10	7.59	6.42	1.17	18.45
MKTF-03	6/7/2017	6931.69	6924.74	6923.44	8.25	6.95	1.30	18.45
MKTF-03	9/26/2017	6931.69	6925.34	6924.54	7.15	6.35	0.80	18.45
MKTF-03	11/28/2017	6931.69	6924.69	6923.74	7.95	7.00	0.95	18.45
MKTF-03	2/8/2018	6931.69	6924.29	6923.44	8.25	7.40	0.85	18.45
MKTF-03	4/25/2018	6931.69	6924.39	6923.47	8.22	7.30	0.92	18.45
MKTF-03	8/16/2018	6931.69	6924.39	6923.44	8.25	7.30	0.95	18.53
MKTF-03	11/19/2018	6931.69	6924.84	6923.84	7.85	6.85	1.00	18.45
MKTF-03	3/25/2019	6931.69	6927.19	6926.09	5.60	4.50	1.10	18.45
MKTF-03	5/13/2019	6931.69	6927.14	6926.03	5.66	4.55	1.11	18.45
MKTF-03	8/21/2019	6931.69	6925.65	6924.42	7.27	6.04	1.23	18.53
MKTF-03	10/30/2019	6931.69	6924.99	6923.69	8.00	6.70	1.30	18.45
MKTF-03	3/5/2020	6931.69	6925.22	6923.85	7.84	6.47	1.37	18.45
MKTF-03	6/26/2020	6931.69	6924.33	6923.06	8.63	7.36	1.27	18.45
MKTF-03	9/15/2020	6931.69	6924.61	6924.60	7.09	7.08	0.01	18.59
MKTF-03	11/10/2020	6931.69	6924.56	6923.26	8.43	7.13	1.30	18.59
MKTF-03	12/3/2020	6931.69	6924.23	6923.07	8.62	7.46	1.16	18.58
MKTF-04	1/15/2014	6933.57	NA	6923.29	10.28	ND	NA	22.15
MKTF-04	2/13/2014	6933.57	NA	6922.89	10.68	ND	NA	22.15
MKTF-04	3/11/2014	6933.57	NA	6923.37	10.20	ND	NA	22.15
MKTF-04	6/4/2014	6933.57	NA	6922.58	10.99	ND	NA	22.15
MKTF-04	9/15/2014	6933.57	NA	6922.48	11.09	ND	NA	22.15
MKTF-04	11/13/2014	6933.57	NA	6922.22	11.35	ND	NA	22.15
MKTF-04	3/16/2015	6933.57	NA	6923.32	10.25	ND	NA	22.15

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-04	6/4/2015	6933.57	NA	6922.57	11.00	ND	NA	22.15
MKTF-04	8/18/2015	6933.57	NA	6922.93	10.64	ND	NA	22.15
MKTF-04	11/3/2015	6933.57	NA	6929.34	4.23	ND	NA	22.15
MKTF-04	2/29/2016	6933.57	NA	6922.89	10.68	ND	NA	22.15
MKTF-04	6/9/2016	6933.57	NA	6923.27	10.30	ND	NA	22.15
MKTF-04	9/11/2016	6933.57	NA	6923.34	10.23	ND	NA	22.15
MKTF-04	11/3/2016	6933.57	NA	6923.17	10.40	ND	NA	22.15
MKTF-04	3/2/2017	6933.57	NA	6925.26	8.31	ND	NA	22.15
MKTF-04	6/7/2017	6933.57	NA	6924.29	9.28	ND	NA	22.15
MKTF-04	9/26/2017	6933.57	NA	6924.77	8.80	ND	NA	22.15
MKTF-04	11/29/2017	6933.57	NA	6924.27	9.30	ND	NA	22.30
MKTF-04	2/14/2018	6933.57	NA	6923.72	9.85	ND	NA	22.37
MKTF-04	4/25/2018	6933.57	NA	6923.87	9.70	ND	NA	22.29
MKTF-04	8/16/2018	6933.57	NA	6923.87	9.70	ND	NA	22.39
MKTF-04	11/19/2018	6933.57	NA	6925.18	8.39	ND	NA	22.30
MKTF-04	3/25/2019	6933.57	NA	6927.12	6.45	ND	NA	22.15
MKTF-04	5/13/2019	6933.57	NA	6927.02	6.55	ND	NA	22.15
MKTF-04	8/21/2019	6933.57	NA	6925.30	8.27	ND	NA	22.39
MKTF-04	10/30/2019	6933.57	NA	6924.64	8.93	ND	NA	22.30
MKTF-04	3/2/2020	6933.57	NA	6925.10	8.47	ND	NA	22.21
MKTF-04	6/26/2020	6933.57	NA	6923.82	9.75	ND	NA	22.15
MKTF-04	9/15/2020	6933.57	6924.18	6924.17	9.40	9.39	0.01	22.72
MKTF-04	11/10/2020	6933.57	NA	6924.37	9.20	ND	NA	22.72
MKTF-04	12/3/2020	6933.57	6923.87	6923.86	9.71	9.70	0.01	22.72
MKTF-05	1/13/2014	6942.22	6927.18	6927.12	15.10	15.04	0.06	17.75
MKTF-05	2/13/2014	6942.22	6926.89	6926.85	15.37	15.33	0.04	17.75
MKTF-05	3/11/2014	6942.22	NA	6926.99	15.23	ND	NA	17.75
MKTF-05	6/4/2014	6942.22	6926.62	6926.57	15.65	15.60	0.05	17.75
MKTF-05	9/15/2014	6942.22	6926.92	6926.56	15.66	15.30	0.36	17.75
MKTF-05	11/13/2014	6942.22	6926.43	6926.05	16.17	15.79	0.38	17.75
MKTF-05	3/16/2015	6942.22	6926.50	6926.14	16.08	15.72	0.36	17.75
MKTF-05	6/4/2015	6942.22	6926.45	6925.82	16.40	15.77	0.63	17.75
MKTF-05	8/18/2015	6942.22	6926.78	6926.59	15.63	15.44	0.19	17.75
MKTF-05	11/3/2015	6942.22	6926.75	6925.91	16.31	15.47	0.84	17.75
MKTF-05	3/16/2016	6942.22	6926.50	6926.14	16.08	15.72	0.36	17.75
MKTF-05	6/9/2016	6942.22	6926.88	6926.35	15.87	15.34	0.53	17.75
MKTF-05	9/11/2016	6942.22	6927.48	6924.44	17.78	14.74	3.04	17.75
MKTF-05	11/3/2016	6942.22	6926.75	6925.91	16.31	15.47	0.84	17.75
MKTF-05	3/2/2017	6942.22	6928.89	6928.60	13.62	13.33	0.29	17.75
MKTF-05	6/7/2017	6942.22	6928.43	6927.97	14.25	13.79	0.46	17.75
MKTF-05	9/26/2017	6942.22	6929.21	6928.72	13.50	13.01	0.49	17.75
MKTF-05	11/28/2017	6942.22	6928.24	6927.47	14.75	13.98	0.77	17.75
MKTF-05	2/8/2018	6942.22	6927.44	6927.02	15.20	14.78	0.42	17.75
MKTF-05	4/25/2018	6942.22	6927.26	6927.03	15.19	14.96	0.23	17.70
MKTF-05	8/16/2018	6942.22	6927.61	6927.42	14.80	14.61	0.19	17.75
MKTF-05	11/19/2018	6942.22	6927.60	6927.39	14.83	14.62	0.21	17.75
MKTF-05	2/19/2019	6942.22	6928.35	6928.25	13.97	13.87	0.10	17.75

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-05	5/13/2019	6942.22	6929.27	6929.10	13.12	12.95	0.17	17.75
MKTF-05	8/30/2019	6942.22	6928.82	6928.62	13.60	13.40	0.20	17.75
MKTF-05	10/30/2019	6942.22	6928.32	6928.02	14.20	13.90	0.30	17.75
MKTF-05	11/12/2019	6942.22	6930.58	6925.49	16.73	11.64	5.09	17.75
MKTF-05	11/13/2019	6942.22	6931.26	6925.07	17.15	10.96	6.19	17.75
MKTF-05	11/14/2019	6942.22	6931.44	6925.05	17.17	10.78	6.39	17.75
MKTF-05	11/15/2019	6942.22	6931.68	6925.06	17.16	10.54	6.62	17.75
MKTF-05	11/19/2019	6942.22	6932.18	6925.04	17.18	10.04	7.14	17.75
MKTF-05	11/21/2019	6942.22	6932.25	6925.04	17.18	9.97	7.21	17.75
MKTF-05	12/2/2019	6942.22	6931.58	6925.05	17.17	10.64	6.53	17.75
MKTF-05	3/5/2020	6942.22	6928.64	6928.50	13.72	13.58	0.14	17.75
MKTF-05	6/25/2020	6942.22	6928.16	6927.42	14.80	14.06	0.74	17.75
MKTF-05	9/15/2020	6942.22	6928.57	6927.54	14.68	13.65	1.03	17.83
MKTF-05	11/10/2020	6942.22	6928.20	6927.32	14.90	14.02	0.88	17.83
MKTF-05	12/3/2020	6942.22	6928.10	6927.29	14.93	14.12	0.81	17.80
MKTF-06	1/13/2014	6946.81	6928.67	6928.50	18.31	18.14	0.17	23.77
MKTF-06	2/13/2014	6946.81	6928.47	6928.04	18.77	18.34	0.43	23.77
MKTF-06	3/11/2014	6946.81	6928.61	6927.86	18.95	18.20	0.75	23.77
MKTF-06	6/6/2014	6946.81	NA	6932.81	14.00	NA	NA	23.77
MKTF-06	9/15/2014	6946.81	6928.66	6927.91	18.90	18.15	0.75	23.77
MKTF-06	11/14/2014	6946.81	6928.23	NA	NA	18.58	NA	23.77
MKTF-06	3/16/2015	6946.81	6928.57	6926.87	19.94	18.24	1.70	23.77
MKTF-06	6/4/2015	6946.81	6928.25	6927.41	19.40	18.56	0.84	23.77
MKTF-06	8/15/2015	6946.81	6929.28	6928.42	18.39	17.53	0.86	23.77
MKTF-06	11/3/2015	6946.81	6928.77	6928.03	18.78	18.04	0.74	23.77
MKTF-06	3/16/2016	6946.81	6928.57	6926.87	19.94	18.24	1.70	23.77
MKTF-06	6/9/2016	6946.81	6928.79	6927.85	18.96	18.02	0.94	23.77
MKTF-06	9/11/2016	6946.81	6929.41	6928.33	18.48	17.40	1.08	23.77
MKTF-06	11/3/2016	6946.81	6928.77	6928.03	18.78	18.04	0.74	23.77
MKTF-06	3/15/2017	6946.81	6930.86	6930.76	16.05	15.95	0.10	23.77
MKTF-06	6/12/2017	6946.81	6930.21	6929.57	17.24	16.60	0.64	23.77
MKTF-06	9/26/2017	6946.81	6930.80	6930.09	16.72	16.01	0.71	23.77
MKTF-06	11/28/2017	6946.81	6930.26	6929.11	17.70	16.55	1.15	23.77
MKTF-06	2/8/2018	6946.81	6929.67	6928.29	18.52	17.14	1.38	23.77
MKTF-06	4/25/2018	6946.81	6929.52	6928.20	18.61	17.29	1.32	23.72
MKTF-06	8/16/2018	6946.81	6929.98	6928.81	18.00	16.83	1.17	23.79
MKTF-06	11/19/2018	6946.81	6929.96	6928.80	18.01	16.85	1.16	23.77
MKTF-06	2/19/2019	6946.81	6931.02	6930.26	16.55	15.79	0.76	23.77
MKTF-06	5/13/2019	6946.81	6931.26	6930.42	16.39	15.55	0.84	23.77
MKTF-06	8/30/2019	6946.81	6930.99	6930.21	16.60	15.82	0.78	23.79
MKTF-06	10/30/2019	6946.81	6930.01	6928.90	17.91	16.80	1.11	23.77
MKTF-06	11/12/2019	6946.81	6930.29	6929.33	17.48	16.52	0.96	23.77
MKTF-06	11/13/2019	6946.81	6930.48	6929.63	17.18	16.33	0.85	23.77
MKTF-06	11/14/2019	6946.81	6930.39	6929.50	17.31	16.42	0.89	23.77
MKTF-06	11/15/2019	6946.81	6930.46	6929.61	17.20	16.35	0.85	23.77
MKTF-06	11/19/2019	6946.81	6930.73	6929.98	16.83	16.08	0.75	23.77
MKTF-06	11/21/2019	6946.81	6930.88	6929.57	17.24	15.93	1.31	23.77

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-06	12/2/2019	6946.81	6932.06	6925.45	21.36	14.75	6.61	23.77
MKTF-06	3/5/2020	6946.81	6929.92	6928.21	18.60	16.89	1.71	23.77
MKTF-06	6/25/2020	6946.81	6932.76	6927.91	18.90	14.05	4.85	23.77
MKTF-06	9/15/2020	6946.81	6930.03	6928.10	18.71	16.78	1.93	23.79
MKTF-06	11/10/2020	6946.81	6929.61	6928.22	18.59	17.20	1.39	23.79
MKTF-06	12/3/2020	6946.81	6929.43	6928.32	18.49	17.38	1.11	23.79
MKTF-07	1/13/2014	6947.18	6935.27	6934.17	13.01	11.91	1.10	17.62
MKTF-07	2/13/2014	6947.18	6935.30	6934.18	13.00	11.88	1.12	17.62
MKTF-07	3/11/2014	6947.18	6935.48	6934.33	12.85	11.70	1.15	17.62
MKTF-07	6/6/2014	6947.18	NA	6934.08	13.10	NA	NA	17.62
MKTF-07	9/15/2014	6947.18	6935.18	6933.58	13.60	12.00	1.60	17.62
MKTF-07	11/14/2014	6947.18	6933.86	NA	NA	13.32	NA	17.62
MKTF-07	3/16/2015	6947.18	6934.08	6932.95	14.23	13.10	1.13	17.62
MKTF-07	6/4/2015	6947.18	6934.23	6932.58	14.60	12.95	1.65	17.62
MKTF-07	8/18/2015	6947.18	6934.47	6933.34	13.84	12.71	1.13	17.62
MKTF-07	11/3/2015	6947.18	6934.28	6932.30	14.88	12.90	1.98	17.62
MKTF-07	3/16/2016	6947.18	6934.08	6932.95	14.23	13.10	1.13	17.62
MKTF-07	6/9/2016	6947.18	6935.17	6932.58	14.60	12.01	2.59	17.62
MKTF-07	9/11/2016	6947.18	6934.98	6932.57	14.61	12.20	2.41	17.62
MKTF-07	11/3/2016	6947.18	6934.28	6932.30	14.88	12.90	1.98	17.62
MKTF-07	3/15/2017	6947.18	6936.55	6934.58	12.60	10.63	1.97	17.62
MKTF-07	6/12/2017	6947.18	6936.98	6935.68	11.50	10.20	1.30	17.62
MKTF-07	9/26/2017	6947.18	6937.38	6936.08	11.10	9.80	1.30	17.62
MKTF-07	11/28/2017	6947.18	6936.78	6935.38	11.80	10.40	1.40	17.62
MKTF-07	2/8/2018	6947.18	6935.85	6934.63	12.55	11.33	1.22	17.62
MKTF-07	4/25/2018	6947.18	6936.34	6935.16	12.02	10.84	1.18	17.58
MKTF-07	8/16/2018	6947.18	6935.76	6934.68	12.50	11.42	1.08	17.47
MKTF-07	11/27/2018	6947.18	6934.83	6933.66	13.52	12.35	1.17	17.62
MKTF-07	2/19/2019	6947.18	6936.79	6935.58	11.60	10.39	1.21	17.62
MKTF-07	5/13/2019	6947.18	6936.46	6936.36	10.82	10.72	0.10	17.62
MKTF-07	8/30/2019	6947.18	6936.00	6934.89	12.29	11.18	1.11	17.47
MKTF-07	10/30/2019	6947.18	6934.98	6933.79	13.39	12.20	1.19	17.62
MKTF-07	11/12/2019	6947.18	6935.15	6933.99	13.19	12.03	1.16	17.62
MKTF-07	11/13/2019	6947.18	6935.37	6934.29	12.89	11.81	1.08	17.62
MKTF-07	11/14/2019	6947.18	6935.20	6934.04	13.14	11.98	1.16	17.62
MKTF-07	11/15/2019	6947.18	6935.18	6934.02	13.16	12.00	1.16	17.62
MKTF-07	11/19/2019	6947.18	6935.78	6933.01	14.17	11.40	2.77	17.62
MKTF-07	11/21/2019	6947.18	6936.35	6930.63	16.55	10.83	5.72	17.62
MKTF-07	12/2/2019	6947.18	6935.80	6930.06	17.12	11.38	5.74	17.62
MKTF-07	3/5/2020	6947.18	6934.68	6933.46	13.72	12.50	1.22	17.62
MKTF-07	6/25/2020	6947.18	6934.95	6933.42	13.76	12.23	1.53	17.62
MKTF-07	9/18/2020	6947.18	6935.76	6933.41	13.77	11.42	2.35	17.43
MKTF-07	11/10/2020	6947.18	6934.62	6933.42	13.76	12.56	1.20	17.43
MKTF-07	12/3/2020	6947.18	6934.25	6933.38	13.80	12.93	0.87	17.66
MKTF-08	1/13/2014	6947.09	6932.89	6932.47	14.62	14.20	0.42	21.98
MKTF-08	2/13/2014	6947.09	6932.84	6932.40	14.69	14.25	0.44	21.98
MKTF-08	3/11/2014	6947.09	6932.88	6932.44	14.65	14.21	0.44	21.98

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-08	6/6/2014	6947.09	6932.79	6932.09	15.00	14.30	0.70	21.98
MKTF-08	9/15/2014	6947.09	6932.73	6932.04	15.05	14.36	0.69	21.98
MKTF-08	11/14/2014	6947.09	6932.21	NA	NA	14.88	NA	21.98
MKTF-08	3/16/2015	6947.09	6932.84	6932.59	14.50	14.25	0.25	21.98
MKTF-08	6/4/2015	6947.09	6932.74	6932.18	14.91	14.35	0.56	21.98
MKTF-08	8/18/2015	6947.09	6933.30	6932.34	14.75	13.79	0.96	21.98
MKTF-08	11/8/2015	6947.09	6933.25	6931.77	15.32	13.84	1.48	21.98
MKTF-08	3/16/2016	6947.09	6932.84	6932.59	14.50	14.25	0.25	21.98
MKTF-08	6/9/2016	6947.09	6933.61	6932.91	14.18	13.48	0.70	21.98
MKTF-08	9/11/2016	6947.09	6933.46	6932.80	14.29	13.63	0.66	21.98
MKTF-08	11/8/2016	6947.09	6933.25	6931.77	15.32	13.84	1.48	21.98
MKTF-08	3/15/2017	6947.09	6935.10	6934.49	12.60	11.99	0.61	21.98
MKTF-08	6/12/2017	6947.09	6935.11	6934.69	12.40	11.98	0.42	21.98
MKTF-08	9/26/2017	6947.09	6934.94	6934.49	12.60	12.15	0.45	21.98
MKTF-08	11/28/2017	6947.09	6934.41	6933.89	13.20	12.68	0.52	21.98
MKTF-08	2/8/2018	6947.09	6933.80	6933.46	13.63	13.29	0.34	21.98
MKTF-08	4/25/2018	6947.09	6934.09	6933.76	13.33	13.00	0.33	21.94
MKTF-08	8/16/2018	6947.09	6934.13	6933.74	13.35	12.96	0.39	21.98
MKTF-08	11/27/2018	6947.09	6933.68	6933.29	13.80	13.41	0.39	21.98
MKTF-08	2/19/2019	6947.09	6935.74	6935.09	12.00	11.35	0.65	21.98
MKTF-08	5/13/2019	6947.09	6935.14	6934.66	12.43	11.95	0.48	21.98
MKTF-08	8/30/2019	6947.09	6934.59	6934.19	12.90	12.50	0.40	21.98
MKTF-08	10/30/2019	6947.09	6933.55	6933.10	13.99	13.54	0.45	21.98
MKTF-08	11/21/2019	6947.09	6933.62	6933.24	13.85	13.47	0.38	21.98
MKTF-08	12/2/2019	6947.09	6933.37	6932.96	14.13	13.72	0.41	21.98
MKTF-08	3/5/2020	6947.09	6933.06	6932.72	14.37	14.03	0.34	21.98
MKTF-08	6/25/2020	6947.09	6933.09	6932.69	14.40	14.00	0.40	21.98
MKTF-08	9/18/2020	6947.09	6933.33	6932.94	14.15	13.76	0.39	22.00
MKTF-08	11/10/2020	6947.09	6932.86	6932.40	14.69	14.23	0.46	22.00
MKTF-08	12/3/2020	6947.09	6932.73	6932.33	14.76	14.36	0.40	22.01
MKTF-09	1/13/2014	6946.50	NA	6931.72	14.78	ND	NA	22.70
MKTF-09	2/13/2014	6946.50	NA	6931.68	14.82	ND	NA	22.70
MKTF-09	3/11/2014	6946.50	NA	6931.70	14.80	ND	NA	22.70
MKTF-09	6/5/2014	6946.50	NA	6931.60	14.90	ND	NA	22.70
MKTF-09	9/15/2014	6946.50	NA	6931.61	14.89	ND	NA	22.70
MKTF-09	11/14/2014	6946.50	NA	6931.29	15.21	ND	NA	22.70
MKTF-09	3/16/2015	6946.50	NA	6932.02	14.48	ND	NA	22.70
MKTF-09	6/4/2015	6946.50	NA	6931.82	14.68	ND	NA	22.70
MKTF-09	8/18/2015	6946.50	NA	6932.01	14.49	ND	NA	22.70
MKTF-09	11/3/2015	6946.50	NA	6932.21	14.29	ND	NA	22.70
MKTF-09	2/29/2016	6946.50	NA	6932.35	14.15	ND	NA	22.70
MKTF-09	6/9/2016	6946.50	NA	6932.58	13.92	ND	NA	22.70
MKTF-09	9/11/2016	6946.50	NA	6932.30	14.20	ND	NA	22.70
MKTF-09	11/3/2016	6946.50	NA	6932.21	14.29	ND	NA	22.70
MKTF-09	3/15/2017	6946.50	NA	6933.86	12.64	ND	NA	22.70
MKTF-09	6/12/2017	6946.50	NA	6933.86	12.64	ND	NA	22.70
MKTF-09	9/28/2017	6946.50	NA	6933.81	12.69	ND	NA	22.70

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-09	11/29/2017	6946.50	NA	6933.35	13.15	ND	NA	22.75
MKTF-09	2/14/2018	6946.50	NA	6932.74	13.76	ND	NA	22.74
MKTF-09	4/25/2018	6946.50	NA	6933.08	13.42	ND	NA	22.69
MKTF-09	8/16/2018	6946.50	NA	6933.01	13.49	ND	NA	22.74
MKTF-09	11/27/2018	6946.50	NA	6932.69	13.81	ND	NA	22.75
MKTF-09	3/25/2019	6946.50	NA	6935.40	11.10	ND	NA	22.70
MKTF-09	5/13/2019	6946.50	NA	6934.23	12.27	ND	NA	22.70
MKTF-09	8/28/2019	6946.50	NA	6933.22	13.28	ND	NA	22.74
MKTF-09	11/18/2019	6946.50	NA	6932.53	13.97	ND	NA	22.75
MKTF-09	3/2/2020	6946.50	NA	6932.27	14.23	ND	NA	22.76
MKTF-09	6/25/2020	6946.50	NA	6931.95	14.55	ND	NA	22.77
MKTF-09	9/18/2020	6946.50	6932.31	6932.30	14.20	14.19	0.01	22.41
MKTF-09	11/10/2020	6946.50	6931.89	6931.88	14.62	14.61	0.01	22.41
MKTF-09	12/3/2020	6946.50	6931.75	6931.74	14.76	14.75	0.01	22.78
MKTF-10	1/13/2014	6937.16	NA	6928.41	8.75	ND	NA	15.99
MKTF-10	2/13/2014	6937.16	NA	6928.27	8.89	ND	NA	15.99
MKTF-10	3/11/2014	6937.16	NA	6928.28	8.88	ND	NA	15.99
MKTF-10	6/5/2014	6937.16	NA	6928.26	8.90	ND	NA	15.99
MKTF-10	9/15/2014	6937.16	NA	6928.17	8.99	ND	NA	15.99
MKTF-10	11/14/2014	6937.16	NA	6927.11	10.05	ND	NA	15.99
MKTF-10	3/16/2015	6937.16	NA	6928.20	8.96	ND	NA	15.99
MKTF-10	6/4/2015	6937.16	NA	6928.34	8.82	ND	NA	15.99
MKTF-10	8/18/2015	6937.16	NA	6928.44	8.72	ND	NA	15.99
MKTF-10	11/3/2015	6937.16	NA	6928.32	8.84	ND	NA	15.99
MKTF-10	2/29/2016	6937.16	NA	6928.56	8.60	ND	NA	15.99
MKTF-10	6/9/2016	6937.16	NA	6928.96	8.20	ND	NA	15.99
MKTF-10	9/11/2016	6937.16	NA	6928.71	8.45	ND	NA	15.99
MKTF-10	11/3/2016	6937.16	NA	6928.32	8.84	ND	NA	15.99
MKTF-10	3/2/2017	6937.16	NA	6929.69	7.47	ND	NA	15.99
MKTF-10	6/7/2017	6937.16	NA	6930.14	7.02	ND	NA	15.99
MKTF-10	9/27/2017	6937.16	NA	6930.38	6.78	ND	NA	15.99
MKTF-10	11/29/2017	6937.16	NA	6930.16	7.00	ND	NA	15.99
MKTF-10	2/14/2018	6937.16	NA	6929.86	7.30	ND	NA	16.10
MKTF-10	4/25/2018	6937.16	NA	6930.11	7.05	ND	NA	16.05
MKTF-10	8/16/2018	6937.16	NA	6930.08	7.08	ND	NA	16.28
MKTF-10	11/19/2018	6937.16	NA	6929.91	7.25	ND	NA	15.99
MKTF-10	3/25/2019	6937.16	NA	6931.46	5.70	ND	NA	15.99
MKTF-10	5/13/2019	6937.16	NA	6930.93	6.23	ND	NA	15.99
MKTF-10	8/21/2019	6937.16	NA	6929.51	7.65	ND	NA	16.28
MKTF-10	10/30/2019	6937.16	NA	6929.88	7.28	ND	NA	15.99
MKTF-10	3/2/2020	6937.16	NA	6929.49	7.67	ND	NA	15.99
MKTF-10	6/25/2020	6937.16	NA	6930.09	7.07	ND	NA	15.99
MKTF-10	9/18/2020	6937.16	6929.64	6929.63	7.53	7.52	0.01	16.41
MKTF-10	11/10/2020	6937.16	NA	6929.37	7.79	ND	NA	16.41
MKTF-10	12/3/2020	6937.16	NA	6929.36	7.80	ND	NA	16.50
MKTF-11	1/15/2014	6931.34	NA	6922.85	8.49	ND	NA	18.14
MKTF-11	2/13/2014	6931.34	NA	6922.70	8.64	ND	NA	18.14

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-11	3/11/2014	6931.34	NA	6922.84	8.50	ND	NA	18.14
MKTF-11	6/5/2014	6931.34	NA	6922.14	9.20	ND	NA	18.14
MKTF-11	9/15/2014	6931.34	NA	6921.99	9.35	ND	NA	18.14
MKTF-11	11/13/2014	6931.34	NA	6921.79	9.55	ND	NA	18.14
MKTF-11	3/16/2015	6931.34	NA	6922.54	8.80	ND	NA	18.14
MKTF-11	6/4/2015	6931.34	NA	6922.34	9.00	ND	NA	18.14
MKTF-11	8/18/2015	6931.34	NA	6922.89	8.45	ND	NA	18.14
MKTF-11	11/3/2015	6931.34	NA	6922.71	8.63	ND	NA	18.14
MKTF-11	2/29/2016	6931.34	NA	6922.54	8.80	ND	NA	18.14
MKTF-11	6/9/2016	6931.34	NA	6922.68	8.66	ND	NA	18.14
MKTF-11	9/11/2016	6931.34	NA	6922.64	8.70	ND	NA	18.14
MKTF-11	11/3/2016	6931.34	NA	6922.71	8.63	ND	NA	18.14
MKTF-11	3/2/2017	6931.34	NA	6924.38	6.96	ND	NA	18.14
MKTF-11	6/7/2017	6931.34	NA	6923.95	7.39	ND	NA	18.14
MKTF-11	9/26/2017	6931.34	NA	6924.64	6.70	ND	NA	18.14
MKTF-11	11/29/2017	6931.34	NA	6923.34	8.00	ND	NA	18.14
MKTF-11	2/8/2018	6931.34	NA	6923.47	7.87	ND	NA	18.31
MKTF-11	4/25/2018	6931.34	NA	6923.49	7.85	ND	NA	18.39
MKTF-11	8/16/2018	6931.34	NA	6923.86	7.48	ND	NA	18.48
MKTF-11	11/19/2018	6931.34	NA	6924.14	7.20	ND	NA	18.14
MKTF-11	3/25/2019	6931.34	NA	6926.38	4.96	ND	NA	18.14
MKTF-11	5/13/2019	6931.34	NA	6926.10	5.24	ND	NA	18.14
MKTF-11	8/21/2019	6931.34	NA	6925.12	6.22	ND	NA	18.48
MKTF-11	10/30/2019	6931.34	NA	6924.28	7.06	ND	NA	18.14
MKTF-11	3/2/2020	6931.34	NA	6923.45	7.89	ND	NA	18.14
MKTF-11	6/26/2020	6931.34	6923.67	6923.66	7.68	7.67	0.01	18.14
MKTF-11	9/18/2020	6931.34	6923.75	6923.74	7.60	7.59	0.01	18.45
MKTF-11	11/10/2020	6931.34	NA	6923.73	7.61	ND	NA	18.45
MKTF-11	12/3/2020	6931.34	6923.45	6923.43	7.91	7.89	0.02	18.45
MKTF-12	1/13/2014	6942.11	6922.85	6922.58	19.53	19.26	0.27	25.60
MKTF-12	2/12/2014	6942.11	6922.66	6922.24	19.87	19.45	0.42	25.60
MKTF-12	3/11/2014	6942.11	6922.96	6922.68	19.43	19.15	0.28	25.60
MKTF-12	6/4/2014	6942.11	6922.37	6922.29	19.82	19.74	0.08	25.60
MKTF-12	9/15/2014	6942.11	6922.30	6921.11	21.00	19.81	1.19	25.60
MKTF-12	11/17/2014	6942.11	6921.91	6920.73	21.38	20.20	1.18	25.60
MKTF-12	3/12/2015	6942.11	6922.98	6921.17	20.94	19.13	1.81	25.60
MKTF-12	6/9/2015	6942.11	6922.64	6920.46	21.65	19.47	2.18	25.60
MKTF-12	8/18/2015	6942.11	6922.65	6922.12	19.99	19.46	0.53	25.60
MKTF-12	11/3/2015	6942.11	6922.45	6921.84	20.27	19.66	0.61	25.60
MKTF-12	3/12/2016	6942.11	6922.98	6921.17	20.94	19.13	1.81	25.60
MKTF-12	6/10/2016	6942.11	6923.88	6922.56	19.55	18.23	1.32	25.60
MKTF-12	9/10/2016	6942.11	6922.88	6922.56	19.55	19.23	0.32	25.60
MKTF-12	11/3/2016	6942.11	6922.45	6921.84	20.27	19.66	0.61	25.60
MKTF-12	3/15/2017	6942.11	6924.36	6924.30	17.81	17.75	0.06	25.60
MKTF-12	6/7/2017	6942.11	6923.51	6923.32	18.79	18.60	0.19	25.60
MKTF-12	10/3/2017	6942.11	6924.81	6924.68	17.43	17.30	0.13	25.60
MKTF-12	11/27/2017	6942.11	6923.68	6923.55	18.56	18.43	0.13	25.60

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-12	2/7/2018	6942.11	6923.00	6922.83	19.28	19.11	0.17	25.60
MKTF-12	4/26/2018	6942.11	6923.00	6922.88	19.23	19.11	0.12	25.58
MKTF-12	8/15/2018	6942.11	6923.10	6922.91	19.20	19.01	0.19	25.60
MKTF-12	11/27/2018	6942.11	6923.71	6923.57	18.54	18.40	0.14	25.60
MKTF-12	3/26/2019	6942.11	6925.46	6925.11	17.00	16.65	0.35	25.60
MKTF-12	5/9/2019	6942.11	6924.86	6924.76	17.35	17.25	0.10	25.60
MKTF-12	8/20/2019	6942.11	6924.19	6924.10	18.01	17.92	0.09	25.60
MKTF-12	10/28/2019	6942.11	6923.76	6923.64	18.47	18.35	0.12	25.60
MKTF-12	11/12/2019	6942.11	6923.97	6923.89	18.22	18.14	0.08	25.60
MKTF-12	11/13/2019	6942.11	6924.09	6923.99	18.12	18.02	0.10	25.60
MKTF-12	11/14/2019	6942.11	6924.00	6923.92	18.19	18.11	0.08	25.60
MKTF-12	11/15/2019	6942.11	6924.01	6923.93	18.18	18.10	0.08	25.60
MKTF-12	11/19/2019	6942.11	6924.11	6924.02	18.09	18.00	0.09	25.60
MKTF-12	11/21/2019	6942.11	6924.07	6923.91	18.20	18.04	0.16	25.60
MKTF-12	12/2/2019	6942.11	6924.41	6924.36	17.75	17.70	0.05	25.60
MKTF-12	2/27/2020	6942.11	6924.27	6924.19	17.92	17.84	0.08	25.60
MKTF-12	6/29/2020	6942.11	6922.98	6922.86	19.25	19.13	0.12	25.60
MKTF-12	9/18/2020	6942.11	6923.47	6923.46	18.65	18.64	0.01	25.82
MKTF-12	11/10/2020	6942.11	6924.14	6924.11	18.00	17.97	0.03	25.82
MKTF-12	12/3/2020	6942.11	6923.21	6923.05	19.06	18.90	0.16	25.89
MKTF-13	1/13/2014	6935.18	6922.38	6922.08	13.10	12.80	0.30	21.25
MKTF-13	2/12/2014	6935.18	6922.20	6921.86	13.32	12.98	0.34	21.25
MKTF-13	3/11/2014	6935.18	6922.51	6922.18	13.00	12.67	0.33	21.25
MKTF-13	6/4/2014	6935.18	6920.58	6919.93	15.25	14.60	0.65	21.25
MKTF-13	9/15/2014	6935.18	6920.57	6919.43	15.75	14.61	1.14	21.25
MKTF-13	11/17/2014	6935.18	6920.25	6918.85	16.33	14.93	1.40	21.25
MKTF-13	3/12/2015	6935.18	6921.43	6919.36	15.82	13.75	2.07	21.25
MKTF-13	6/9/2015	6935.18	6920.96	6919.31	15.87	14.22	1.65	21.25
MKTF-13	8/21/2015	6935.18	6921.24	6919.56	15.62	13.94	1.68	21.25
MKTF-13	11/3/2015	6935.18	6920.96	6919.63	15.55	14.22	1.33	21.25
MKTF-13	3/12/2016	6935.18	6921.43	6919.36	15.82	13.75	2.07	21.25
MKTF-13	6/10/2016	6935.18	6922.19	6920.99	14.19	12.99	1.20	21.25
MKTF-13	9/10/2016	6935.18	6921.30	6920.32	14.86	13.88	0.98	21.25
MKTF-13	11/3/2016	6935.18	6920.96	6919.63	15.55	14.22	1.33	21.25
MKTF-13	3/15/2017	6935.18	NA	6922.58	12.60	ND	NA	21.25
MKTF-13	6/7/2017	6935.18	6921.83	6921.77	13.41	13.35	0.06	21.25
MKTF-13	10/3/2017	6935.18	6923.27	6923.24	11.94	11.91	0.03	21.25
MKTF-13	11/27/2017	6935.18	6922.04	6922.03	13.15	13.14	0.01	21.25
MKTF-13	2/7/2018	6935.18	6921.41	6921.40	13.78	13.77	0.01	21.25
MKTF-13	4/26/2018	6935.18	NA	6921.43	13.75	ND	NA	21.66
MKTF-13	8/15/2018	6935.18	NA	6921.50	13.68	ND	NA	21.55
MKTF-13	11/27/2018	6935.18	NA	6922.46	12.72	ND	NA	21.25
MKTF-13	3/26/2019	6935.18	NA	6924.28	10.90	ND	NA	21.25
MKTF-13	5/9/2019	6935.18	NA	6923.58	11.60	ND	NA	21.25
MKTF-13	8/20/2019	6935.18	NA	6922.73	12.45	ND	NA	21.55
MKTF-13	10/28/2019	6935.18	NA	6922.23	12.95	ND	NA	21.25
MKTF-13	11/12/2019	6935.18	NA	6922.36	12.82	ND	NA	21.25

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-13	11/13/2019	6935.18	NA	6922.43	12.75	ND	NA	21.25
MKTF-13	11/14/2019	6935.18	NA	6922.33	12.85	ND	NA	21.25
MKTF-13	11/15/2019	6935.18	NA	6922.38	12.80	ND	NA	21.25
MKTF-13	11/19/2019	6935.18	NA	6922.47	12.71	ND	NA	21.25
MKTF-13	11/21/2019	6935.18	NA	6922.43	12.75	ND	NA	21.25
MKTF-13	12/2/2019	6935.18	NA	6922.78	12.40	ND	NA	21.25
MKTF-13	2/27/2020	6935.18	6924.05	6917.87	17.31	11.13	6.18	21.25
MKTF-13	6/29/2020	6935.18	6922.51	6916.97	18.21	12.67	5.54	21.25
MKTF-13	9/18/2020	6935.18	6922.63	6918.26	16.92	12.55	4.37	22.13
MKTF-13	11/10/2020	6935.18	6923.20	6918.82	16.36	11.98	4.38	22.13
MKTF-13	12/3/2020	6935.18	6922.34	6918.53	16.65	12.84	3.81	21.92
MKTF-14	1/13/2014	6928.02	6920.64	6919.03	8.99	7.38	1.61	17.46
MKTF-14	2/12/2014	6928.02	6920.42	6919.25	8.77	7.60	1.17	17.46
MKTF-14	3/11/2014	6928.02	6920.75	6919.60	8.42	7.27	1.15	17.46
MKTF-14	6/4/2014	6928.02	6920.11	6919.29	8.73	7.91	0.82	17.46
MKTF-14	9/15/2014	6928.02	6919.72	6919.27	8.75	8.30	0.45	17.46
MKTF-14	11/17/2014	6928.02	6919.45	6919.08	8.94	8.57	0.37	17.46
MKTF-14	3/12/2015	6928.02	6920.42	6919.87	8.15	7.60	0.55	17.46
MKTF-14	6/9/2015	6928.02	6920.02	6919.65	8.37	8.00	0.37	17.46
MKTF-14	8/21/2015	6928.02	6920.41	6919.99	8.03	7.61	0.42	17.46
MKTF-14	11/3/2015	6928.02	6920.31	6919.92	8.10	7.71	0.39	17.46
MKTF-14	3/12/2016	6928.02	6920.42	6919.87	8.15	7.60	0.55	17.46
MKTF-14	6/10/2016	6928.02	6920.89	6918.56	9.46	7.13	2.33	17.46
MKTF-14	9/10/2016	6928.02	6920.71	6919.02	9.00	7.31	1.69	17.46
MKTF-14	11/3/2016	6928.02	6920.31	6919.92	8.10	7.71	0.39	17.46
MKTF-14	3/8/2017	6928.02	6922.25	6921.27	6.75	5.77	0.98	17.46
MKTF-14	6/7/2017	6928.02	6921.34	6920.50	7.52	6.68	0.84	17.46
MKTF-14	10/3/2017	6928.02	6922.32	6921.91	6.11	5.70	0.41	17.46
MKTF-14	11/27/2017	6928.02	6921.46	6921.09	6.93	6.56	0.37	17.46
MKTF-14	2/7/2018	6928.02	6921.04	6920.63	7.39	6.98	0.41	17.46
MKTF-14	4/26/2018	6928.02	6921.01	6920.63	7.39	7.01	0.38	17.43
MKTF-14	8/15/2018	6928.02	6921.07	6920.72	7.30	6.95	0.35	17.45
MKTF-14	11/27/2018	6928.02	6921.76	6921.37	6.65	6.26	0.39	17.46
MKTF-14	3/25/2019	6928.02	6924.13	6923.77	4.25	3.89	0.36	17.46
MKTF-14	5/9/2019	6928.02	6923.37	6922.98	5.04	4.65	0.39	17.46
MKTF-14	8/20/2019	6928.02	6922.38	6922.10	5.92	5.64	0.28	17.45
MKTF-14	10/28/2019	6928.02	6922.00	6921.63	6.39	6.02	0.37	17.46
MKTF-14	2/27/2020	6928.02	6922.67	6922.37	5.65	5.35	0.30	17.46
MKTF-14	6/29/2020	6928.02	6921.64	6919.44	8.58	6.38	2.20	17.46
MKTF-14	9/18/2020	6928.02	6921.84	6919.86	8.16	6.18	1.98	17.32
MKTF-14	11/10/2020	6928.02	6922.04	6921.74	6.28	5.98	0.30	17.32
MKTF-14	12/3/2020	6928.02	6921.23	6920.96	7.06	6.79	0.27	17.55
MKTF-15	1/13/2014	6943.48	NA	6929.60	13.88	ND	NA	19.48
MKTF-15	2/13/2014	6943.48	NA	6929.60	13.88	ND	NA	19.48
MKTF-15	3/11/2014	6943.48	NA	6929.62	13.86	ND	NA	19.48
MKTF-15	6/5/2014	6943.48	NA	6929.67	13.81	ND	NA	19.48
MKTF-15	9/15/2014	6943.48	NA	6929.77	13.71	ND	NA	19.48

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-15	11/14/2014	6943.48	6929.98	6928.93	14.55	13.50	1.05	19.48
MKTF-15	3/16/2015	6943.48	6930.31	6929.56	13.92	13.17	0.75	19.48
MKTF-15	6/4/2015	6943.48	6930.28	6929.70	13.78	13.20	0.58	19.48
MKTF-15	8/18/2015	6943.48	6930.39	6930.14	13.34	13.09	0.25	19.48
MKTF-15	11/3/2015	6943.48	6930.58	6929.93	13.55	12.90	0.65	19.48
MKTF-15	3/16/2016	6943.48	6930.31	6929.56	13.92	13.17	0.75	19.48
MKTF-15	6/9/2016	6943.48	6930.88	6930.66	12.82	12.60	0.22	19.48
MKTF-15	9/11/2016	6943.48	NA	6930.48	13.00	ND	NA	19.48
MKTF-15	11/3/2016	6943.48	6930.58	6929.93	13.55	12.90	0.65	19.48
MKTF-15	3/2/2017	6943.48	NA	6931.33	12.15	ND	NA	19.48
MKTF-15	6/7/2017	6943.48	NA	6931.55	11.93	ND	NA	19.48
MKTF-15	9/26/2017	6943.48	6931.48	6931.38	12.10	12.00	0.10	19.48
MKTF-15	11/29/2017	6943.48	NA	6931.35	12.13	ND	NA	19.48
MKTF-15	2/8/2018	6943.48	6931.08	6931.01	12.47	12.40	0.07	19.48
MKTF-15	4/25/2018	6943.48	NA	6931.28	12.20	ND	NA	19.40
MKTF-15	8/16/2018	6943.48	NA	6931.08	12.40	ND	NA	19.50
MKTF-15	11/19/2018	6943.48	6930.91	6930.78	12.70	12.57	0.13	19.48
MKTF-15	3/25/2019	6943.48	6932.50	6932.48	11.00	10.98	0.02	19.48
MKTF-15	5/13/2019	6943.48	NA	6931.89	11.59	ND	NA	19.48
MKTF-15	8/21/2019	6943.48	6931.46	6931.45	12.03	12.02	0.01	19.50
MKTF-15	10/30/2019	6943.48	6930.83	6930.78	12.70	12.65	0.05	19.48
MKTF-15	2/3/2020	6943.48	6930.46	6930.37	13.11	13.02	0.09	19.48
MKTF-15	6/26/2020	6943.48	6930.37	6930.31	13.17	13.11	0.06	19.48
MKTF-15	9/18/2020	6943.48	6930.48	6930.45	13.03	13.00	0.03	19.18
MKTF-15	11/10/2020	6943.48	6930.09	6929.88	13.60	13.39	0.21	19.52
MKTF-16	1/13/2014	6950.58	NA	6941.13	9.45	ND	NA	14.10
MKTF-16	2/13/2014	6950.58	NA	6940.95	9.63	ND	NA	14.10
MKTF-16	3/11/2014	6950.58	NA	6940.92	9.66	ND	NA	14.10
MKTF-16	6/5/2014	6950.58	NA	6940.06	10.52	ND	NA	14.10
MKTF-16	9/15/2014	6950.58	NA	6939.98	10.60	ND	NA	14.10
MKTF-16	11/18/2014	6950.58	NA	6938.92	11.66	ND	NA	14.10
MKTF-16	3/16/2015	6950.58	NA	6939.65	10.93	ND	NA	14.10
MKTF-16	6/8/2015	6950.58	NA	6941.72	8.86	ND	NA	14.10
MKTF-16	8/23/2015	6950.58	NA	6940.79	9.79	ND	NA	14.10
MKTF-16	11/3/2015	6950.58	NA	6941.09	9.49	ND	NA	14.10
MKTF-16	2/29/2016	6950.58	NA	6940.68	9.90	ND	NA	14.10
MKTF-16	6/8/2016	6950.58	NA	6941.00	9.58	ND	NA	14.10
MKTF-16	9/11/2016	6950.58	NA	6940.93	9.65	ND	NA	14.10
MKTF-16	11/3/2016	6950.58	NA	6941.09	9.49	ND	NA	14.10
MKTF-16	3/14/2017	6950.58	NA	6943.13	7.45	ND	NA	14.10
MKTF-16	6/7/2017	6950.58	NA	6942.92	7.66	ND	NA	14.10
MKTF-16	9/26/2017	6950.58	NA	6942.58	8.00	ND	NA	14.10
MKTF-16	11/28/2017	6950.58	NA	6942.36	8.22	ND	NA	14.10
MKTF-16	2/14/2018	6950.58	NA	6941.78	8.80	ND	NA	14.10
MKTF-16	4/25/2018	6950.58	NA	6942.23	8.35	ND	NA	13.96
MKTF-16	8/16/2018	6950.58	NA	6942.03	8.55	ND	NA	14.08
MKTF-16	11/29/2018	6950.58	NA	6941.04	9.54	ND	NA	14.10

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-16	2/20/2019	6950.58	NA	6943.53	7.05	ND	NA	14.10
MKTF-16	5/13/2019	6950.58	NA	6942.23	8.35	ND	NA	14.10
MKTF-16	8/21/2019	6950.58	NA	6941.36	9.22	ND	NA	14.08
MKTF-16	10/30/2019	6950.58	NA	6940.69	9.89	ND	NA	14.10
MKTF-16	2/5/2020	6950.58	NA	6940.90	9.68	ND	NA	14.10
MKTF-16	6/26/2020	6950.58	NA	6941.04	9.54	ND	NA	14.10
MKTF-16	9/18/2020	6950.58	6941.40	6941.39	9.19	9.18	0.01	10.92
MKTF-16	11/10/2020	6950.58	NA	6943.38	7.20	ND	NA	10.92
MKTF-16	12/8/2020	6950.58	NA	6940.88	9.70	ND	NA	10.95
MKTF-17	1/13/2014	6945.76	NA	6936.95	8.81	ND	NA	24.11
MKTF-17	2/13/2014	6945.76	NA	6935.95	9.81	ND	NA	24.11
MKTF-17	3/11/2014	6945.76	NA	6935.76	10.00	ND	NA	24.11
MKTF-17	6/6/2014	6945.76	NA	6934.48	11.28	ND	NA	24.11
MKTF-17	9/15/2014	6945.76	NA	6934.49	11.27	ND	NA	24.11
MKTF-17	11/18/2014	6945.76	NA	6933.01	12.75	ND	NA	24.11
MKTF-17	3/12/2015	6945.76	NA	6932.95	12.81	ND	NA	24.11
MKTF-17	6/8/2015	6945.76	NA	6932.36	13.40	ND	NA	24.11
MKTF-17	8/18/2015	6945.76	NA	6933.78	11.98	ND	NA	24.11
MKTF-17	11/3/2015	6945.76	NA	6933.42	12.34	ND	NA	24.11
MKTF-17	2/25/2016	6945.76	NA	6933.94	11.82	ND	NA	24.11
MKTF-17	6/10/2016	6945.76	NA	6934.46	11.30	ND	NA	24.11
MKTF-17	9/12/2016	6945.76	NA	6933.36	12.40	ND	NA	24.11
MKTF-17	11/3/2016	6945.76	NA	6933.42	12.34	ND	NA	24.11
MKTF-17	3/8/2017	6945.76	NA	6937.56	8.20	ND	NA	24.11
MKTF-17	6/14/2017	6945.76	NA	6935.78	9.98	ND	NA	24.11
MKTF-17	9/26/2017	6945.76	NA	6936.43	9.33	ND	NA	24.11
MKTF-17	11/30/2017	6945.76	NA	6932.08	13.68	ND	NA	24.65
MKTF-17	2/15/2018	6945.76	NA	6934.11	11.65	ND	NA	24.68
MKTF-17	4/26/2018	6945.76	NA	6933.48	12.28	ND	NA	24.55
MKTF-17	8/15/2018	6945.76	NA	6933.26	12.50	ND	NA	24.68
MKTF-17	11/27/2018	6945.76	NA	6932.11	13.65	ND	NA	24.65
MKTF-17	3/25/2019	6945.76	NA	6935.06	10.70	ND	NA	24.11
MKTF-17	5/9/2019	6945.76	NA	6931.71	14.05	ND	NA	24.11
MKTF-17	8/19/2019	6945.76	NA	6934.97	10.79	ND	NA	24.68
MKTF-17	10/28/2019	6945.76	NA	6936.76	9.00	ND	NA	24.65
MKTF-17	10/29/2019	6945.76	NA	6930.56	15.20	ND	NA	24.65
MKTF-17	11/12/2019	6945.76	NA	6933.90	11.86	ND	NA	24.65
MKTF-17	11/19/2019	6945.76	6933.41	6931.81	13.95	12.35	1.60	24.65
MKTF-17	11/21/2019	6945.76	6933.34	6930.46	15.30	12.42	2.88	24.65
MKTF-17	12/2/2019	6945.76	6932.59	6927.71	18.05	13.17	4.88	24.65
MKTF-17	2/3/2020	6945.76	6934.32	6928.91	16.85	11.44	5.41	24.11
MKTF-17	6/29/2020	6945.76	6935.57	6930.26	15.50	10.19	5.31	24.11
MKTF-17	9/14/2020	6945.76	6935.76	6930.39	15.37	10.00	5.37	24.67
MKTF-17	11/10/2020	6945.76	6934.37	6934.17	11.59	11.39	0.20	24.67
MKTF-17	12/4/2020	6945.76	6934.48	6934.29	11.47	11.28	0.19	24.66
MKTF-18	1/13/2014	6950.65	NA	6942.32	8.33	ND	NA	25.38
MKTF-18	2/13/2014	6950.65	NA	6942.32	8.33	ND	NA	25.38

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-18	3/11/2014	6950.65	NA	6942.56	8.09	ND	NA	25.38
MKTF-18	6/6/2014	6950.65	NA	6942.20	8.45	ND	NA	25.38
MKTF-18	9/15/2014	6950.65	NA	6941.84	8.81	ND	NA	25.38
MKTF-18	11/18/2014	6950.65	NA	6941.19	9.46	ND	NA	25.38
MKTF-18	3/17/2015	6950.65	NA	6941.73	8.92	ND	NA	25.38
MKTF-18	6/8/2015	6950.65	NA	6941.79	8.86	ND	NA	25.38
MKTF-18	8/18/2015	6950.65	NA	6941.82	8.83	ND	NA	25.38
MKTF-18	11/3/2015	6950.65	NA	6942.13	8.52	ND	NA	25.38
MKTF-18	2/26/2016	6950.65	NA	6942.31	8.34	ND	NA	25.38
MKTF-18	6/10/2016	6950.65	NA	6938.80	11.85	ND	NA	25.38
MKTF-18	9/12/2016	6950.65	NA	6942.90	7.75	ND	NA	25.38
MKTF-18	11/3/2016	6950.65	NA	6942.13	8.52	ND	NA	25.38
MKTF-18	3/1/2017	6950.65	NA	6942.84	7.81	ND	NA	25.38
MKTF-18	6/14/2017	6950.65	NA	6944.35	6.30	ND	NA	25.38
MKTF-18	9/27/2017	6950.65	6944.30	6944.28	6.37	6.35	0.02	25.38
MKTF-18	11/30/2017	6950.65	6944.36	6944.35	6.30	6.29	0.01	25.38
MKTF-18	2/15/2018	6950.65	NA	6944.18	6.47	ND	NA	26.80
MKTF-18	4/26/2018	6950.65	NA	6942.43	8.22	ND	NA	26.70
MKTF-18	8/16/2018	6950.65	NA	6943.53	7.12	ND	NA	27.45
MKTF-18	11/27/2018	6950.65	NA	6942.71	7.94	ND	NA	25.38
MKTF-18	3/25/2019	6950.65	NA	6943.33	7.32	ND	NA	25.38
MKTF-18	5/16/2019	6950.65	NA	6943.11	7.54	ND	NA	25.38
MKTF-18	8/19/2019	6950.65	6942.94	6942.93	7.72	7.71	0.01	27.45
MKTF-18	10/28/2019	6950.65	NA	6942.86	7.79	ND	NA	25.38
MKTF-18	10/29/2019	6950.65	NA	6942.35	8.30	ND	NA	25.38
MKTF-18	11/12/2019	6950.65	NA	6942.46	8.19	ND	NA	25.38
MKTF-18	2/5/2020	6950.65	NA	6941.55	9.10	ND	NA	25.38
MKTF-18	6/30/2020	6950.65	NA	6941.67	8.98	ND	NA	25.38
MKTF-18	9/18/2020	6950.65	6942.16	6942.15	8.50	8.49	0.01	21.73
MKTF-18	11/10/2020	6950.65	NA	6941.91	8.74	ND	NA	21.73
MKTF-18	12/4/2020	6950.65	NA	6941.85	8.80	ND	NA	25.50
MKTF-19	6/4/2014	6944.67	NA	6932.76	11.91	ND	NA	17.47
MKTF-19	9/24/2014	6944.67	NA	6932.20	12.47	ND	NA	17.47
MKTF-19	11/18/2014	6944.67	NA	6930.91	13.76	ND	NA	17.47
MKTF-19	3/12/2015	6944.67	NA	6931.72	12.95	ND	NA	17.47
MKTF-19	6/8/2015	6944.67	NA	6931.91	12.76	ND	NA	17.47
MKTF-19	8/18/2015	6944.67	NA	6932.07	12.60	ND	NA	17.47
MKTF-19	11/3/2015	6944.67	NA	6931.83	12.84	ND	NA	17.47
MKTF-19	2/25/2016	6944.67	NA	6932.05	12.62	ND	NA	17.47
MKTF-19	6/10/2016	6944.67	NA	6932.77	11.90	ND	NA	17.47
MKTF-19	9/12/2016	6944.67	NA	6933.42	11.25	ND	NA	17.47
MKTF-19	11/3/2016	6944.67	NA	6931.83	12.84	ND	NA	17.47
MKTF-19	3/8/2017	6944.67	NA	6934.85	9.82	ND	NA	17.47
MKTF-19	6/14/2017	6944.67	NA	6934.09	10.58	ND	NA	17.47
MKTF-19	9/26/2017	6944.67	NA	6933.67	11.00	ND	NA	17.47
MKTF-19	11/30/2017	6944.67	NA	6932.97	11.70	ND	NA	18.20
MKTF-19	2/15/2018	6944.67	NA	6932.67	12.00	ND	NA	18.45

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-19	4/26/2018	6944.67	NA	6932.62	12.05	ND	NA	18.19
MKTF-19	8/15/2018	6944.67	NA	6932.47	12.20	ND	NA	19.30
MKTF-19	11/27/2018	6944.67	NA	6932.30	12.37	ND	NA	18.20
MKTF-19	3/25/2019	6944.67	NA	6933.27	11.40	ND	NA	17.47
MKTF-19	5/9/2019	6944.67	NA	6933.36	11.31	ND	NA	17.47
MKTF-19	8/19/2019	6944.67	NA	6933.61	11.06	ND	NA	19.30
MKTF-19	10/28/2019	6944.67	NA	6933.76	10.91	ND	NA	18.20
MKTF-19	10/29/2019	6944.67	NA	6928.91	15.76	ND	NA	18.20
MKTF-19	11/12/2019	6944.67	NA	6933.82	10.85	ND	NA	18.20
MKTF-19	11/19/2019	6944.67	NA	6933.77	10.90	ND	NA	18.20
MKTF-19	11/21/2019	6944.67	NA	6933.62	11.05	ND	NA	18.20
MKTF-19	12/2/2019	6944.67	6933.04	6932.17	12.50	11.63	0.87	18.20
MKTF-19	2/3/2020	6944.67	6933.32	6932.27	12.40	11.35	1.05	17.47
MKTF-19	6/29/2020	6944.67	6932.59	6931.38	13.29	12.08	1.21	17.47
MKTF-19	9/14/2020	6944.67	6932.72	6932.70	11.97	11.95	0.02	19.24
MKTF-19	11/10/2020	6944.67	6932.45	6931.12	13.55	12.22	1.33	19.24
MKTF-19	12/4/2020	6944.67	6932.49	6931.25	13.42	12.18	1.24	19.38
MKTF-20	6/4/2014	6951.78	NA	6943.87	7.91	ND	NA	9.89
MKTF-20	9/23/2014	6951.78	NA	6943.40	8.38	ND	NA	9.89
MKTF-20	11/18/2014	6951.78	NA	6943.38	8.40	ND	NA	9.89
MKTF-20	3/16/2015	6951.78	NA	6944.52	7.26	ND	NA	9.89
MKTF-20	6/8/2015	6951.78	NA	6943.89	7.89	ND	NA	9.89
MKTF-20	8/23/2015	6951.78	NA	6943.99	7.79	ND	NA	9.89
MKTF-20	11/9/2015	6951.78	NA	6944.00	7.78	ND	NA	9.89
MKTF-20	2/29/2016	6951.78	NA	6943.97	7.81	ND	NA	9.89
MKTF-20	6/8/2016	6951.78	NA	6944.55	7.23	ND	NA	9.89
MKTF-20	9/11/2016	6951.78	NA	6944.13	7.65	ND	NA	9.89
MKTF-20	11/9/2016	6951.78	NA	6944.00	7.78	ND	NA	9.89
MKTF-20	3/14/2017	6951.78	NA	6946.08	5.70	ND	NA	9.89
MKTF-20	6/12/2017	6951.78	NA	6946.21	5.57	ND	NA	9.89
MKTF-20	9/26/2017	6951.78	NA	6945.55	6.23	ND	NA	9.89
MKTF-20	11/28/2017	6951.78	NA	6945.25	6.53	ND	NA	9.58
MKTF-20	2/14/2018	6951.78	NA	6944.33	7.45	ND	NA	9.55
MKTF-20	4/25/2018	6951.78	NA	6944.88	6.90	ND	NA	9.50
MKTF-20	8/16/2018	6951.78	NA	6944.58	7.20	ND	NA	9.56
MKTF-20	11/29/2018	6951.78	NA	6944.26	7.52	ND	NA	9.58
MKTF-20	2/20/2019	6951.78	NA	6945.49	6.29	ND	NA	8.83
MKTF-20	5/13/2019	6951.78	NA	6944.64	7.14	ND	NA	8.83
MKTF-20	8/20/2019	6951.78	NA	6943.75	8.03	ND	NA	8.83
MKTF-20	11/4/2019	6951.78	NA	6944.10	7.68	ND	NA	8.83
MKTF-20	2/5/2020	6951.78	NA	6942.76	9.02	ND	NA	8.83
MKTF-20	6/26/2020	6951.78	NA	6943.11	8.67	ND	NA	8.83
MKTF-20	9/15/2020	6951.78	6943.24	6942.43	9.35	8.54	0.81	9.62
MKTF-20	11/10/2020	6951.78	6943.68	6942.88	8.90	8.10	0.80	9.62
MKTF-20	12/8/2020	6951.78	6943.02	6942.83	8.95	8.76	0.19	9.60
MKTF-21	6/4/2014	6952.57	NA	6944.89	7.68	ND	NA	9.89
MKTF-21	9/23/2014	6952.57	NA	6944.18	8.39	ND	NA	9.89

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-21	11/18/2014	6952.57	NA	6944.57	8.00	ND	NA	9.89
MKTF-21	3/16/2015	6952.57	NA	6944.95	7.62	ND	NA	9.89
MKTF-21	6/10/2015	6952.57	NA	6944.61	7.96	ND	NA	9.89
MKTF-21	8/23/2015	6952.57	NA	6944.95	7.62	ND	NA	9.89
MKTF-21	11/9/2015	6952.57	NA	6945.11	7.46	ND	NA	9.89
MKTF-21	2/29/2016	6952.57	NA	6945.33	7.24	ND	NA	9.89
MKTF-21	6/8/2016	6952.57	NA	6945.59	6.98	ND	NA	9.89
MKTF-21	9/11/2016	6952.57	NA	6944.95	7.62	ND	NA	9.89
MKTF-21	11/9/2016	6952.57	NA	6945.11	7.46	ND	NA	9.89
MKTF-21	3/14/2017	6952.57	NA	6947.07	5.50	ND	NA	9.89
MKTF-21	6/21/2017	6952.57	NA	6947.48	5.09	ND	NA	9.89
MKTF-21	9/26/2017	6952.57	NA	6946.88	5.69	ND	NA	9.89
MKTF-21	11/28/2017	6952.57	NA	6946.32	6.25	ND	NA	8.81
MKTF-21	2/14/2018	6952.57	NA	6945.69	6.88	ND	NA	8.80
MKTF-21	4/25/2018	6952.57	NA	6946.25	6.32	ND	NA	8.75
MKTF-21	8/16/2018	6952.57	NA	6946.52	6.05	ND	NA	8.80
MKTF-21	11/29/2018	6952.57	NA	6945.05	7.52	ND	NA	8.81
MKTF-21	2/20/2019	6952.57	NA	6946.95	5.62	ND	NA	8.81
MKTF-21	5/13/2019	6952.57	NA	6945.87	6.70	ND	NA	8.81
MKTF-21	8/20/2019	6952.57	NA	6945.35	7.22	ND	NA	8.81
MKTF-21	10/30/2019	6952.57	NA	6944.25	8.32	ND	NA	8.81
MKTF-21	2/5/2020	6952.57	NA	6944.32	8.25	ND	NA	8.83
MKTF-21	6/26/2020	6952.57	6944.40	6944.37	8.20	8.17	0.03	8.83
MKTF-21	9/15/2020	6952.57	6945.49	6945.48	7.09	7.08	0.01	8.84
MKTF-21	11/10/2020	6952.57	NA	6946.16	6.41	ND	NA	8.84
MKTF-21	12/4/2020	6952.57	6944.53	6944.52	8.05	8.04	0.01	8.80
MKTF-22	6/4/2014	6942.31	NA	6916.06	26.25	ND	NA	35.25
MKTF-22	11/17/2014	6942.31	NA	6915.64	26.67	ND	NA	35.25
MKTF-22	3/12/2015	6942.31	NA	6916.24	26.07	ND	NA	35.25
MKTF-22	6/9/2015	6942.31	NA	6916.13	26.18	ND	NA	35.25
MKTF-22	8/20/2015	6942.31	NA	6916.11	26.20	ND	NA	36.25
MKTF-22	11/9/2015	6942.31	NA	6916.26	26.05	ND	NA	35.25
MKTF-22	2/25/2016	6942.31	NA	6916.18	26.13	ND	NA	35.25
MKTF-22	6/10/2016	6942.31	NA	6916.25	26.06	ND	NA	35.25
MKTF-22	9/10/2016	6942.31	NA	6916.18	26.13	ND	NA	36.25
MKTF-22	11/9/2016	6942.31	NA	6916.26	26.05	ND	NA	35.25
MKTF-22	3/8/2017	6942.31	NA	6917.21	25.10	ND	NA	35.25
MKTF-22	6/7/2017	6942.31	NA	6917.00	25.31	ND	NA	35.25
MKTF-22	10/3/2017	6942.31	NA	6917.12	25.19	ND	NA	35.25
MKTF-22	11/27/2017	6942.31	NA	6917.13	25.18	ND	NA	35.60
MKTF-22	2/7/2018	6942.31	NA	6916.81	25.50	ND	NA	35.60
MKTF-22	4/26/2018	6942.31	NA	6916.91	25.40	ND	NA	35.51
MKTF-22	8/15/2018	6942.31	NA	6916.51	25.80	ND	NA	35.62
MKTF-22	11/27/2018	6942.31	NA	6916.74	25.57	ND	NA	35.60
MKTF-22	3/25/2019	6942.31	NA	6917.88	24.43	ND	NA	35.25
MKTF-22	5/9/2019	6942.31	NA	6917.67	24.64	ND	NA	35.25
MKTF-22	8/20/2019	6942.31	NA	6917.36	24.95	ND	NA	35.62

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MARATHON PETROLEUM COMPANY
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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-22	10/24/2019	6942.31	NA	6916.91	25.40	ND	NA	35.60
MKTF-22	2/27/2020	6942.31	6917.83	6916.78	25.53	24.48	1.05	35.25
MKTF-22	6/29/2020	6942.31	6917.74	6914.60	27.71	24.57	3.14	35.25
MKTF-22	9/14/2020	6942.31	6917.33	6914.63	27.68	24.98	2.70	35.09
MKTF-22	11/10/2020	6942.31	6917.37	6915.02	27.29	24.94	2.35	35.09
MKTF-22	12/4/2020	6942.31	6917.21	6914.76	27.55	25.10	2.45	35.09
MKTF-23	6/4/2014	6929.98	NA	6915.13	14.85	ND	NA	20.36
MKTF-23	9/23/2014	6929.98	NA	6914.59	15.39	ND	NA	20.36
MKTF-23	11/17/2014	6929.98	NA	6914.71	15.27	ND	NA	20.36
MKTF-23	3/12/2015	6929.98	NA	6915.19	14.79	ND	NA	20.36
MKTF-23	6/9/2015	6929.98	NA	6916.16	13.82	ND	NA	20.36
MKTF-23	8/21/2015	6929.98	NA	6915.22	14.76	ND	NA	21.36
MKTF-23	11/9/2015	6929.98	NA	6915.37	14.61	ND	NA	20.36
MKTF-23	2/25/2016	6929.98	NA	6915.31	14.67	ND	NA	20.36
MKTF-23	6/10/2016	6929.98	NA	6915.34	14.64	ND	NA	20.36
MKTF-23	9/10/2016	6929.98	6914.94	6914.83	15.15	15.04	0.11	21.36
MKTF-23	11/9/2016	6929.98	NA	6915.37	14.61	ND	NA	20.36
MKTF-23	3/8/2017	6929.98	NA	6915.78	14.20	ND	NA	20.36
MKTF-23	6/7/2017	6929.98	6915.78	6915.08	14.90	14.20	0.70	20.36
MKTF-23	10/3/2017	6929.98	6915.79	6915.73	14.25	14.19	0.06	20.36
MKTF-23	11/27/2017	6929.98	6916.05	6916.04	13.94	13.93	0.01	20.36
MKTF-23	2/7/2018	6929.98	6915.87	6915.78	14.20	14.11	0.09	20.36
MKTF-23	4/26/2018	6929.98	6915.91	6915.89	14.09	14.07	0.02	20.27
MKTF-23	8/15/2018	6929.98	6914.50	6914.40	15.58	15.48	0.10	20.38
MKTF-23	11/27/2018	6929.98	6915.78	6915.74	14.24	14.20	0.04	20.36
MKTF-23	3/25/2019	6929.98	NA	6917.43	12.55	ND	NA	20.36
MKTF-23	5/9/2019	6929.98	6917.03	6916.96	13.02	12.95	0.07	20.36
MKTF-23	8/20/2019	6929.98	6916.51	6916.48	13.50	13.47	0.03	20.38
MKTF-23	10/28/2019	6929.98	NA	6916.03	13.95	ND	NA	20.36
MKTF-23	2/27/2020	6929.98	NA	6916.56	13.42	ND	NA	20.36
MKTF-23	6/29/2020	6929.98	NA	6916.73	13.25	ND	NA	20.36
MKTF-23	9/19/2020	6929.98	6914.56	6914.54	15.44	15.42	0.02	20.02
MKTF-23	11/10/2020	6929.98	NA	6915.75	14.23	ND	NA	20.02
MKTF-23	12/4/2020	6929.98	6915.83	6915.82	14.16	14.15	0.01	20.39
MKTF-24	6/4/2014	6928.72	NA	6907.22	21.50	ND	NA	30.47
MKTF-24	9/23/2014	6928.72	NA	6906.15	22.57	ND	NA	30.47
MKTF-24	11/14/2014	6928.72	NA	6906.51	22.21	ND	NA	30.47
MKTF-24	3/11/2015	6928.72	NA	6907.18	21.54	ND	NA	30.47
MKTF-24	6/10/2015	6928.72	NA	6907.07	21.65	ND	NA	30.47
MKTF-24	8/20/2015	6928.72	NA	6907.19	21.53	ND	NA	31.47
MKTF-24	11/4/2015	6928.72	NA	6907.00	21.72	ND	NA	30.47
MKTF-24	2/22/2016	6928.72	NA	6907.38	21.34	ND	NA	30.47
MKTF-24	6/8/2016	6928.72	NA	6907.49	21.23	ND	NA	30.47
MKTF-24	9/7/2016	6928.72	NA	6906.03	22.69	ND	NA	31.47
MKTF-24	11/4/2016	6928.72	NA	6907.00	21.72	ND	NA	30.47
MKTF-24	3/6/2017	6928.72	NA	6908.11	20.61	ND	NA	30.47
MKTF-24	6/5/2017	6928.72	NA	6907.65	21.07	ND	NA	30.47

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-24	10/3/2017	6928.72	NA	6907.20	21.52	ND	NA	30.47
MKTF-24	11/20/2017	6928.72	NA	6907.19	21.53	ND	NA	30.82
MKTF-24	2/6/2018	6928.72	NA	6907.12	21.60	ND	NA	30.83
MKTF-24	4/25/2018	6928.72	NA	6906.96	21.76	ND	NA	30.78
MKTF-24	8/15/2018	6928.72	NA	6906.07	22.65	ND	NA	30.85
MKTF-24	11/14/2018	6928.72	NA	6905.42	23.30	ND	NA	30.82
MKTF-24	2/25/2019	6928.72	NA	6906.29	22.43	ND	NA	30.47
MKTF-24	5/6/2019	6928.72	NA	6907.19	21.53	ND	NA	30.47
MKTF-24	8/23/2019	6928.72	NA	6906.67	22.05	ND	NA	30.85
MKTF-24	10/22/2019	6928.72	NA	6905.51	23.21	ND	NA	30.82
MKTF-24	2/24/2020	6928.72	NA	6906.55	22.17	ND	NA	30.47
MKTF-24	6/26/2020	6928.72	NA	6905.92	22.80	ND	NA	30.47
MKTF-24	9/15/2020	6928.72	NA	6905.37	23.35	ND	NA	31.13
MKTF-24	11/10/2020	6928.72	NA	6905.40	23.32	ND	NA	31.13
MKTF-24	12/4/2020	6928.72	NA	6905.50	23.22	ND	NA	31.18
MKTF-25	6/6/2014	6916.19	NA	6905.31	10.88	ND	NA	19.43
MKTF-25	9/23/2014	6916.19	NA	6904.06	12.13	ND	NA	19.43
MKTF-25	11/5/2014	6916.19	NA	6904.99	11.20	ND	NA	19.43
MKTF-25	11/14/2014	6916.19	NA	6904.73	11.46	ND	NA	19.43
MKTF-25	3/11/2015	6916.19	NA	6905.34	10.85	ND	NA	19.43
MKTF-25	6/10/2015	6916.19	NA	6905.15	11.04	ND	NA	19.43
MKTF-25	8/21/2015	6916.19	NA	6905.59	10.60	ND	NA	20.43
MKTF-25	2/23/2016	6916.19	NA	6905.36	10.83	ND	NA	19.43
MKTF-25	6/9/2016	6916.19	NA	6904.97	11.22	ND	NA	19.43
MKTF-25	9/8/2016	6916.19	NA	6904.02	12.17	ND	NA	20.43
MKTF-25	11/5/2016	6916.19	NA	6904.99	11.20	ND	NA	19.43
MKTF-25	3/6/2017	6916.19	NA	6906.67	9.52	ND	NA	19.43
MKTF-25	6/5/2017	6916.19	NA	6905.96	10.23	ND	NA	19.43
MKTF-25	9/25/2017	6916.19	NA	6905.15	11.04	ND	NA	19.43
MKTF-25	11/21/2017	6916.19	NA	6905.08	11.11	ND	NA	19.80
MKTF-25	2/5/2018	6916.19	NA	6904.99	11.20	ND	NA	19.55
MKTF-25	4/25/2018	6916.19	NA	6905.01	11.18	ND	NA	19.50
MKTF-25	8/15/2018	6916.19	NA	6903.83	12.36	ND	NA	19.78
MKTF-25	11/14/2018	6916.19	NA	6902.84	13.35	ND	NA	19.80
MKTF-25	2/14/2019	6916.19	NA	6903.06	13.13	ND	NA	19.43
MKTF-25	5/6/2019	6916.19	NA	6904.19	12.00	ND	NA	19.43
MKTF-25	8/23/2019	6916.19	NA	6903.07	13.12	ND	NA	19.78
MKTF-25	8/27/2019	6916.19	NA	6902.96	13.23	ND	NA	20.78
MKTF-25	10/22/2019	6916.19	NA	6902.47	13.72	ND	NA	19.80
MKTF-25	2/26/2020	6916.19	NA	6903.25	12.94	ND	NA	19.43
MKTF-25	6/26/2020	6916.19	NA	6902.86	13.33	ND	NA	19.43
MKTF-25	9/15/2020	6916.19	NA	6902.29	13.90	ND	NA	20.09
MKTF-25	11/10/2020	6916.19	NA	6902.44	13.75	ND	NA	20.09
MKTF-25	12/4/2020	6916.19	NA	6902.57	13.62	ND	NA	20.38
MKTF-26	6/4/2014	6915.31	NA	6906.68	8.63	ND	NA	17.15
MKTF-26	9/23/2014	6915.31	NA	6906.01	9.30	ND	NA	17.15
MKTF-26	11/14/2014	6915.31	NA	6906.59	8.72	ND	NA	17.15

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-26	3/11/2015	6915.31	NA	6907.31	8.00	ND	NA	17.15
MKTF-26	6/10/2015	6915.31	NA	6906.74	8.57	ND	NA	17.15
MKTF-26	8/20/2015	6915.31	NA	6906.77	8.54	ND	NA	18.15
MKTF-26	11/4/2015	6915.31	NA	6906.91	8.40	ND	NA	17.15
MKTF-26	2/22/2016	6915.31	NA	6907.14	8.17	ND	NA	17.15
MKTF-26	6/9/2016	6915.31	NA	6905.71	9.60	ND	NA	17.15
MKTF-26	9/7/2016	6915.31	6905.87	6904.50	10.81	9.44	1.37	18.15
MKTF-26	11/4/2016	6915.31	NA	6906.91	8.40	ND	NA	17.15
MKTF-26	3/6/2017	6915.31	6907.87	6907.12	8.19	7.44	0.75	17.15
MKTF-26	6/5/2017	6915.31	6907.28	6906.32	8.99	8.03	0.96	17.15
MKTF-26	10/3/2017	6915.31	6907.54	6906.71	8.60	7.77	0.83	17.15
MKTF-26	11/20/2017	6915.31	6907.22	6906.38	8.93	8.09	0.84	17.15
MKTF-26	2/7/2018	6915.31	6906.78	6905.95	9.36	8.53	0.83	17.15
MKTF-26	4/25/2018	6915.31	6906.75	6905.94	9.37	8.56	0.81	17.05
MKTF-26	8/15/2018	6915.31	6906.58	6905.74	9.57	8.73	0.84	17.17
MKTF-26	11/14/2018	6915.31	6906.86	6905.41	9.90	8.45	1.45	17.15
MKTF-26	2/14/2019	6915.31	6906.93	6906.16	9.15	8.38	0.77	17.15
MKTF-26	5/6/2019	6915.31	6907.51	6906.66	8.65	7.80	0.85	17.15
MKTF-26	8/23/2019	6915.31	6907.09	6906.26	9.05	8.22	0.83	17.17
MKTF-26	10/22/2019	6915.31	6906.68	6905.95	9.36	8.63	0.73	17.15
MKTF-26	2/26/2020	6915.31	6906.96	6906.20	9.11	8.35	0.76	17.15
MKTF-26	6/26/2020	6915.31	6906.70	6905.81	9.50	8.61	0.89	17.15
MKTF-26	9/15/2020	6915.31	6906.50	6905.75	9.56	8.81	0.75	16.85
MKTF-26	11/10/2020	6915.31	6906.66	6905.95	9.36	8.65	0.71	16.85
MKTF-26	12/4/2020	6915.31	6907.64	6905.92	9.39	7.67	1.72	17.16
MKTF-27	6/4/2014	6917.90	NA	6910.23	7.67	ND	NA	14.72
MKTF-27	9/23/2014	6917.90	NA	6909.30	8.60	ND	NA	14.72
MKTF-27	11/14/2014	6917.90	NA	6909.75	8.15	ND	NA	14.72
MKTF-27	3/11/2015	6917.90	NA	6910.80	7.10	ND	NA	14.72
MKTF-27	6/9/2015	6917.90	NA	6910.46	7.44	ND	NA	14.72
MKTF-27	8/20/2015	6917.90	NA	6910.05	7.85	ND	NA	15.72
MKTF-27	11/4/2015	6917.90	NA	6910.37	7.53	ND	NA	14.72
MKTF-27	2/22/2016	6917.90	NA	6910.70	7.20	ND	NA	14.72
MKTF-27	6/8/2016	6917.90	NA	6910.39	7.51	ND	NA	14.72
MKTF-27	9/7/2016	6917.90	NA	6909.84	8.06	ND	NA	15.72
MKTF-27	11/4/2016	6917.90	NA	6910.37	7.53	ND	NA	14.72
MKTF-27	3/6/2017	6917.90	NA	6911.88	6.02	ND	NA	14.72
MKTF-27	6/5/2017	6917.90	NA	6911.58	6.32	ND	NA	14.72
MKTF-27	10/3/2017	6917.90	NA	6912.00	5.90	ND	NA	14.72
MKTF-27	11/20/2017	6917.90	NA	6911.92	5.98	ND	NA	14.72
MKTF-27	2/6/2018	6917.90	NA	6911.65	6.25	ND	NA	14.72
MKTF-27	4/25/2018	6917.90	NA	6911.56	6.34	ND	NA	14.62
MKTF-27	8/15/2018	6917.90	NA	6911.75	6.15	ND	NA	14.72
MKTF-27	11/14/2018	6917.90	NA	6911.59	6.31	ND	NA	14.72
MKTF-27	2/25/2019	6917.90	NA	6914.15	3.75	ND	NA	14.72
MKTF-27	5/6/2019	6917.90	NA	6912.17	5.73	ND	NA	14.72
MKTF-27	8/21/2019	6917.90	NA	6912.24	5.66	ND	NA	14.72

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-27	10/30/2019	6917.90	NA	6911.76	6.14	ND	NA	14.72
MKTF-27	2/24/2020	6917.90	NA	6914.29	3.61	ND	NA	14.72
MKTF-27	6/30/2020	6917.90	NA	6911.20	6.70	ND	NA	14.72
MKTF-27	9/15/2020	6917.90	NA	6911.69	6.21	ND	NA	14.72
MKTF-27	11/10/2020	6917.90	NA	6911.18	6.72	ND	NA	14.72
MKTF-27	12/4/2020	6917.90	NA	6911.43	6.47	ND	NA	14.74
MKTF-28	6/6/2014	6921.52	NA	6909.72	11.80	ND	NA	16.16
MKTF-28	9/23/2014	6921.52	NA	6915.32	6.20	ND	NA	16.16
MKTF-28	11/14/2014	6921.52	NA	6915.52	6.00	ND	NA	16.16
MKTF-28	3/11/2015	6921.52	NA	6914.88	6.64	ND	NA	16.16
MKTF-28	6/9/2015	6921.52	NA	6916.12	5.40	ND	NA	16.16
MKTF-28	8/20/2015	6921.52	NA	6915.10	6.42	ND	NA	17.16
MKTF-28	11/4/2015	6921.52	NA	6915.78	5.74	ND	NA	16.16
MKTF-28	2/23/2016	6921.52	NA	6916.20	5.32	ND	NA	16.16
MKTF-28	6/8/2016	6921.52	NA	6916.24	5.28	ND	NA	16.16
MKTF-28	9/8/2016	6921.52	NA	6915.12	6.40	ND	NA	17.16
MKTF-28	11/4/2016	6921.52	NA	6915.78	5.74	ND	NA	16.16
MKTF-28	3/6/2017	6921.52	NA	6916.84	4.68	ND	NA	16.16
MKTF-28	6/5/2017	6921.52	NA	6913.62	7.90	ND	NA	16.16
MKTF-28	10/3/2017	6921.52	NA	6917.24	4.28	ND	NA	16.16
MKTF-28	11/20/2017	6921.52	NA	6913.62	7.90	ND	NA	16.13
MKTF-28	2/6/2018	6921.52	NA	6914.79	6.73	ND	NA	16.13
MKTF-28	4/25/2018	6921.52	NA	6914.54	6.98	ND	NA	16.04
MKTF-28	8/15/2018	6921.52	NA	6917.07	4.45	ND	NA	16.15
MKTF-28	11/14/2018	6921.52	NA	6915.40	6.12	ND	NA	16.13
MKTF-28	2/25/2019	6921.52	NA	6916.61	4.91	ND	NA	16.16
MKTF-28	5/6/2019	6921.52	NA	6912.25	9.27	ND	NA	16.16
MKTF-28	8/21/2019	6921.52	NA	6917.70	3.82	ND	NA	16.15
MKTF-28	10/22/2019	6921.52	NA	6915.14	6.38	ND	NA	16.13
MKTF-28	2/24/2020	6921.52	NA	6916.99	4.53	ND	NA	16.16
MKTF-28	6/30/2020	6921.52	NA	6916.68	4.84	ND	NA	16.16
MKTF-28	9/15/2020	6921.52	NA	6916.93	4.59	ND	NA	16.17
MKTF-28	11/10/2020	6921.52	NA	6912.71	8.81	ND	NA	16.17
MKTF-28	12/4/2020	6921.52	NA	6914.39	7.13	ND	NA	16.16
MKTF-29	6/6/2014	6901.62	NA	6899.48	2.14	ND	NA	22.84
MKTF-29	9/23/2014	6901.62	NA	6897.22	4.40	ND	NA	22.84
MKTF-29	11/14/2014	6901.62	NA	6898.57	3.05	ND	NA	22.84
MKTF-29	3/11/2015	6901.62	NA	6899.58	2.04	ND	NA	22.84
MKTF-29	6/10/2015	6901.62	NA	6898.93	2.69	ND	NA	22.84
MKTF-29	8/20/2015	6901.62	NA	6899.32	2.30	ND	NA	23.84
MKTF-29	11/4/2015	6901.62	NA	6899.22	2.40	ND	NA	22.84
MKTF-29	2/23/2016	6901.62	NA	6899.70	1.92	ND	NA	22.84
MKTF-29	6/9/2016	6901.62	NA	6898.93	2.69	ND	NA	22.84
MKTF-29	9/7/2016	6901.62	NA	6897.10	4.52	ND	NA	23.84
MKTF-29	11/4/2016	6901.62	NA	6899.22	2.40	ND	NA	22.84
MKTF-29	3/6/2017	6901.62	NA	6900.63	0.99	ND	NA	22.84
MKTF-29	6/5/2017	6901.62	NA	6900.67	0.95	ND	NA	22.84

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-29	10/3/2017	6901.62	NA	6900.03	1.59	ND	NA	22.84
MKTF-29	11/20/2017	6901.62	NA	6899.71	1.91	ND	NA	22.80
MKTF-29	2/6/2018	6901.62	NA	6899.69	1.93	ND	NA	22.81
MKTF-29	4/25/2018	6901.62	NA	6899.50	2.12	ND	NA	22.77
MKTF-29	8/15/2018	6901.62	NA	6897.70	3.92	ND	NA	22.82
MKTF-29	11/14/2018	6901.62	NA	6897.53	4.09	ND	NA	22.80
MKTF-29	2/25/2019	6901.62	NA	6897.89	3.73	ND	NA	22.84
MKTF-29	5/6/2019	6901.62	NA	6897.90	3.72	ND	NA	22.84
MKTF-29	8/23/2019	6901.62	NA	6895.79	5.83	ND	NA	22.82
MKTF-29	10/22/2019	6901.62	NA	6895.30	6.32	ND	NA	22.80
MKTF-29	2/24/2020	6901.62	NA	6897.13	4.49	ND	NA	22.84
MKTF-29	6/26/2020	6901.62	NA	6895.20	6.42	ND	NA	22.84
MKTF-29	9/15/2020	6901.62	NA	6893.61	8.01	ND	NA	22.78
MKTF-29	11/10/2020	6901.62	NA	6894.64	6.98	ND	NA	22.78
MKTF-29	12/4/2020	6901.62	NA	6895.22	6.40	ND	NA	22.85
MKTF-30	6/4/2014	6900.80	NA	6886.09	14.71	ND	NA	23.20
MKTF-30	9/23/2014	6900.80	NA	6884.91	15.89	ND	NA	23.20
MKTF-30	11/17/2014	6900.80	NA	6884.93	15.87	ND	NA	23.20
MKTF-30	3/11/2015	6900.80	NA	6886.06	14.74	ND	NA	23.20
MKTF-30	6/10/2015	6900.80	NA	6886.23	14.57	ND	NA	23.20
MKTF-30	8/20/2015	6900.80	NA	6885.51	15.29	ND	NA	24.20
MKTF-30	11/4/2015	6900.80	NA	6886.06	14.74	ND	NA	23.20
MKTF-30	2/23/2016	6900.80	NA	6886.40	14.40	ND	NA	23.20
MKTF-30	6/9/2016	6900.80	NA	6886.79	14.01	ND	NA	23.20
MKTF-30	9/7/2016	6900.80	NA	6885.32	15.48	ND	NA	24.20
MKTF-30	11/4/2016	6900.80	NA	6886.06	14.74	ND	NA	23.20
MKTF-30	3/6/2017	6900.80	NA	6886.67	14.13	ND	NA	23.20
MKTF-30	6/5/2017	6900.80	NA	6886.93	13.87	ND	NA	23.20
MKTF-30	10/3/2017	6900.80	NA	6885.77	15.03	ND	NA	23.20
MKTF-30	11/20/2017	6900.80	NA	6885.89	14.91	ND	NA	23.19
MKTF-30	2/6/2018	6900.80	NA	6886.60	14.20	ND	NA	23.20
MKTF-30	4/25/2018	6900.80	NA	6887.01	13.79	ND	NA	23.10
MKTF-30	8/15/2018	6900.80	NA	6886.15	14.65	ND	NA	23.20
MKTF-30	11/14/2018	6900.80	NA	6885.65	15.15	ND	NA	23.19
MKTF-30	3/28/2019	6900.80	NA	6887.12	13.68	ND	NA	23.20
MKTF-30	5/6/2019	6900.80	NA	6886.99	13.81	ND	NA	23.20
MKTF-30	8/23/2019	6900.80	NA	6885.92	14.88	ND	NA	23.20
MKTF-30	10/22/2019	6900.80	NA	6884.98	15.82	ND	NA	23.19
MKTF-30	2/26/2020	6900.80	NA	6885.49	15.31	ND	NA	23.20
MKTF-30	6/26/2020	6900.80	NA	6884.61	16.19	ND	NA	23.20
MKTF-30	9/15/2020	6900.80	NA	6884.14	16.66	ND	NA	23.22
MKTF-30	11/10/2020	6900.80	NA	6883.93	16.87	ND	NA	23.22
MKTF-30	12/4/2020	6900.80	NA	6884.04	16.76	ND	NA	23.22
MKTF-31	6/4/2014	6906.87	NA	6899.17	7.70	ND	NA	22.81
MKTF-31	9/23/2014	6906.87	NA	6898.52	8.35	ND	NA	22.81
MKTF-31	11/17/2014	6906.87	NA	6898.47	8.40	ND	NA	22.81
MKTF-31	3/11/2015	6906.87	NA	6898.89	7.98	ND	NA	22.81

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-31	6/10/2015	6906.87	NA	6899.12	7.75	ND	NA	22.81
MKTF-31	8/21/2015	6906.87	NA	6898.78	8.09	ND	NA	23.81
MKTF-31	11/4/2015	6906.87	NA	6898.73	8.14	ND	NA	22.81
MKTF-31	2/23/2016	6906.87	NA	6898.92	7.95	ND	NA	22.81
MKTF-31	6/9/2016	6906.87	NA	6899.12	7.75	ND	NA	22.81
MKTF-31	9/8/2016	6906.87	NA	6898.39	8.48	ND	NA	23.81
MKTF-31	11/4/2016	6906.87	NA	6898.73	8.14	ND	NA	22.81
MKTF-31	3/7/2017	6906.87	NA	6899.03	7.84	ND	NA	22.81
MKTF-31	6/5/2017	6906.87	NA	6899.29	7.58	ND	NA	22.81
MKTF-31	9/25/2017	6906.87	NA	6898.58	8.29	ND	NA	23.81
MKTF-31	11/21/2017	6906.87	NA	6898.72	8.15	ND	NA	19.30
MKTF-31	2/5/2018	6906.87	NA	6898.97	7.90	ND	NA	19.31
MKTF-31	4/25/2018	6906.87	NA	6899.14	7.73	ND	NA	19.26
MKTF-31	8/15/2018	6906.87	NA	6898.62	8.25	ND	NA	19.35
MKTF-31	11/14/2018	6906.87	NA	6898.43	8.44	ND	NA	19.30
MKTF-31	2/14/2019	6906.87	NA	6898.62	8.25	ND	NA	22.81
MKTF-31	5/6/2019	6906.87	NA	6899.15	7.72	ND	NA	22.81
MKTF-31	8/23/2019	6906.87	NA	6898.57	8.30	ND	NA	19.35
MKTF-31	10/22/2019	6906.87	NA	6898.23	8.64	ND	NA	19.30
MKTF-31	2/24/2020	6906.87	NA	6898.77	8.10	ND	NA	22.81
MKTF-31	6/26/2020	6906.87	NA	6898.62	8.25	ND	NA	22.81
MKTF-31	9/15/2020	6906.87	NA	6898.12	8.75	ND	NA	19.34
MKTF-31	11/10/2020	6906.87	NA	6898.08	8.79	ND	NA	19.34
MKTF-31	12/4/2020	6906.87	NA	6898.14	8.73	ND	NA	19.37
MKTF-32	6/4/2014	6911.11	NA	6894.59	16.52	ND	NA	27.75
MKTF-32	9/23/2014	6911.11	NA	6894.43	16.68	ND	NA	27.75
MKTF-32	11/17/2014	6911.11	NA	6894.63	16.48	ND	NA	27.75
MKTF-32	3/12/2015	6911.11	NA	6895.62	15.49	ND	NA	27.75
MKTF-32	6/9/2015	6911.11	NA	6895.62	15.49	ND	NA	27.75
MKTF-32	8/21/2015	6911.11	NA	6895.96	15.15	ND	NA	28.75
MKTF-32	11/5/2015	6911.11	NA	6896.27	14.84	ND	NA	27.75
MKTF-32	2/24/2016	6911.11	NA	6896.58	14.53	ND	NA	27.75
MKTF-32	6/9/2016	6911.11	NA	6896.80	14.31	ND	NA	27.75
MKTF-32	9/9/2016	6911.11	NA	6896.71	14.40	ND	NA	28.75
MKTF-32	11/5/2016	6911.11	NA	6896.27	14.84	ND	NA	27.75
MKTF-32	3/7/2017	6911.11	NA	6897.41	13.70	ND	NA	27.75
MKTF-32	6/6/2017	6911.11	NA	6897.32	13.79	ND	NA	27.75
MKTF-32	9/25/2017	6911.11	NA	6897.00	14.11	ND	NA	28.75
MKTF-32	11/27/2017	6911.11	NA	6897.54	13.57	ND	NA	27.75
MKTF-32	2/7/2018	6911.11	NA	6897.41	13.70	ND	NA	27.75
MKTF-32	4/25/2018	6911.11	NA	6897.63	13.48	ND	NA	27.66
MKTF-32	8/15/2018	6911.11	NA	6897.11	14.00	ND	NA	27.77
MKTF-32	11/14/2018	6911.11	NA	6897.01	14.10	ND	NA	27.75
MKTF-32	2/13/2019	6911.11	NA	6897.62	13.49	ND	NA	27.75
MKTF-32	5/7/2019	6911.11	NA	6897.86	13.25	ND	NA	27.75
MKTF-32	8/20/2019	6911.11	NA	6897.08	14.03	ND	NA	27.77
MKTF-32	10/23/2019	6911.11	NA	6897.10	14.01	ND	NA	27.75

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-32	2/26/2020	6911.11	NA	6897.33	13.78	ND	NA	27.75
MKTF-32	6/29/2020	6911.11	NA	6896.86	14.25	ND	NA	27.75
MKTF-32	9/14/2020	6911.11	NA	6896.53	14.58	ND	NA	27.46
MKTF-32	11/10/2020	6911.11	NA	6896.80	14.31	ND	NA	27.46
MKTF-32	12/4/2020	6911.11	NA	6896.86	14.25	ND	NA	27.82
MKTF-33	6/6/2014	6939.75	NA	6916.35	23.40	ND	NA	33.20
MKTF-33	9/23/2014	6939.75	NA	6916.06	23.69	ND	NA	33.20
MKTF-33	11/17/2014	6939.75	NA	6915.96	23.79	ND	NA	33.20
MKTF-33	3/12/2015	6939.75	NA	6916.43	23.32	ND	NA	33.20
MKTF-33	6/9/2015	6939.75	NA	6916.45	23.30	ND	NA	33.20
MKTF-33	8/21/2015	6939.75	NA	6916.43	23.32	ND	NA	34.20
MKTF-33	11/9/2015	6939.75	NA	6916.56	23.19	ND	NA	33.20
MKTF-33	2/25/2016	6939.75	NA	6916.55	23.20	ND	NA	33.20
MKTF-33	6/10/2016	6939.75	NA	6916.46	23.29	ND	NA	33.20
MKTF-33	9/10/2016	6939.75	NA	6916.55	23.20	ND	NA	34.20
MKTF-33	11/9/2016	6939.75	NA	6916.56	23.19	ND	NA	33.20
MKTF-33	3/8/2017	6939.75	NA	6917.59	22.16	ND	NA	33.20
MKTF-33	6/7/2017	6939.75	NA	6917.68	22.07	ND	NA	33.20
MKTF-33	9/25/2017	6939.75	NA	6917.25	22.50	ND	NA	33.20
MKTF-33	11/27/2017	6939.75	NA	6917.48	22.27	ND	NA	33.22
MKTF-33	2/7/2018	6939.75	NA	6917.10	22.65	ND	NA	33.20
MKTF-33	4/26/2018	6939.75	NA	6917.20	22.55	ND	NA	33.11
MKTF-33	8/15/2018	6939.75	NA	6916.90	22.85	ND	NA	33.23
MKTF-33	11/27/2018	6939.75	NA	6917.03	22.72	ND	NA	33.22
MKTF-33	3/25/2019	6939.75	NA	6917.75	22.00	ND	NA	33.20
MKTF-33	5/9/2019	6939.75	NA	6917.71	22.04	ND	NA	33.20
MKTF-33	8/20/2019	6939.75	NA	6917.40	22.35	ND	NA	33.23
MKTF-33	10/24/2019	6939.75	NA	6917.25	22.50	ND	NA	33.22
MKTF-33	2/27/2020	6939.75	NA	6917.04	22.71	ND	NA	33.20
MKTF-33	6/29/2020	6939.75	NA	6918.58	21.17	ND	NA	33.20
MKTF-33	9/14/2020	6939.75	6918.14	6911.73	28.02	21.61	6.41	33.15
MKTF-33	11/10/2020	6939.75	6918.10	6911.94	27.81	21.65	6.16	33.15
MKTF-33	12/4/2020	6939.75	6918.06	6911.98	27.77	21.69	6.08	33.57
MKTF-34	6/6/2014	6945.35	NA	6926.76	18.59	ND	NA	27.68
MKTF-34	9/23/2014	6945.35	NA	6926.27	19.08	ND	NA	27.68
MKTF-34	11/17/2014	6945.35	NA	6925.77	19.58	ND	NA	27.68
MKTF-34	3/12/2015	6945.35	NA	6926.58	18.77	ND	NA	27.68
MKTF-34	6/8/2015	6945.35	NA	6926.45	18.90	ND	NA	27.68
MKTF-34	8/18/2015	6945.35	NA	6926.61	18.74	ND	NA	28.68
MKTF-34	11/3/2015	6945.35	NA	6926.35	19.00	ND	NA	27.68
MKTF-34	2/25/2016	6945.35	NA	6926.15	19.20	ND	NA	27.68
MKTF-34	6/10/2016	6945.35	NA	6926.75	18.60	ND	NA	27.68
MKTF-34	9/12/2016	6945.35	NA	6927.32	18.03	ND	NA	28.68
MKTF-34	11/3/2016	6945.35	NA	6926.35	19.00	ND	NA	27.68
MKTF-34	3/1/2017	6945.35	NA	6928.85	16.50	ND	NA	27.68
MKTF-34	6/14/2017	6945.35	NA	6927.72	17.63	ND	NA	27.68
MKTF-34	9/26/2017	6945.35	NA	6927.73	17.62	ND	NA	27.68

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-34	11/30/2017	6945.35	NA	6927.32	18.03	ND	NA	27.70
MKTF-34	2/15/2018	6945.35	NA	6926.55	18.80	ND	NA	27.71
MKTF-34	4/26/2018	6945.35	NA	6926.72	18.63	ND	NA	27.60
MKTF-34	8/15/2018	6945.35	NA	6926.77	18.58	ND	NA	27.70
MKTF-34	11/27/2018	6945.35	NA	6926.40	18.95	ND	NA	27.70
MKTF-34	3/25/2019	6945.35	NA	6928.40	16.95	ND	NA	27.68
MKTF-34	5/9/2019	6945.35	NA	6927.26	18.09	ND	NA	27.68
MKTF-34	8/19/2019	6945.35	NA	6927.65	17.70	ND	NA	27.70
MKTF-34	10/29/2019	6945.35	NA	6927.32	18.03	ND	NA	27.70
MKTF-34	11/12/2019	6945.35	NA	6927.29	18.06	ND	NA	27.70
MKTF-34	2/5/2020	6945.35	NA	6927.57	17.78	ND	NA	27.70
MKTF-34	6/29/2020	6945.35	6926.31	6926.29	19.06	19.04	0.02	27.70
MKTF-34	9/14/2020	6945.35	NA	6926.26	19.09	ND	NA	27.76
MKTF-34	11/10/2020	6945.35	NA	6926.27	19.08	ND	NA	27.76
MKTF-34	12/4/2020	6945.35	6926.44	6926.43	18.92	18.91	0.01	27.78
MKTF-35	11/20/2014	6951.65	NA	6942.00	9.65	ND	NA	16.45
MKTF-35	3/17/2015	6951.65	NA	6942.72	8.93	ND	NA	16.45
MKTF-35	6/4/2015	6951.65	NA	6942.72	8.93	ND	NA	16.45
MKTF-35	8/18/2015	6951.65	NA	6942.74	8.91	ND	NA	16.45
MKTF-35	11/3/2015	6951.65	NA	6942.63	9.02	ND	NA	16.45
MKTF-35	2/26/2016	6951.65	NA	6943.25	8.40	ND	NA	16.45
MKTF-35	6/10/2016	6951.65	NA	6944.28	7.37	ND	NA	16.45
MKTF-35	9/12/2016	6951.65	NA	6945.00	6.65	ND	NA	16.45
MKTF-35	11/3/2016	6951.65	NA	6942.63	9.02	ND	NA	16.45
MKTF-35	3/1/2017	6951.65	NA	6945.47	6.18	ND	NA	16.45
MKTF-35	6/14/2017	6951.65	NA	6944.53	7.12	ND	NA	16.45
MKTF-35	9/27/2017	6951.65	NA	6943.95	7.70	ND	NA	16.45
MKTF-35	11/30/2017	6951.65	NA	6943.50	8.15	ND	NA	16.45
MKTF-35	2/15/2018	6951.65	NA	6942.95	8.70	ND	NA	16.47
MKTF-35	4/26/2018	6951.65	NA	6943.12	8.53	ND	NA	16.40
MKTF-35	8/16/2018	6951.65	NA	6942.95	8.70	ND	NA	16.48
MKTF-35	11/27/2018	6951.65	NA	6942.55	9.10	ND	NA	16.45
MKTF-35	3/25/2019	6951.65	NA	6943.11	8.54	ND	NA	16.45
MKTF-35	5/16/2019	6951.65	NA	6943.16	8.49	ND	NA	16.45
MKTF-35	8/19/2019	6951.65	NA	6943.56	8.09	ND	NA	16.48
MKTF-35	10/28/2019	6951.65	NA	6943.23	8.42	ND	NA	16.45
MKTF-35	10/29/2019	6951.65	NA	6943.25	8.40	ND	NA	16.45
MKTF-35	11/12/2019	6951.65	NA	6943.05	8.60	ND	NA	16.45
MKTF-35	2/5/2020	6951.65	NA	6942.37	9.28	ND	NA	16.45
MKTF-35	6/30/2020	6951.65	NA	6942.40	9.25	ND	NA	16.45
MKTF-35	9/14/2020	6951.65	NA	6943.06	8.59	ND	NA	16.23
MKTF-35	11/10/2020	6951.65	NA	6942.79	8.86	ND	NA	16.23
MKTF-35	12/4/2020	6951.65	6942.63	6942.62	9.03	9.02	0.01	16.39
MKTF-36	11/20/2014	NA	NA	NA	7.99	ND	NA	15.45
MKTF-36	3/17/2015	NA	NA	NA	7.71	ND	NA	15.45
MKTF-36	6/4/2015	NA	NA	NA	7.53	ND	NA	15.45
MKTF-36	8/18/2015	NA	NA	NA	7.50	ND	NA	15.45

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-36	11/3/2015	NA	NA	NA	7.66	7.00	0.66	15.45
MKTF-36	3/17/2016	NA	NA	NA	7.71	ND	NA	15.45
MKTF-36	6/10/2016	NA	NA	NA	6.80	6.78	0.02	15.45
MKTF-36	9/13/2016	NA	NA	NA	6.55	6.54	0.01	15.45
MKTF-36	11/3/2016	NA	NA	NA	7.66	7.00	0.66	15.45
MKTF-36	3/1/2017	NA	NA	NA	5.56	ND	NA	15.45
MKTF-36	6/14/2017	NA	NA	NA	5.40	ND	NA	15.45
MKTF-36	9/27/2017	NA	NA	NA	5.80	ND	NA	15.45
MKTF-36	11/30/2017	NA	NA	NA	6.45	ND	NA	15.45
MKTF-36	2/15/2018	NA	NA	NA	6.86	ND	NA	15.45
MKTF-36	4/26/2018	NA	NA	NA	6.56	ND	NA	15.40
MKTF-36	9/5/2018	NA	NA	NA	6.52	ND	NA	15.43
MKTF-36	11/29/2018	NA	NA	NA	NA	NA	NA	15.43
MKTF-36	3/25/2019	NA	NA	NA	NA	NA	NA	15.43
MKTF-36	5/14/2019	NA	NA	NA	NA	NA	NA	15.43
MKTF-36	8/19/2019	NA	NA	NA	NA	NA	NA	15.43
MKTF-36	11/6/2019	NA	NA	NA	10.33	5.08	5.25	15.40
MKTF-36	11/7/2019	NA	NA	NA	10.21	4.30	5.91	15.61
MKTF-36	11/12/2019	NA	NA	NA	9.65	6.80	2.85	15.61
MKTF-36	11/13/2019	NA	NA	NA	9.40	6.95	2.45	15.61
MKTF-36	11/14/2019	NA	NA	NA	9.61	7.14	2.47	15.61
MKTF-36	11/15/2019	NA	NA	NA	9.46	7.31	2.15	15.61
MKTF-36	11/19/2019	NA	NA	NA	8.98	7.80	1.18	15.61
MKTF-36	11/21/2019	NA	NA	NA	8.78	8.00	0.78	15.61
MKTF-36	12/2/2019	NA	NA	NA	8.95	8.25	0.70	15.61
MKTF-36	2/3/2020	6950.12	6942.23	6941.68	8.44	7.89	0.55	15.61
MKTF-36	6/30/2020	6950.12	6942.08	6941.87	8.25	8.04	0.21	15.61
MKTF-36	9/14/2020	6950.12	NA	6942.25	7.87	ND	NA	15.58
MKTF-36	11/10/2020	6950.12	6942.14	6942.09	8.03	7.98	0.05	15.58
MKTF-36	12/4/2020	6950.12	6942.02	6941.95	8.17	8.10	0.07	15.58
MKTF-37	11/20/2014	6958.87	NA	6943.82	15.05	ND	NA	24.60
MKTF-37	3/17/2015	6958.87	NA	6949.66	9.21	ND	NA	24.60
MKTF-37	6/4/2015	6958.87	NA	6949.39	9.48	ND	NA	24.60
MKTF-37	8/18/2015	6958.87	NA	6949.42	9.45	ND	NA	24.60
MKTF-37	11/3/2015	6958.87	6949.33	6949.30	9.57	9.54	0.03	24.60
MKTF-37	3/17/2016	6958.87	NA	6949.66	9.21	ND	NA	24.60
MKTF-37	6/10/2016	6958.87	6950.66	6950.64	8.23	8.21	0.02	24.60
MKTF-37	9/12/2016	6958.87	NA	6951.22	7.65	ND	NA	24.60
MKTF-37	11/3/2016	6958.87	6949.33	6949.30	9.57	9.54	0.03	24.60
MKTF-37	3/1/2017	6958.87	NA	6951.97	6.90	ND	NA	24.60
MKTF-37	6/14/2017	6958.87	6951.67	6951.63	7.24	7.20	0.04	24.60
MKTF-37	9/27/2017	6958.87	6951.04	6950.98	7.89	7.83	0.06	24.60
MKTF-37	11/30/2017	6958.87	6950.48	6950.46	8.41	8.39	0.02	24.60
MKTF-37	2/15/2018	6958.87	6949.91	6949.87	9.00	8.96	0.04	24.60
MKTF-37	4/26/2018	6958.87	NA	6950.35	8.52	ND	NA	24.54
MKTF-37	8/16/2018	6958.87	NA	6950.17	8.70	ND	NA	24.59
MKTF-37	11/27/2018	6958.87	6949.47	6949.35	9.52	9.40	0.12	24.60

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-37	3/25/2019	6958.87	NA	6950.48	8.39	ND	NA	24.60
MKTF-37	5/16/2019	6958.87	6949.77	6949.69	9.18	9.10	0.08	24.60
MKTF-37	8/23/2019	6958.87	6950.02	6950.00	8.87	8.85	0.02	24.59
MKTF-37	10/28/2019	6958.87	6949.57	6949.54	9.33	9.30	0.03	24.60
MKTF-37	10/29/2019	6958.87	6949.70	6949.67	9.20	9.17	0.03	24.60
MKTF-37	11/12/2019	6958.87	6949.35	6949.31	9.56	9.52	0.04	24.60
MKTF-37	2/3/2020	6958.87	6949.10	6948.98	9.89	9.77	0.12	24.60
MKTF-37	6/30/2020	6958.87	6949.26	6949.24	9.63	9.61	0.02	24.60
MKTF-37	9/14/2020	6958.87	NA	6950.11	8.76	ND	NA	24.54
MKTF-37	11/10/2020	6958.87	6949.51	6949.50	9.37	9.36	0.01	24.54
MKTF-37	12/4/2020	6958.87	6949.23	6949.22	9.65	9.64	0.01	24.61
MKTF-38	3/16/2015	6954.89	NA	6945.89	9.00	ND	NA	20.29
MKTF-38	6/10/2015	6954.89	NA	6945.55	9.34	ND	NA	20.29
MKTF-38	8/24/2015	6954.89	NA	6945.64	9.25	ND	NA	20.29
MKTF-38	11/9/2015	6954.89	NA	6945.44	9.45	ND	NA	20.29
MKTF-38	2/29/2016	6954.89	NA	6946.26	8.63	ND	NA	20.29
MKTF-38	6/8/2016	6954.89	NA	6946.46	8.43	ND	NA	20.29
MKTF-38	9/13/2016	6954.89	NA	6946.89	8.00	ND	NA	20.29
MKTF-38	11/9/2016	6954.89	NA	6945.44	9.45	ND	NA	20.29
MKTF-38	3/14/2017	6954.89	NA	6948.48	6.41	ND	NA	20.29
MKTF-38	6/21/2017	6954.89	NA	6948.49	6.40	ND	NA	20.29
MKTF-38	9/28/2017	6954.89	NA	6948.57	6.32	ND	NA	20.29
MKTF-38	11/30/2017	6954.89	NA	6947.06	7.83	ND	NA	20.29
MKTF-38	2/12/2018	6954.89	NA	6946.49	8.40	ND	NA	20.30
MKTF-38	4/25/2018	6954.89	NA	6947.10	7.79	ND	NA	20.28
MKTF-38	8/16/2018	6954.89	NA	6946.84	8.05	ND	NA	20.27
MKTF-38	11/19/2018	6954.89	NA	6945.90	8.99	ND	NA	20.29
MKTF-38	3/26/2019	6954.89	NA	6943.59	11.30	ND	NA	20.29
MKTF-38	5/14/2019	6954.89	NA	6946.23	8.66	ND	NA	20.29
MKTF-38	6/27/2019	6954.89	NA	6946.14	8.75	ND	NA	20.29
MKTF-38	8/20/2019	6954.89	NA	6946.12	8.77	ND	NA	20.27
MKTF-38	12/3/2019	6954.89	NA	6945.39	9.50	ND	NA	20.29
MKTF-38	3/4/2020	6954.89	NA	6945.28	9.61	ND	NA	20.31
MKTF-38	6/26/2020	6954.89	NA	6945.51	9.38	ND	NA	20.33
MKTF-38	9/14/2020	6954.89	NA	6946.34	8.55	ND	NA	20.18
MKTF-38	11/10/2020	6954.89	NA	6945.77	9.12	ND	NA	20.18
MKTF-38	12/4/2020	6954.89	6945.54	6945.53	9.36	9.35	0.01	21.30
MKTF-39	11/18/2014	6953.75	NA	6943.50	10.25	ND	NA	15.20
MKTF-39	3/16/2015	6953.75	NA	6944.87	8.88	ND	NA	15.20
MKTF-39	6/10/2015	6953.75	NA	6944.44	9.31	ND	NA	15.20
MKTF-39	8/23/2015	6953.75	NA	6944.51	9.24	ND	NA	15.20
MKTF-39	11/9/2015	6953.75	NA	6944.36	9.39	ND	NA	15.20
MKTF-39	3/3/2016	6953.75	NA	6945.25	8.50	ND	NA	15.20
MKTF-39	6/8/2016	6953.75	NA	6945.42	8.33	ND	NA	15.20
MKTF-39	9/13/2016	6953.75	NA	6945.35	8.40	ND	NA	15.20
MKTF-39	11/9/2016	6953.75	NA	6944.36	9.39	ND	NA	15.20
MKTF-39	3/14/2017	6953.75	NA	6947.31	6.44	ND	NA	15.20

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-39	6/8/2017	6953.75	NA	6947.50	6.25	ND	NA	15.20
MKTF-39	9/28/2017	6953.75	NA	6946.43	7.32	ND	NA	15.20
MKTF-39	11/28/2017	6953.75	NA	6946.20	7.55	ND	NA	15.18
MKTF-39	2/8/2018	6953.75	NA	6945.57	8.18	ND	NA	15.20
MKTF-39	4/25/2018	6953.75	NA	6945.93	7.82	ND	NA	15.13
MKTF-39	8/16/2018	6953.75	NA	6945.45	8.30	ND	NA	15.20
MKTF-39	11/19/2018	6953.75	NA	6944.75	9.00	ND	NA	15.18
MKTF-39	3/28/2019	6953.75	NA	NA	NA	NA	NA	15.20
MKTF-39	6/5/2019	6953.75	NA	6945.06	8.69	ND	NA	15.20
MKTF-39	8/20/2019	6953.75	NA	6944.71	9.04	ND	NA	15.20
MKTF-39	11/4/2019	6953.75	NA	6944.16	9.59	ND	NA	15.18
MKTF-39	2/3/2020	6953.75	NA	6943.65	10.10	ND	NA	15.20
MKTF-39	6/26/2020	6953.75	NA	6944.12	9.63	ND	NA	15.00
MKTF-39	9/15/2020	6953.75	NA	6944.17	9.58	ND	NA	14.19
MKTF-39	11/10/2020	6953.75	NA	6943.70	10.05	ND	NA	14.19
MKTF-39	12/4/2020	6953.75	NA	6943.60	10.15	ND	NA	15.19
MKTF-40	11/18/2014	6894.33	NA	6874.39	19.94	ND	NA	23.64
MKTF-40	3/11/2015	6894.33	NA	6879.73	14.60	ND	NA	23.64
MKTF-40	6/10/2015	6894.33	NA	6880.13	14.20	ND	NA	23.64
MKTF-40	8/21/2015	6894.33	NA	6880.50	13.83	ND	NA	23.64
MKTF-40	11/4/2015	6894.33	NA	6880.42	13.91	ND	NA	23.64
MKTF-40	2/23/2016	6894.33	NA	6880.45	13.88	ND	NA	23.64
MKTF-40	6/9/2016	6894.33	NA	6881.02	13.31	ND	NA	23.64
MKTF-40	9/8/2016	6894.33	NA	6880.81	13.52	ND	NA	23.64
MKTF-40	11/4/2016	6894.33	NA	6880.42	13.91	ND	NA	23.64
MKTF-40	3/7/2017	6894.33	NA	6881.19	13.14	ND	NA	23.64
MKTF-40	6/5/2017	6894.33	NA	6881.04	13.29	ND	NA	23.64
MKTF-40	9/25/2017	6894.33	NA	6881.05	13.28	ND	NA	23.64
MKTF-40	11/21/2017	6894.33	NA	6880.62	13.71	ND	NA	23.62
MKTF-40	2/5/2018	6894.33	NA	6881.15	13.18	ND	NA	23.62
MKTF-40	4/25/2018	6894.33	NA	6881.39	12.94	ND	NA	23.53
MKTF-40	8/15/2018	6894.33	NA	6881.59	12.74	ND	NA	23.54
MKTF-40	11/14/2018	6894.33	NA	6880.69	13.64	ND	NA	23.62
MKTF-40	2/20/2019	6894.33	NA	6881.54	12.79	ND	NA	23.64
MKTF-40	5/6/2019	6894.33	NA	6881.97	12.36	ND	NA	23.64
MKTF-40	8/22/2019	6894.33	NA	6882.18	12.15	ND	NA	23.54
MKTF-40	10/22/2019	6894.33	NA	6881.29	13.04	ND	NA	23.62
MKTF-40	2/27/2020	6894.33	NA	6881.10	13.23	ND	NA	23.64
MKTF-40	6/26/2020	6894.33	NA	6881.58	12.75	ND	NA	23.64
MKTF-40	9/15/2020	6894.33	NA	6880.94	13.39	ND	NA	23.66
MKTF-40	11/10/2020	6894.33	NA	6880.62	13.71	ND	NA	23.66
MKTF-40	12/4/2020	6894.33	NA	6880.34	13.99	ND	NA	23.67
MKTF-41	11/18/2014	6893.64	NA	6866.74	26.90	ND	NA	40.10
MKTF-41	3/12/2015	6893.64	NA	6873.57	20.07	ND	NA	40.10
MKTF-41	6/9/2015	6893.64	NA	6873.87	19.77	ND	NA	40.10
MKTF-41	8/21/2015	6893.64	NA	6873.74	19.90	ND	NA	40.10
MKTF-41	11/5/2015	6893.64	NA	6873.87	19.77	ND	NA	40.10

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-41	2/24/2016	6893.64	NA	6873.74	19.90	ND	NA	40.10
MKTF-41	6/9/2016	6893.64	NA	6873.99	19.65	ND	NA	40.10
MKTF-41	9/9/2016	6893.64	NA	6873.53	20.11	ND	NA	40.10
MKTF-41	11/5/2016	6893.64	NA	6873.87	19.77	ND	NA	40.10
MKTF-41	3/7/2017	6893.64	NA	6874.04	19.60	ND	NA	40.10
MKTF-41	6/6/2017	6893.64	NA	6875.15	18.49	ND	NA	40.10
MKTF-41	9/25/2017	6893.64	NA	6873.39	20.25	ND	NA	40.10
MKTF-41	11/27/2017	6893.64	NA	6873.83	19.81	ND	NA	39.71
MKTF-41	2/7/2018	6893.64	NA	6873.41	20.23	ND	NA	39.72
MKTF-41	4/25/2018	6893.64	NA	6873.67	19.97	ND	NA	39.91
MKTF-41	8/15/2018	6893.64	NA	6873.38	20.26	ND	NA	39.74
MKTF-41	11/14/2018	6893.64	NA	6873.13	20.51	ND	NA	39.71
MKTF-41	2/13/2019	6893.64	NA	6873.54	20.10	ND	NA	40.10
MKTF-41	5/7/2019	6893.64	NA	6874.12	19.52	ND	NA	40.10
MKTF-41	8/22/2019	6893.64	NA	6874.09	19.55	ND	NA	39.74
MKTF-41	10/23/2019	6893.64	NA	6873.62	20.02	ND	NA	39.71
MKTF-41	2/26/2020	6893.64	NA	6873.49	20.15	ND	NA	40.10
MKTF-41	6/29/2020	6893.64	NA	6873.87	19.77	ND	NA	40.10
MKTF-41	9/14/2020	6893.64	NA	6872.92	20.72	ND	NA	39.66
MKTF-41	11/10/2020	6893.64	NA	6872.63	21.01	ND	NA	39.66
MKTF-41	12/4/2020	6893.64	NA	6872.74	20.90	ND	NA	39.80
MKTF-42	11/18/2014	6892.95	NA	6874.16	18.79	ND	NA	33.15
MKTF-42	3/11/2015	6892.95	NA	6874.98	17.97	ND	NA	33.15
MKTF-42	6/9/2015	6892.95	NA	6875.35	17.60	ND	NA	33.15
MKTF-42	8/21/2015	6892.95	NA	6875.51	17.44	ND	NA	33.15
MKTF-42	11/5/2015	6892.95	NA	6875.69	17.26	ND	NA	33.15
MKTF-42	2/24/2016	6892.95	NA	6875.26	17.69	ND	NA	33.15
MKTF-42	6/9/2016	6892.95	NA	6875.65	17.30	ND	NA	33.15
MKTF-42	9/9/2016	6892.95	NA	6875.65	17.30	ND	NA	33.15
MKTF-42	11/5/2016	6892.95	NA	6875.69	17.26	ND	NA	33.15
MKTF-42	3/7/2017	6892.95	NA	6877.23	15.72	ND	NA	33.15
MKTF-42	6/6/2017	6892.95	NA	6875.83	17.12	ND	NA	33.15
MKTF-42	9/25/2017	6892.95	NA	6876.12	16.83	ND	NA	33.15
MKTF-42	11/27/2017	6892.95	NA	6876.14	16.81	ND	NA	33.18
MKTF-42	2/7/2018	6892.95	NA	6875.54	17.41	ND	NA	32.90
MKTF-42	4/25/2018	6892.95	NA	6875.82	17.13	ND	NA	33.08
MKTF-42	8/15/2018	6892.95	NA	6876.18	16.77	ND	NA	33.20
MKTF-42	11/14/2018	6892.95	NA	6876.01	16.94	ND	NA	33.18
MKTF-42	2/13/2019	6892.95	NA	6875.77	17.18	ND	NA	33.15
MKTF-42	5/7/2019	6892.95	NA	6876.27	16.68	ND	NA	33.15
MKTF-42	8/22/2019	6892.95	NA	6876.55	16.40	ND	NA	33.20
MKTF-42	10/23/2019	6892.95	NA	6876.43	16.52	ND	NA	33.18
MKTF-42	2/26/2020	6892.95	NA	6876.16	16.79	ND	NA	33.15
MKTF-42	6/30/2020	6892.95	NA	6876.70	16.25	ND	NA	33.15
MKTF-42	9/14/2020	6892.95	NA	6876.60	16.35	ND	NA	33.10
MKTF-42	11/10/2020	6892.95	NA	6877.65	15.30	ND	NA	33.10
MKTF-42	12/4/2020	6892.95	NA	6876.54	16.41	ND	NA	32.95

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-43	11/18/2014	6876.90	NA	6869.95	6.95	ND	NA	15.43
MKTF-43	3/11/2015	6876.90	NA	6871.70	5.20	ND	NA	15.43
MKTF-43	6/10/2015	6876.90	NA	6873.27	3.63	ND	NA	15.43
MKTF-43	8/21/2015	6876.90	NA	6873.10	3.80	ND	NA	15.43
MKTF-43	11/5/2015	6876.90	NA	6871.78	5.12	ND	NA	15.43
MKTF-43	2/24/2016	6876.90	NA	6871.90	5.00	ND	NA	15.43
MKTF-43	6/9/2016	6876.90	NA	6873.23	3.67	ND	NA	15.43
MKTF-43	9/9/2016	6876.90	NA	6872.92	3.98	ND	NA	15.43
MKTF-43	11/5/2016	6876.90	NA	6871.78	5.12	ND	NA	15.43
MKTF-43	3/8/2017	6876.90	NA	6871.56	5.34	ND	NA	15.43
MKTF-43	6/6/2017	6876.90	NA	6873.28	3.62	ND	NA	15.43
MKTF-43	9/25/2017	6876.90	NA	6872.76	4.14	ND	NA	15.43
MKTF-43	11/27/2017	6876.90	NA	6871.25	5.65	ND	NA	15.38
MKTF-43	2/7/2018	6876.90	NA	6870.47	6.43	ND	NA	15.38
MKTF-43	4/25/2018	6876.90	NA	6871.85	5.05	ND	NA	15.30
MKTF-43	8/15/2018	6876.90	NA	6874.24	2.66	ND	NA	15.41
MKTF-43	11/14/2018	6876.90	NA	6871.48	5.42	ND	NA	15.38
MKTF-43	2/13/2019	6876.90	NA	6870.91	5.99	ND	NA	15.43
MKTF-43	5/8/2019	6876.90	NA	6872.93	3.97	ND	NA	15.43
MKTF-43	8/22/2019	6876.90	NA	6873.23	3.67	ND	NA	15.41
MKTF-43	10/24/2019	6876.90	NA	6872.56	4.34	ND	NA	15.38
MKTF-43	2/26/2020	6876.90	NA	6870.57	6.33	ND	NA	15.43
MKTF-43	6/30/2020	6876.90	NA	6871.40	5.50	ND	NA	15.43
MKTF-43	9/14/2020	6876.90	NA	6870.45	6.45	ND	NA	16.22
MKTF-43	11/10/2020	6876.90	NA	6869.42	7.48	ND	NA	16.22
MKTF-43	12/4/2020	6876.90	NA	6868.78	8.12	ND	NA	16.92
MKTF-44	11/18/2014	6869.95	NA	6821.15	48.80	ND	NA	51.15
MKTF-44	3/12/2015	6869.95	NA	6831.51	38.44	ND	NA	51.15
MKTF-44	6/10/2015	6869.95	NA	6840.40	29.55	ND	NA	51.15
MKTF-44	8/17/2015	6869.95	NA	6838.72	31.23	ND	NA	51.15
MKTF-44	11/9/2015	6869.95	NA	6836.63	33.32	ND	NA	51.15
MKTF-44	2/24/2016	6869.95	NA	6841.21	28.74	ND	NA	51.15
MKTF-44	6/9/2016	6869.95	NA	6842.12	27.83	ND	NA	51.15
MKTF-44	9/8/2016	6869.95	NA	6838.61	31.34	ND	NA	51.15
MKTF-44	11/9/2016	6869.95	NA	6836.63	33.32	ND	NA	51.15
MKTF-44	3/8/2017	6869.95	NA	6844.56	25.39	ND	NA	51.15
MKTF-44	6/5/2017	6869.95	NA	6837.05	32.90	ND	NA	51.15
MKTF-44	9/25/2017	6869.95	NA	6839.77	30.18	ND	NA	51.15
MKTF-44	11/27/2017	6869.95	NA	6836.25	33.70	ND	NA	51.16
MKTF-44	2/7/2018	6869.95	NA	6832.39	37.56	ND	NA	51.16
MKTF-44	4/25/2018	6869.95	NA	6833.23	36.72	ND	NA	51.08
MKTF-44	8/15/2018	6869.95	NA	6834.25	35.70	ND	NA	51.20
MKTF-44	11/14/2018	6869.95	NA	6843.53	26.42	ND	NA	51.16
MKTF-44	2/13/2019	6869.95	NA	6836.56	33.39	ND	NA	51.15
MKTF-44	5/8/2019	6869.95	NA	6835.75	34.20	ND	NA	51.15
MKTF-44	8/22/2019	6869.95	NA	6838.99	30.96	ND	NA	51.20
MKTF-44	10/24/2019	6869.95	NA	6831.41	38.54	ND	NA	51.16

**APPENDIX A. FLUID LEVEL MEASUREMENTS
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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-44	3/4/2020	6869.95	NA	6839.61	30.34	ND	NA	51.15
MKTF-44	6/26/2020	6869.95	NA	6836.87	33.08	ND	NA	51.15
MKTF-44	9/14/2020	6869.95	NA	6841.95	28.00	ND	NA	51.95
MKTF-44	12/4/2020	6869.95	NA	6830.36	39.59	ND	NA	51.39
MKTF-45	2/10/2015	6949.59	6936.01	6933.07	16.52	13.58	2.94	30.24
MKTF-45	3/17/2015	6949.59	6936.45	6934.65	14.94	13.14	1.80	30.24
MKTF-45	6/8/2015	6949.59	6936.39	6932.84	16.75	13.20	3.55	30.24
MKTF-45	8/18/2015	6949.59	6936.09	6935.98	13.61	13.50	0.11	30.24
MKTF-45	11/3/2015	6949.59	6935.89	6935.57	14.02	13.70	0.32	30.24
MKTF-45	3/17/2016	6949.59	6936.45	6934.65	14.94	13.14	1.80	30.24
MKTF-45	6/10/2016	6949.59	6937.11	6936.79	12.80	12.48	0.32	30.24
MKTF-45	9/13/2016	6949.59	6937.64	6937.19	12.40	11.95	0.45	30.24
MKTF-45	11/3/2016	6949.59	6935.89	6935.57	14.02	13.70	0.32	30.24
MKTF-45	3/1/2017	6949.59	6939.27	6938.96	10.63	10.32	0.31	30.24
MKTF-45	6/14/2017	6949.59	6938.09	6937.59	12.00	11.50	0.50	30.24
MKTF-45	10/3/2017	6949.59	6938.11	6937.58	12.01	11.48	0.53	30.24
MKTF-45	11/30/2017	6949.59	6936.83	6936.36	13.23	12.76	0.47	30.24
MKTF-45	2/15/2018	6949.59	6936.50	6936.35	13.24	13.09	0.15	30.24
MKTF-45	4/26/2018	6949.59	6936.72	6936.29	13.30	12.87	0.43	30.28
MKTF-45	8/16/2018	6949.59	6936.44	6936.01	13.58	13.15	0.43	30.33
MKTF-45	11/27/2018	6949.59	6935.99	6935.44	14.15	13.60	0.55	30.24
MKTF-45	3/26/2019	6949.59	6937.59	6937.09	12.50	12.00	0.50	30.24
MKTF-45	5/14/2019	6949.59	6937.16	6936.57	13.02	12.43	0.59	30.24
MKTF-45	8/19/2019	6949.59	6935.57	6935.11	14.48	14.02	0.46	30.33
MKTF-45	10/28/2019	6949.59	6937.62	6936.59	13.00	11.97	1.03	30.24
MKTF-45	10/29/2019	6949.59	6938.21	6935.84	13.75	11.38	2.37	30.24
MKTF-45	11/6/2019	6949.59	6940.02	6927.07	22.52	9.57	12.95	30.24
MKTF-45	11/7/2019	6949.59	6940.59	6927.34	22.25	9.00	13.25	30.24
MKTF-45	11/11/2019	6949.59	6940.84	6925.99	23.60	8.75	14.85	30.24
MKTF-45	11/12/2019	6949.59	6939.97	6925.67	23.92	9.62	14.30	30.24
MKTF-45	11/13/2019	6949.59	6939.89	6923.66	25.93	9.70	16.23	30.24
MKTF-45	11/14/2019	6949.59	6939.53	6924.30	25.29	10.06	15.23	30.24
MKTF-45	11/15/2019	6949.59	6939.31	6925.02	24.57	10.28	14.29	30.24
MKTF-45	11/19/2019	6949.59	6938.75	6926.84	22.75	10.84	11.91	30.24
MKTF-45	11/21/2019	6949.59	6938.59	6927.69	21.90	11.00	10.90	30.24
MKTF-45	12/2/2019	6949.59	6937.21	6930.64	18.95	12.38	6.57	30.24
MKTF-45	2/3/2020	6949.59	6939.99	6930.97	18.62	9.60	9.02	30.24
MKTF-45	6/30/2020	6949.59	6938.51	6930.51	19.08	11.08	8.00	30.24
MKTF-45	9/14/2020	6949.59	6936.45	6931.16	18.43	13.14	5.29	37.45
MKTF-45	11/10/2020	6949.59	6936.65	6934.83	14.76	12.94	1.82	37.45
MKTF-45	12/4/2020	6949.59	6936.93	6935.08	14.51	12.66	1.85	30.45
MKTF-46	10/29/2019	NA	NA	NA	10.28	ND	NA	21.29
MKTF-46	11/12/2019	NA	NA	NA	10.46	ND	NA	21.29
MKTF-46	12/2/2019	NA	NA	NA	10.70	ND	NA	21.29
MKTF-46	3/5/2020	6957.60	NA	6946.67	10.93	ND	NA	18.00
MKTF-46	6/30/2020	6957.60	NA	6946.52	11.08	ND	NA	18.00
MKTF-46	9/14/2020	6957.60	NA	6947.42	10.18	ND	NA	25.29

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MKTF-46	11/10/2020	6957.60	NA	6947.03	10.57	ND	NA	25.29
MKTF-46	12/4/2020	6957.60	NA	6946.83	10.77	ND	NA	21.30
MKTF-47	12/2/2019	NA	NA	NA	9.78	ND	NA	14.30
MKTF-47	3/5/2020	6959.09	NA	6949.20	9.89	ND	NA	14.00
MKTF-47	6/29/2020	6959.09	NA	6949.59	9.50	ND	NA	14.00
MKTF-47	9/15/2020	6959.09	6950.56	6950.55	8.54	8.53	0.01	14.31
MKTF-47	11/10/2020	6959.09	NA	6949.76	9.33	ND	NA	14.31
MKTF-47	12/4/2020	6959.09	6949.51	6949.50	9.59	9.58	0.01	14.31
MKTF-48	12/2/2019	NA	NA	NA	11.85	ND	NA	20.92
MKTF-48	3/3/2020	6961.73	6949.07	6948.91	12.82	12.66	0.16	18.00
MKTF-48	6/29/2020	6961.73	NA	6950.15	11.58	ND	NA	18.00
MKTF-48	9/15/2020	6961.73	6949.88	6949.87	11.86	11.85	0.01	19.91
MKTF-48	11/10/2020	6961.73	6949.33	6949.22	12.51	12.40	0.11	19.91
MKTF-48	12/4/2020	6961.73	6948.96	6948.63	13.10	12.77	0.33	20.94
MKTF-49	12/3/2019	NA	NA	NA	19.90	ND	NA	24.90
MKTF-49	3/4/2020	6946.76	NA	6926.49	20.27	ND	NA	28.00
MKTF-49	6/30/2020	6946.76	NA	6926.11	20.65	ND	NA	28.00
MKTF-49	9/15/2020	6946.76	NA	6926.43	20.33	ND	NA	24.96
MKTF-49	11/10/2020	6946.76	NA	6926.01	20.75	ND	NA	24.96
MKTF-49	12/4/2020	6946.76	NA	6925.95	20.81	ND	NA	24.97
MKTF-50	12/3/2019	NA	NA	NA	15.61	ND	NA	21.65
MKTF-50	3/4/2020	6942.82	NA	6926.95	15.87	ND	NA	26.00
MKTF-50	6/30/2020	6942.82	NA	6926.82	16.00	ND	NA	26.00
MKTF-50	9/15/2020	6942.82	6927.46	6927.45	15.37	15.36	0.01	22.64
MKTF-50	11/10/2020	6942.82	NA	6926.79	16.03	ND	NA	22.64
MKTF-50	12/4/2020	6942.82	NA	6926.65	16.17	ND	NA	21.63
MW-1	9/16/2014	6878.12	NA	6871.01	7.11	ND	NA	130.83
MW-1	8/10/2015	6878.12	NA	6871.22	6.90	ND	NA	130.83
MW-1	9/7/2016	6878.12	NA	6871.11	7.01	ND	NA	130.83
MW-1	9/20/2017	6878.12	NA	6871.10	7.02	ND	NA	130.83
MW-1	8/15/2018	6878.12	NA	6870.37	7.75	ND	NA	130.83
MW-1	12/5/2018	6878.12	NA	6870.76	7.36	ND	NA	130.83
MW-1	8/12/2019	6878.12	NA	6871.18	6.94	ND	NA	130.83
MW-1	9/14/2020	6878.12	NA	6870.40	7.72	ND	NA	135.30
MW-2	9/16/2014	6880.30	NA	6871.10	9.20	ND	NA	137.48
MW-2	8/10/2015	6880.30	NA	6871.17	9.13	ND	NA	137.48
MW-2	9/7/2016	6880.30	NA	6866.20	14.10	ND	NA	137.48
MW-2	9/20/2017	6880.30	NA	6864.66	15.64	ND	NA	137.48
MW-2	8/15/2018	6880.30	NA	6870.95	9.35	ND	NA	137.48
MW-2	12/5/2018	6880.30	NA	6863.67	16.63	ND	NA	137.48
MW-2	8/13/2019	6880.30	NA	6871.30	9.00	ND	NA	137.48
MW-2	9/14/2020	6880.30	NA	6870.56	9.74	ND	NA	138.20
MW-4	9/17/2014	6881.63	NA	6873.95	7.68	ND	NA	121.72
MW-4	8/10/2015	6881.63	NA	6874.33	7.30	ND	NA	121.72
MW-4	9/7/2016	6881.63	NA	6874.25	7.38	ND	NA	121.72
MW-4	9/21/2017	6881.63	NA	6874.07	7.56	ND	NA	121.72
MW-4	8/15/2018	6881.63	NA	6873.92	7.71	ND	NA	121.72

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
MW-4	12/5/2018	6881.63	NA	6873.80	7.83	ND	NA	121.72
MW-4	8/13/2019	6881.63	NA	6874.63	7.00	ND	NA	121.72
MW-4	9/14/2020	6881.63	NA	6873.63	8.00	ND	NA	125.90
MW-5	9/17/2014	6882.83	NA	6871.45	11.38	ND	NA	130.83
MW-5	8/10/2015	6882.83	NA	6871.63	11.20	ND	NA	130.83
MW-5	9/7/2016	6882.83	NA	6869.33	13.50	ND	NA	130.83
MW-5	9/11/2017	6882.83	NA	6871.61	11.22	ND	NA	130.83
MW-5	8/15/2018	6882.83	NA	6871.32	11.51	ND	NA	130.83
MW-5	12/6/2018	6882.83	NA	6866.03	16.80	ND	NA	130.83
MW-5	8/14/2019	6882.83	NA	6871.78	11.05	ND	NA	130.83
MW-5	9/14/2020	6882.83	NA	6870.84	11.99	ND	NA	133.00
NAPIS-1	3/10/2014	6913.86	NA	6907.08	6.78	ND	NA	13.53
NAPIS-1	6/5/2014	6913.86	NA	6907.00	6.86	ND	NA	13.53
NAPIS-1	9/11/2014	6913.86	NA	6907.01	6.85	ND	NA	13.53
NAPIS-1	11/11/2014	6913.86	NA	6906.90	6.96	ND	NA	13.53
NAPIS-1	3/10/2015	6913.86	NA	6906.96	6.90	ND	NA	13.53
NAPIS-1	6/2/2015	6913.86	NA	6906.86	7.00	ND	NA	13.53
NAPIS-1	8/10/2015	6913.86	NA	6906.86	7.00	ND	NA	13.53
NAPIS-1	10/28/2015	6913.86	NA	6906.66	7.20	ND	NA	13.53
NAPIS-1	3/1/2016	6913.86	NA	6907.21	6.65	ND	NA	13.53
NAPIS-1	6/7/2016	6913.86	NA	6907.22	6.64	ND	NA	13.53
NAPIS-1	9/1/2016	6913.86	NA	6906.87	6.99	ND	NA	13.53
NAPIS-1	11/14/2016	6913.86	NA	6907.04	6.82	ND	NA	13.53
NAPIS-1	2/21/2017	6913.86	NA	6907.16	6.70	ND	NA	13.53
NAPIS-1	6/2/2017	6913.86	NA	6907.01	6.85	ND	NA	13.53
NAPIS-1	9/5/2017	6913.86	6907.54	6906.68	7.18	6.32	0.86	13.53
NAPIS-1	12/4/2017	6913.86	6907.66	6907.01	6.85	6.20	0.65	13.75
NAPIS-1	2/12/2018	6913.86	6907.71	6905.76	8.10	6.15	1.95	13.53
NAPIS-1	4/25/2018	6913.86	6907.28	6906.04	7.82	6.58	1.24	13.76
NAPIS-1	8/15/2018	6913.86	NA	NA	NA	NA	NA	13.76
NAPIS-1	11/8/2018	6913.86	NA	NA	NA	NA	NA	13.76
NAPIS-1	3/28/2019	6913.86	NA	NA	NA	NA	NA	13.76
NAPIS-1	5/28/2019	6913.86	6906.14	6905.98	7.88	7.72	0.16	13.53
NAPIS-1	8/22/2019	6913.86	6906.41	6906.33	7.53	7.45	0.08	13.53
NAPIS-1	10/21/2019	6913.86	6906.20	6906.00	7.86	7.66	0.20	13.53
NAPIS-1	9/15/2020	6913.86	6907.16	6907.15	6.71	6.70	0.01	13.58
NAPIS-1	11/10/2020	6913.86	6906.67	6906.66	7.20	7.19	0.01	13.58
NAPIS-1	12/7/2020	6913.86	NA	6906.42	7.44	ND	NA	13.76
NAPIS-2	3/10/2014	6912.65	NA	6904.62	8.03	ND	NA	13.61
NAPIS-2	6/5/2014	6912.65	NA	6904.45	8.20	ND	NA	13.61
NAPIS-2	9/11/2014	6912.65	NA	6904.55	8.10	ND	NA	13.61
NAPIS-2	11/11/2014	6912.65	NA	6904.45	8.20	ND	NA	13.61
NAPIS-2	3/10/2015	6912.65	NA	6904.21	8.44	ND	NA	13.61
NAPIS-2	6/2/2015	6912.65	NA	6904.11	8.54	ND	NA	13.61
NAPIS-2	8/10/2015	6912.65	NA	6904.25	8.40	ND	NA	13.61
NAPIS-2	10/28/2015	6912.65	NA	6904.33	8.32	ND	NA	13.61
NAPIS-2	3/1/2016	6912.65	NA	6905.00	7.65	ND	NA	13.61

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
NAPIS-2	6/7/2016	6912.65	NA	6906.25	6.40	ND	NA	13.61
NAPIS-2	9/1/2016	6912.65	NA	6903.81	8.84	ND	NA	13.61
NAPIS-2	11/14/2016	6912.65	NA	6904.45	8.20	ND	NA	13.61
NAPIS-2	2/21/2017	6912.65	NA	6904.76	7.89	ND	NA	13.61
NAPIS-2	6/1/2017	6912.65	NA	6904.30	8.35	ND	NA	13.61
NAPIS-2	9/5/2017	6912.65	NA	6904.33	8.32	ND	NA	13.61
NAPIS-2	12/4/2017	6912.65	NA	6904.67	7.98	ND	NA	14.60
NAPIS-2	2/9/2018	6912.65	NA	6904.40	8.25	ND	NA	14.60
NAPIS-2	4/26/2018	6912.65	NA	6904.07	8.58	ND	NA	14.52
NAPIS-2	8/15/2018	6912.65	NA	NA	NA	NA	NA	14.52
NAPIS-2	11/8/2018	6912.65	NA	NA	NA	NA	NA	14.52
NAPIS-2	3/28/2019	6912.65	NA	NA	NA	NA	NA	14.52
NAPIS-2	5/28/2019	6912.65	NA	6903.11	9.54	ND	NA	13.61
NAPIS-2	8/22/2019	6912.65	NA	6903.50	9.15	ND	NA	13.61
NAPIS-2	10/21/2019	6912.65	NA	6903.25	9.40	ND	NA	13.61
NAPIS-2	9/15/2020	6912.65	NA	6904.53	8.12	ND	NA	14.60
NAPIS-2	11/10/2020	6912.65	NA	6904.14	8.51	ND	NA	14.60
NAPIS-2	12/7/2020	6912.65	NA	6903.93	8.72	ND	NA	14.61
NAPIS-3	3/10/2014	6912.76	NA	6903.86	8.90	ND	NA	30.42
NAPIS-3	6/5/2014	6912.76	NA	6903.91	8.85	ND	NA	30.42
NAPIS-3	9/11/2014	6912.76	NA	6904.79	7.97	ND	NA	30.42
NAPIS-3	11/13/2014	6912.76	NA	6903.58	9.18	ND	NA	30.42
NAPIS-3	3/10/2015	6912.76	NA	6903.17	9.59	ND	NA	30.42
NAPIS-3	6/2/2015	6912.76	NA	6903.66	9.10	ND	NA	30.42
NAPIS-3	8/10/2015	6912.76	NA	6904.27	8.49	ND	NA	30.42
NAPIS-3	10/28/2015	6912.76	NA	6903.54	9.22	ND	NA	30.42
NAPIS-3	3/1/2016	6912.76	NA	6904.21	8.55	ND	NA	30.42
NAPIS-3	6/7/2016	6912.76	NA	6905.04	7.72	ND	NA	30.42
NAPIS-3	9/1/2016	6912.76	NA	6903.66	9.10	ND	NA	30.42
NAPIS-3	11/14/2016	6912.76	NA	6903.65	9.11	ND	NA	30.42
NAPIS-3	2/21/2017	6912.76	NA	6903.56	9.20	ND	NA	30.42
NAPIS-3	6/1/2017	6912.76	NA	6902.56	10.20	ND	NA	30.42
NAPIS-3	9/8/2017	6912.76	NA	6903.66	9.10	ND	NA	30.42
NAPIS-3	12/14/2017	6912.76	NA	6903.76	9.00	ND	NA	31.58
NAPIS-3	2/9/2018	6912.76	NA	6903.06	9.70	ND	NA	31.60
NAPIS-3	4/26/2018	6912.76	NA	6903.16	9.60	ND	NA	31.51
NAPIS-3	8/15/2018	6912.76	NA	NA	NA	NA	NA	31.51
NAPIS-3	11/8/2018	6912.76	NA	NA	NA	NA	NA	31.51
NAPIS-3	3/28/2019	6912.76	NA	NA	NA	NA	NA	31.51
NAPIS-3	5/28/2019	6912.76	NA	6902.19	10.57	ND	NA	30.42
NAPIS-3	8/22/2019	6912.76	NA	6902.58	10.18	ND	NA	30.42
NAPIS-3	10/21/2019	6912.76	NA	6902.74	10.02	ND	NA	30.42
NAPIS-3	9/15/2020	6912.76	NA	6903.51	9.25	ND	NA	31.50
NAPIS-3	11/10/2020	6912.76	NA	6903.29	9.47	ND	NA	31.50
NAPIS-3	12/7/2020	6912.76	NA	6904.25	8.51	ND	NA	31.50
OAPIS-1	3/10/2014	6916.73	NA	6905.23	11.50	ND	NA	28.30
OAPIS-1	6/5/2014	6916.73	NA	6904.98	11.75	ND	NA	28.30

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OAPIS-1	9/12/2014	6916.73	NA	6905.62	11.11	ND	NA	28.30
OAPIS-1	11/11/2014	6916.73	NA	6899.52	17.21	ND	NA	28.30
OAPIS-1	3/10/2015	6916.73	NA	6904.89	11.84	ND	NA	28.30
OAPIS-1	6/2/2015	6916.73	NA	6904.72	12.01	ND	NA	28.30
OAPIS-1	8/10/2015	6916.73	NA	6905.40	11.33	ND	NA	28.30
OAPIS-1	10/29/2015	6916.73	NA	6905.71	11.02	ND	NA	28.30
OAPIS-1	3/1/2016	6916.73	NA	6904.87	11.86	ND	NA	28.30
OAPIS-1	6/7/2016	6916.73	NA	6905.23	11.50	ND	NA	28.30
OAPIS-1	9/1/2016	6916.73	NA	6905.41	11.32	ND	NA	28.30
OAPIS-1	11/14/2016	6916.73	NA	6905.29	11.44	ND	NA	28.30
OAPIS-1	2/21/2017	6916.73	NA	6905.13	11.60	ND	NA	28.30
OAPIS-1	6/1/2017	6916.73	NA	6905.27	11.46	ND	NA	28.30
OAPIS-1	9/5/2017	6916.73	NA	6905.64	11.09	ND	NA	28.30
OAPIS-1	12/4/2017	6916.73	NA	6904.85	11.88	ND	NA	27.78
OAPIS-1	2/9/2018	6916.73	NA	6904.13	12.60	ND	NA	27.78
OAPIS-1	4/26/2018	6916.73	NA	6904.31	12.42	ND	NA	27.75
OAPIS-1	8/15/2018	6916.73	NA	6905.13	11.60	ND	NA	27.86
OAPIS-1	11/19/2018	6916.73	NA	6904.84	11.89	ND	NA	27.78
OAPIS-1	3/28/2019	6916.73	NA	6905.30	11.43	ND	NA	26.00
OAPIS-1	5/8/2019	6916.73	NA	6904.64	12.09	ND	NA	26.00
OAPIS-1	8/22/2019	6916.73	NA	6905.64	11.09	ND	NA	27.86
OAPIS-1	10/21/2019	6916.73	NA	6905.29	11.44	ND	NA	27.78
OAPIS-1	9/15/2020	6916.73	NA	6904.83	11.90	ND	NA	28.00
OAPIS-1	11/10/2020	6916.73	NA	6904.71	12.02	ND	NA	28.00
OAPIS-1	12/7/2020	6916.73	NA	6904.42	12.31	ND	NA	28.00
OW-01	3/7/2014	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	6/3/2014	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	9/11/2014	6866.62	NA	6866.61	0.01	ND	NA	94.55
OW-01	11/10/2014	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	3/9/2015	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	6/3/2015	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	8/12/2015	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	10/28/2015	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	3/3/2016	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	6/6/2016	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	9/6/2016	6866.62	NA	6866.62	0.00	ND	NA	94.55
OW-01	11/15/2016	6866.62	NA	6864.90	1.72	ND	NA	94.55
OW-01	2/27/2017	6866.62	NA	6864.91	1.71	ND	NA	94.55
OW-01	5/31/2017	6866.62	NA	6864.85	1.77	ND	NA	94.55
OW-01	9/6/2017	6866.62	NA	6864.92	1.70	ND	NA	94.55
OW-01	12/8/2017	6866.62	NA	6864.91	1.71	ND	NA	94.55
OW-01	2/27/2018	6866.62	NA	6865.17	1.45	ND	NA	94.55
OW-01	4/25/2018	6866.62	NA	6864.82	1.80	ND	NA	94.54
OW-01	8/14/2018	6866.62	NA	6864.82	1.80	ND	NA	94.55
OW-01	11/7/2018	6866.62	NA	6865.29	1.33	ND	NA	94.55
OW-01	3/27/2019	6866.62	NA	6864.93	1.69	ND	NA	94.55
OW-01	5/21/2019	6866.62	NA	6864.89	1.73	ND	NA	94.55

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-01	8/15/2019	6866.62	NA	6865.25	1.37	ND	NA	94.55
OW-01	10/16/2019	6866.62	NA	6865.17	1.45	ND	NA	94.55
OW-01	9/15/2020	6866.62	NA	6865.17	1.45	ND	NA	99.39
OW-01	12/7/2020	6866.62	NA	6864.87	1.75	ND	NA	99.39
OW-10	3/7/2014	6874.91	NA	6874.91	0.00	ND	NA	60.33
OW-10	6/3/2014	6874.91	NA	6873.46	1.45	ND	NA	60.33
OW-10	9/12/2014	6874.91	NA	6872.58	2.33	ND	NA	60.33
OW-10	11/10/2014	6874.91	NA	6872.11	2.80	ND	NA	60.33
OW-10	3/9/2015	6874.91	NA	6873.95	0.96	ND	NA	60.33
OW-10	6/3/2015	6874.91	NA	6873.91	1.00	ND	NA	60.33
OW-10	8/12/2015	6874.91	NA	6874.53	0.38	ND	NA	60.33
OW-10	10/28/2015	6874.91	NA	6873.44	1.47	ND	NA	60.33
OW-10	3/3/2016	6874.91	NA	6873.49	1.42	ND	NA	60.33
OW-10	6/6/2016	6874.91	NA	6873.69	1.22	ND	NA	60.33
OW-10	9/6/2016	6874.91	NA	6873.21	1.70	ND	NA	60.33
OW-10	11/15/2016	6874.91	NA	6874.37	0.54	ND	NA	60.33
OW-10	2/27/2017	6874.91	NA	6874.35	0.56	ND	NA	60.33
OW-10	5/31/2017	6874.91	NA	6873.84	1.07	ND	NA	60.33
OW-10	9/7/2017	6874.91	NA	6873.03	1.88	ND	NA	60.33
OW-10	12/7/2017	6874.91	NA	6872.66	2.25	ND	NA	60.33
OW-10	2/27/2018	6874.91	NA	6872.93	1.98	ND	NA	60.33
OW-10	4/25/2018	6874.91	NA	6873.05	1.86	ND	NA	60.13
OW-10	8/15/2018	6874.91	NA	6872.50	2.41	ND	NA	60.13
OW-10	11/8/2018	6874.91	NA	6872.41	2.50	ND	NA	60.33
OW-10	3/27/2019	6874.91	NA	6874.91	0.00	ND	NA	60.33
OW-10	5/22/2019	6874.91	NA	6874.91	0.00	ND	NA	60.33
OW-10	8/15/2019	6874.91	NA	6873.89	1.02	ND	NA	60.13
OW-10	10/17/2019	6874.91	NA	6872.58	2.33	ND	NA	60.33
OW-10	9/20/2020	6874.91	NA	6867.21	7.70	ND	NA	66.30
OW-10	10/9/2020	6874.91	NA	6867.21	7.70	ND	NA	66.30
OW-10	12/7/2020	6874.91	NA	6867.30	7.61	ND	NA	66.30
OW-11	9/12/2014	6923.51	NA	6903.40	20.11	ND	NA	65.79
OW-11	8/10/2015	6923.51	NA	6904.21	19.30	ND	NA	65.79
OW-11	9/9/2016	6923.51	NA	6904.72	18.79	ND	NA	65.79
OW-11	9/18/2017	6923.51	NA	6905.43	18.08	ND	NA	65.79
OW-11	8/15/2018	6923.51	NA	6904.31	19.20	ND	NA	65.79
OW-11	8/20/2019	6923.51	NA	6905.81	17.70	ND	NA	65.79
OW-11	9/15/2020	6923.51	NA	6905.00	18.51	ND	NA	65.83
OW-12	9/12/2014	6940.69	NA	6892.91	47.78	ND	NA	128.85
OW-12	8/13/2015	6940.69	NA	6893.27	47.42	ND	NA	128.85
OW-12	9/8/2016	6940.69	NA	6893.46	47.23	ND	NA	128.85
OW-12	9/19/2017	6940.69	NA	6893.95	46.74	ND	NA	128.85
OW-12	8/15/2018	6940.69	NA	6894.19	46.50	ND	NA	128.85
OW-12	9/14/2020	6940.69	NA	6894.24	46.45	ND	NA	131.20
OW-12	11/9/2020	6940.69	NA	6894.20	46.49	ND	NA	131.20
OW-13	3/7/2014	6920.07	NA	6898.30	21.77	ND	NA	99.15
OW-13	6/3/2014	6920.07	NA	6898.12	21.95	ND	NA	99.15

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MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-13	9/15/2014	6920.07	NA	6897.46	22.61	ND	NA	99.15
OW-13	11/10/2014	6920.07	NA	6897.62	22.45	ND	NA	99.15
OW-13	3/9/2015	6920.07	NA	6898.15	21.92	ND	NA	99.15
OW-13	6/1/2015	6920.07	NA	6898.31	21.76	ND	NA	99.15
OW-13	8/10/2015	6920.07	NA	6897.93	22.14	ND	NA	99.15
OW-13	10/27/2015	6920.07	NA	6897.97	22.10	ND	NA	99.15
OW-13	3/4/2016	6920.07	NA	6898.64	21.43	ND	NA	99.15
OW-13	6/6/2016	6920.07	NA	6898.62	21.45	ND	NA	99.15
OW-13	8/31/2016	6920.07	NA	6898.13	21.94	ND	NA	99.15
OW-13	11/15/2016	6920.07	NA	6898.39	21.68	ND	NA	99.15
OW-13	2/27/2017	6920.07	NA	6898.96	21.11	ND	NA	99.15
OW-13	5/31/2017	6920.07	NA	6898.62	21.45	ND	NA	99.15
OW-13	9/6/2017	6920.07	NA	6898.66	21.41	ND	NA	99.15
OW-13	12/11/2017	6920.07	NA	6899.07	21.00	ND	NA	99.15
OW-13	2/28/2018	6920.07	NA	6899.57	20.50	ND	NA	99.15
OW-13	4/26/2018	6920.07	NA	6899.66	20.41	ND	NA	99.00
OW-13	8/14/2018	6920.07	NA	6899.37	20.70	ND	NA	102.00
OW-13	11/6/2018	6920.07	NA	6899.37	20.70	ND	NA	99.15
OW-13	2/5/2019	6920.07	NA	6899.69	20.38	ND	NA	99.15
OW-13	5/1/2019	6920.07	NA	6900.07	20.00	ND	NA	99.15
OW-13	8/12/2019	6920.07	NA	6899.57	20.50	ND	NA	102.00
OW-13	10/14/2019	6920.07	NA	6899.33	20.74	ND	NA	99.15
OW-13	9/14/2020	6920.07	NA	6899.08	20.99	ND	NA	91.65
OW-13	11/9/2020	6920.07	NA	6899.69	20.38	ND	NA	91.65
OW-13	12/7/2020	6920.07	NA	6899.83	20.24	ND	NA	91.65
OW-14	3/7/2014	6926.65	NA	6902.53	24.12	ND	NA	46.52
OW-14	6/3/2014	6926.65	NA	6902.50	24.15	ND	NA	46.52
OW-14	9/15/2014	6926.65	NA	6902.25	24.40	ND	NA	46.52
OW-14	11/10/2014	6926.65	NA	6902.40	24.25	ND	NA	46.52
OW-14	3/9/2015	6926.65	NA	6902.70	23.95	ND	NA	46.52
OW-14	6/1/2015	6926.65	NA	6902.77	23.88	ND	NA	46.52
OW-14	8/10/2015	6926.65	NA	6902.69	23.96	ND	NA	46.52
OW-14	10/27/2015	6926.65	NA	6902.96	23.69	ND	NA	46.52
OW-14	3/4/2016	6926.65	NA	6903.45	23.20	ND	NA	46.52
OW-14	6/6/2016	6926.65	NA	6903.47	23.18	ND	NA	46.52
OW-14	8/31/2016	6926.65	NA	6903.15	23.50	ND	NA	46.52
OW-14	11/15/2016	6926.65	NA	6903.37	23.28	ND	NA	46.52
OW-14	2/27/2017	6926.65	NA	6903.82	22.83	ND	NA	46.52
OW-14	5/30/2017	6926.65	NA	6903.47	23.18	ND	NA	46.52
OW-14	9/6/2017	6926.65	NA	6904.09	22.56	ND	NA	46.52
OW-14	12/11/2017	6926.65	NA	6904.45	22.20	ND	NA	46.52
OW-14	2/27/2018	6926.65	NA	6904.85	21.80	ND	NA	46.52
OW-14	4/26/2018	6926.65	NA	6904.90	21.75	ND	NA	46.75
OW-14	8/14/2018	6926.65	NA	6904.70	21.95	ND	NA	46.78
OW-14	11/6/2018	6926.65	NA	6904.83	21.82	ND	NA	46.52
OW-14	2/5/2019	6926.65	NA	6905.01	21.64	ND	NA	46.52
OW-14	5/1/2019	6926.65	NA	6905.20	21.45	ND	NA	46.52

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MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-14	8/12/2019	6926.65	NA	NA	NA	NA	NA	46.78
OW-14	11/1/2019	6926.65	NA	NA	NA	NA	NA	46.52
OW-14	9/14/2020	6926.65	NA	NA	NA	NA	NA	46.52
OW-14	12/7/2020	6926.65	NA	6902.25	24.40	NA	NA	46.52
OW-29	3/7/2014	6917.00	NA	6898.15	18.85	ND	NA	51.08
OW-29	6/2/2014	6917.00	NA	6898.05	18.95	ND	NA	51.08
OW-29	9/15/2014	6917.00	NA	6897.65	19.35	ND	NA	51.08
OW-29	11/11/2014	6917.00	NA	6897.84	19.16	ND	NA	51.08
OW-29	3/9/2015	6917.00	NA	6898.33	18.67	ND	NA	51.08
OW-29	6/1/2015	6917.00	NA	6898.33	18.67	ND	NA	51.08
OW-29	8/10/2015	6917.00	NA	6898.06	18.94	ND	NA	51.08
OW-29	10/27/2015	6917.00	NA	6898.28	18.72	ND	NA	51.08
OW-29	3/4/2016	6917.00	NA	6898.85	18.15	ND	NA	51.08
OW-29	6/6/2016	6917.00	NA	6898.84	18.16	ND	NA	51.08
OW-29	8/31/2016	6917.00	NA	6898.40	18.60	ND	NA	51.08
OW-29	11/15/2016	6917.00	NA	6898.77	18.23	ND	NA	51.08
OW-29	2/27/2017	6917.00	NA	6899.18	17.82	ND	NA	51.08
OW-29	5/30/2017	6917.00	NA	6898.84	18.16	ND	NA	51.08
OW-29	9/6/2017	6917.00	NA	6898.95	18.05	ND	NA	51.08
OW-29	12/11/2017	6917.00	NA	6899.50	17.50	ND	NA	51.08
OW-29	2/27/2018	6917.00	NA	6899.88	17.12	ND	NA	51.08
OW-29	4/26/2018	6917.00	NA	6900.02	16.98	ND	NA	51.90
OW-29	8/14/2018	6917.00	NA	6899.48	17.52	ND	NA	52.40
OW-29	11/6/2018	6917.00	NA	6899.78	17.22	ND	NA	51.08
OW-29	2/5/2019	6917.00	NA	6900.08	16.92	ND	NA	51.08
OW-29	5/1/2019	6917.00	NA	6900.29	16.71	ND	NA	51.08
OW-29	8/12/2019	6917.00	NA	6899.84	17.16	ND	NA	52.40
OW-29	10/14/2019	6917.00	NA	6899.76	17.24	ND	NA	51.08
OW-29	9/14/2020	6917.00	NA	6902.43	14.57	ND	NA	51.05
OW-29	11/9/2020	6917.00	NA	6899.77	17.23	ND	NA	51.05
OW-29	12/7/2020	6917.00	NA	6899.85	17.15	ND	NA	51.05
OW-30	3/7/2014	6924.69	NA	6901.27	23.42	ND	NA	49.90
OW-30	6/3/2014	6924.69	NA	6901.18	23.51	ND	NA	49.90
OW-30	9/17/2014	6924.69	NA	6900.85	23.84	ND	NA	49.90
OW-30	11/11/2014	6924.69	NA	6900.99	23.70	ND	NA	49.90
OW-30	3/9/2015	6924.69	NA	6901.44	23.25	ND	NA	49.90
OW-30	6/1/2015	6924.69	NA	6901.49	23.20	ND	NA	49.90
OW-30	8/10/2015	6924.69	NA	6901.27	23.42	ND	NA	49.90
OW-30	10/27/2015	6924.69	NA	6901.55	23.14	ND	NA	49.90
OW-30	3/8/2016	6924.69	NA	6902.14	22.55	ND	NA	49.90
OW-30	6/6/2016	6924.69	NA	6902.05	22.64	ND	NA	49.90
OW-30	8/31/2016	6924.69	NA	6901.39	23.30	ND	NA	49.90
OW-30	11/14/2016	6924.69	NA	6901.94	22.75	ND	NA	49.90
OW-30	2/27/2017	6924.69	NA	6902.45	22.24	ND	NA	49.90
OW-30	5/31/2017	6924.69	NA	6902.05	22.64	ND	NA	49.90
OW-30	9/6/2017	6924.69	NA	6902.41	22.28	ND	NA	49.90
OW-30	12/12/2017	6924.69	NA	6902.94	21.75	ND	NA	49.90

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MARATHON PETROLEUM COMPANY
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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-30	2/28/2018	6924.69	NA	6903.36	21.33	ND	NA	49.90
OW-30	4/26/2018	6924.69	NA	6903.41	21.28	ND	NA	50.20
OW-30	8/15/2018	6924.69	NA	6902.99	21.70	ND	NA	51.40
OW-30	12/3/2018	6924.69	NA	6903.39	21.30	ND	NA	49.90
OW-30	3/27/2019	6924.69	NA	6903.56	21.13	ND	NA	49.90
OW-30	6/5/2019	6924.69	NA	6903.55	21.14	ND	NA	49.90
OW-30	8/12/2019	6924.69	NA	NA	NA	NA	NA	51.40
OW-30	11/1/2019	6924.69	NA	NA	NA	ND	NA	49.90
OW-30	9/15/2020	6924.69	NA	NA	NA	ND	NA	49.90
OW-30	12/7/2020	6924.69	NA	6902.47	22.22	ND	NA	49.90
OW-50	9/15/2014	6914.21	NA	6897.35	16.86	ND	NA	64.00
OW-50	8/10/2015	6914.21	NA	6897.74	16.47	ND	NA	64.00
OW-50	9/9/2016	6914.21	NA	6898.02	16.19	ND	NA	64.00
OW-50	9/11/2017	6914.21	NA	6898.61	15.60	ND	NA	64.00
OW-50	8/14/2018	6914.21	NA	6899.09	15.12	ND	NA	65.25
OW-50	11/7/2018	6914.21	NA	6899.01	15.20	ND	NA	64.00
OW-50	3/27/2019	6914.21	NA	6899.81	14.40	ND	NA	64.00
OW-50	5/1/2019	6914.21	NA	6899.82	14.39	ND	NA	64.00
OW-50	8/16/2019	6914.21	NA	6899.47	14.74	ND	NA	64.00
OW-50	10/15/2019	6914.21	NA	6899.29	14.92	ND	NA	64.00
OW-50	9/14/2020	6914.21	NA	6899.10	15.11	ND	NA	39.02
OW-50	11/9/2020	6914.21	NA	6899.34	14.87	ND	NA	39.02
OW-50	12/7/2020	6914.21	NA	6899.49	14.72	ND	NA	39.02
OW-52	9/15/2014	6907.68	NA	6891.88	15.80	ND	NA	77.74
OW-52	8/10/2015	6907.68	NA	6892.19	15.49	ND	NA	77.74
OW-52	9/9/2016	6907.68	NA	6892.40	15.28	ND	NA	77.74
OW-52	9/11/2017	6907.68	NA	6892.83	14.85	ND	NA	77.74
OW-52	8/15/2018	6907.68	NA	6893.16	14.52	ND	NA	79.00
OW-52	11/7/2018	6907.68	NA	6893.24	14.44	ND	NA	77.74
OW-52	3/27/2019	6907.68	NA	6893.71	13.97	ND	NA	77.74
OW-52	5/1/2019	6907.68	NA	6893.94	13.74	ND	NA	77.74
OW-52	8/16/2019	6907.68	NA	6893.47	14.21	ND	NA	77.74
OW-52	10/15/2019	6907.68	NA	6893.28	14.40	ND	NA	77.74
OW-52	9/14/2020	6907.68	NA	6893.12	14.56	ND	NA	40.43
OW-52	10/9/2020	6907.68	NA	6893.16	14.52	ND	NA	40.43
OW-52	12/7/2020	6907.68	NA	6893.26	14.42	ND	NA	40.43
OW-53	3/29/2017	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	6/21/2017	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	9/11/2017	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	12/5/2017	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	2/21/2018	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	4/26/2018	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	8/15/2018	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-53	11/6/2018	6914.38	NA	Dry	Dry	ND	NA	33.90
OW-53	2/6/2019	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-53	5/2/2019	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-53	8/21/2019	6914.38	NA	Dry	Dry	ND	NA	33.91

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MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-53	10/15/2019	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-53	9/14/2020	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-53	11/9/2020	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-53	12/7/2020	6914.38	NA	Dry	Dry	ND	NA	33.91
OW-54	3/29/2017	6918.92	NA	6900.48	18.44	ND	NA	31.04
OW-54	6/21/2017	6918.92	NA	6900.29	18.63	ND	NA	31.04
OW-54	9/11/2017	6918.92	NA	6900.22	18.70	ND	NA	31.04
OW-54	12/5/2017	6918.92	NA	6900.65	18.27	ND	NA	31.06
OW-54	2/21/2018	6918.92	NA	6900.87	18.05	ND	NA	30.87
OW-54	4/26/2018	6918.92	NA	6901.09	17.83	ND	NA	29.70
OW-54	8/14/2018	6918.92	NA	6900.69	18.23	ND	NA	29.62
OW-54	11/6/2018	6918.92	NA	6901.02	17.90	ND	NA	31.06
OW-54	2/6/2019	6918.92	NA	6901.34	17.58	ND	NA	31.04
OW-54	5/2/2019	6918.92	NA	6901.40	17.52	ND	NA	31.04
OW-54	8/21/2019	6918.92	NA	6900.92	18.00	ND	NA	29.62
OW-54	10/15/2019	6918.92	NA	6900.83	18.09	ND	NA	31.06
OW-54	9/14/2020	6918.92	NA	6900.75	18.17	ND	NA	24.58
OW-54	10/9/2020	6918.92	NA	6901.00	17.92	ND	NA	24.58
OW-54	12/7/2020	6918.92	NA	6901.14	17.78	ND	NA	24.58
OW-55	3/29/2017	6923.25	NA	6904.86	18.39	ND	NA	30.70
OW-55	6/21/2017	6923.25	NA	6904.78	18.47	ND	NA	30.70
OW-55	9/11/2017	6923.25	NA	6904.76	18.49	ND	NA	30.70
OW-55	12/5/2017	6923.25	NA	6905.20	18.05	ND	NA	30.90
OW-55	2/21/2018	6923.25	NA	6905.45	17.80	ND	NA	30.95
OW-55	4/26/2018	6923.25	NA	6905.64	17.61	ND	NA	30.92
OW-55	8/14/2018	6923.25	NA	6905.31	17.94	ND	NA	30.70
OW-55	11/6/2018	6923.25	NA	6905.53	17.72	ND	NA	30.90
OW-55	2/6/2019	6923.25	NA	6905.88	17.37	ND	NA	30.70
OW-55	5/2/2019	6923.25	NA	6905.87	17.38	ND	NA	30.70
OW-55	8/21/2019	6923.25	NA	6905.55	17.70	ND	NA	30.70
OW-55	10/15/2019	6923.25	NA	6905.52	17.73	ND	NA	30.90
OW-55	9/14/2020	6923.25	NA	6905.29	17.96	ND	NA	24.48
OW-55	10/9/2020	6923.25	NA	6905.55	17.70	ND	NA	24.48
OW-55	12/7/2020	6923.25	NA	6905.64	17.61	ND	NA	24.48
OW-56	3/29/2017	6920.18	NA	6907.89	12.29	ND	NA	18.59
OW-56	6/21/2017	6920.18	NA	6906.65	13.53	ND	NA	18.59
OW-56	9/11/2017	6920.18	NA	6905.68	14.50	ND	NA	18.59
OW-56	12/5/2017	6920.18	NA	6906.75	13.43	ND	NA	18.58
OW-56	2/21/2018	6920.18	NA	6907.34	12.84	ND	NA	18.59
OW-56	4/26/2018	6920.18	NA	6907.56	12.62	ND	NA	18.59
OW-56	8/14/2018	6920.18	NA	6906.36	13.82	ND	NA	18.59
OW-56	11/6/2018	6920.18	NA	6906.13	14.05	ND	NA	18.58
OW-56	2/6/2019	6920.18	NA	6907.18	13.00	ND	NA	18.59
OW-56	5/2/2019	6920.18	NA	6907.68	12.50	ND	NA	18.59
OW-56	8/21/2019	6920.18	NA	6906.52	13.66	ND	NA	18.59
OW-56	10/15/2019	6920.18	NA	6905.80	14.38	ND	NA	18.58
OW-56	9/14/2020	6920.18	NA	6905.82	14.36	ND	NA	18.58

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GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-56	11/9/2020	6920.18	NA	6905.97	14.21	ND	NA	18.58
OW-56	12/7/2020	6920.18	NA	6906.45	13.73	ND	NA	18.58
OW-57	3/30/2017	6933.10	NA	NA	NA	NA	NA	28.35
OW-57	6/20/2017	6933.10	NA	6912.58	20.52	ND	NA	28.35
OW-57	9/19/2017	6933.10	NA	6912.95	20.15	ND	NA	28.35
OW-57	12/5/2017	6933.10	NA	6912.99	20.11	ND	NA	28.35
OW-57	2/19/2018	6933.10	NA	6913.22	19.88	ND	NA	28.35
OW-57	4/25/2018	6933.10	NA	6913.08	20.02	ND	NA	28.06
OW-57	8/15/2018	6933.10	NA	6912.94	20.16	ND	NA	28.07
OW-57	11/29/2018	6933.10	NA	6912.80	20.30	ND	NA	28.35
OW-57	2/19/2019	6933.10	NA	6912.81	20.29	ND	NA	28.10
OW-57	5/15/2019	6933.10	NA	6913.08	20.02	ND	NA	28.10
OW-57	8/20/2019	6933.10	NA	6913.32	19.78	ND	NA	28.07
OW-57	11/4/2019	6933.10	NA	6913.13	19.97	ND	NA	28.35
OW-57	9/14/2020	6933.10	NA	6912.60	20.50	ND	NA	28.09
OW-57	11/9/2020	6933.10	NA	6912.57	20.53	ND	NA	28.09
OW-57	12/7/2020	6933.10	NA	6912.46	20.64	ND	NA	28.39
OW-58	3/29/2017	6934.50	NA	6908.50	26.00	ND	NA	47.55
OW-58	6/21/2017	6934.50	NA	6909.36	25.14	ND	NA	47.55
OW-58	9/19/2017	6934.50	NA	6909.46	25.04	ND	NA	47.55
OW-58	12/6/2017	6934.50	NA	6909.83	24.67	ND	NA	47.50
OW-58	2/20/2018	6934.50	NA	6909.98	24.52	ND	NA	47.62
OW-58	4/25/2018	6934.50	NA	6910.25	24.25	ND	NA	47.50
OW-58	8/16/2018	6934.50	NA	6910.02	24.48	ND	NA	47.49
OW-58	11/29/2018	6934.50	NA	6910.23	24.27	ND	NA	47.50
OW-58	3/28/2019	6934.50	NA	6910.22	24.28	ND	NA	47.30
OW-58	6/5/2019	6934.50	NA	6910.41	24.09	ND	NA	47.30
OW-58	8/20/2019	6934.50	NA	6910.50	24.00	ND	NA	47.49
OW-58	11/18/2019	6934.50	NA	6910.51	23.99	ND	NA	47.50
OW-58	9/14/2020	6934.50	NA	6910.95	23.55	ND	NA	48.00
OW-58	11/9/2020	6934.50	NA	6911.19	23.31	ND	NA	48.00
OW-58	12/8/2020	6934.50	NA	6910.18	24.32	ND	NA	47.95
OW-58A	9/15/2020	6935.88	NA	6909.01	26.87	ND	NA	36.00
OW-58A	11/9/2020	6935.88	NA	6911.57	24.31	ND	NA	36.91
OW-58A	12/8/2020	6935.88	NA	6909.17	26.71	ND	NA	36.38
OW-59	9/21/2017	6889.73	NA	6865.43	24.30	ND	NA	38.30
OW-59	12/5/2017	6889.73	NA	6865.43	24.30	ND	NA	38.50
OW-59	2/21/2018	6889.73	NA	6865.73	24.00	ND	NA	38.55
OW-59	4/26/2018	6889.73	NA	6865.68	24.05	ND	NA	38.48
OW-59	8/14/2018	6889.73	NA	6865.60	24.13	ND	NA	38.52
OW-59	11/6/2018	6889.73	NA	6865.83	23.90	ND	NA	38.50
OW-59	2/13/2019	6889.73	NA	6865.83	23.90	ND	NA	38.30
OW-59	5/2/2019	6889.73	NA	6865.93	23.80	ND	NA	38.30
OW-59	8/21/2019	6889.73	NA	6865.71	24.02	ND	NA	38.52
OW-59	10/15/2019	6889.73	NA	6865.62	24.11	ND	NA	38.50
OW-59	9/14/2020	6889.73	NA	6865.67	24.06	ND	NA	38.52
OW-59	12/7/2020	6889.73	NA	6865.82	23.91	ND	NA	38.55

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-60	9/21/2017	6893.51	NA	6877.06	16.45	ND	NA	45.55
OW-60	12/5/2017	6893.51	NA	6877.11	16.40	ND	NA	45.70
OW-60	2/21/2018	6893.51	NA	6877.25	16.26	ND	NA	46.06
OW-60	4/26/2018	6893.51	NA	6876.99	16.52	ND	NA	46.15
OW-60	8/14/2018	6893.51	NA	6876.99	16.52	ND	NA	46.42
OW-60	11/6/2018	6893.51	NA	6877.26	16.25	ND	NA	45.70
OW-60	2/13/2019	6893.51	NA	6877.08	16.43	ND	NA	45.50
OW-60	5/2/2019	6893.51	NA	6876.96	16.55	ND	NA	45.50
OW-60	8/21/2019	6893.51	NA	6876.98	16.53	ND	NA	46.42
OW-60	10/15/2019	6893.51	NA	6877.10	16.41	ND	NA	45.70
OW-60	9/14/2020	6893.51	NA	6876.94	16.57	ND	NA	45.70
OW-60	11/9/2020	6893.51	NA	6877.16	16.35	ND	NA	45.70
OW-60	12/7/2020	6893.51	NA	6876.96	16.55	ND	NA	45.70
OW-61	3/21/2018	NA	NA	NA	16.80	16.71	0.09	31.68
OW-61	4/24/2018	NA	NA	NA	18.04	17.22	0.82	31.67
OW-61	8/16/2018	NA	NA	NA	22.10	17.40	4.70	31.70
OW-61	11/29/2018	NA	NA	NA	22.00	17.95	4.05	32.00
OW-61	2/19/2019	NA	NA	NA	22.09	18.00	4.09	32.00
OW-61	5/15/2019	NA	NA	NA	21.13	17.62	3.51	32.00
OW-61	8/20/2019	NA	NA	NA	20.15	17.42	2.73	31.70
OW-61	11/4/2019	NA	NA	NA	20.63	17.54	3.09	32.00
OW-61	9/15/2020	6963.57	6946.69	6944.17	19.40	16.88	2.52	31.85
OW-61	11/9/2020	6963.57	6945.35	6943.99	19.58	18.22	1.36	31.85
OW-61	12/8/2020	6963.57	6945.17	6943.27	20.30	18.40	1.90	31.33
OW-62	3/21/2018	6937.36	NA	6914.43	22.93	ND	NA	31.57
OW-62	4/24/2018	6937.36	NA	6914.22	23.14	ND	NA	31.58
OW-62	8/15/2018	6937.36	NA	6913.66	23.70	ND	NA	31.59
OW-62	11/29/2018	6937.36	NA	6913.37	23.99	ND	NA	31.59
OW-62	2/19/2019	6937.36	6913.61	6912.41	24.95	23.75	1.20	31.47
OW-62	5/15/2019	6937.36	6913.96	6913.36	24.00	23.40	0.60	31.47
OW-62	8/20/2019	6937.36	6913.50	6913.07	24.29	23.86	0.43	31.47
OW-62	11/18/2019	6937.36	6913.64	6913.02	24.34	23.72	0.62	31.47
OW-62	9/15/2020	6937.36	6913.74	6913.49	23.87	23.62	0.25	32.05
OW-62	11/9/2020	6937.36	6913.66	6913.36	24.00	23.70	0.30	32.05
OW-62	12/8/2020	6937.36	6913.67	6913.38	23.98	23.69	0.29	31.66
OW-63	3/21/2018	NA	NA	NA	20.19	ND	NA	32.18
OW-63	4/24/2018	NA	NA	NA	20.33	ND	NA	32.18
OW-63	8/16/2018	NA	NA	NA	20.60	ND	NA	32.20
OW-63	11/29/2018	NA	NA	NA	20.95	ND	NA	32.00
OW-63	2/19/2019	NA	NA	NA	20.74	ND	NA	32.00
OW-63	5/15/2019	NA	NA	NA	20.35	ND	NA	32.00
OW-63	8/19/2019	NA	NA	NA	20.12	ND	NA	32.20
OW-63	11/18/2019	NA	NA	NA	20.30	ND	NA	32.00
OW-63	9/14/2020	6935.06	NA	6914.33	20.73	ND	NA	32.05
OW-63	11/9/2020	6935.06	NA	6914.21	20.85	ND	NA	32.05
OW-63	12/8/2020	6935.06	NA	6914.09	20.97	ND	NA	32.22
OW-64	3/21/2018	NA	NA	NA	7.72	ND	NA	27.62

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Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
OW-64	4/24/2018	NA	NA	NA	7.85	ND	NA	27.63
OW-64	8/16/2018	NA	NA	NA	7.51	ND	NA	27.35
OW-64	11/29/2018	NA	NA	NA	8.11	8.06	0.05	27.35
OW-64	2/19/2019	NA	NA	NA	7.02	7.00	0.02	27.63
OW-64	5/15/2019	NA	NA	NA	6.83	ND	NA	27.63
OW-64	8/19/2019	NA	NA	NA	7.10	ND	NA	27.35
OW-64	11/18/2019	NA	NA	NA	8.40	ND	NA	27.35
OW-64	9/14/2020	6947.40	NA	6939.45	7.95	ND	NA	27.35
OW-64	11/9/2020	6947.40	NA	6939.22	8.18	ND	NA	27.35
OW-64	12/7/2020	6947.40	NA	6939.14	8.26	ND	NA	27.35
OW-65	3/21/2018	NA	NA	NA	23.60	23.40	0.20	41.66
OW-65	4/24/2018	NA	NA	NA	26.35	23.61	2.74	41.65
OW-65	8/16/2018	NA	NA	NA	26.64	24.96	1.68	41.66
OW-65	11/29/2018	NA	NA	NA	31.80	24.05	7.75	40.00
OW-65	2/19/2019	NA	NA	NA	31.51	22.24	9.27	40.00
OW-65	5/15/2019	NA	NA	NA	32.21	23.47	8.74	40.00
OW-65	8/20/2019	NA	NA	NA	31.15	21.97	9.18	41.66
OW-65	9/14/2020	6954.05	6929.35	6923.29	30.76	24.70	6.06	42.80
OW-65	11/9/2020	6954.05	6929.00	6921.70	32.35	25.05	7.30	42.80
OW-65	12/8/2020	6954.05	6928.26	6922.10	31.95	25.79	6.16	42.50
RW-1	3/14/2014	6946.06	6917.95	6914.41	31.65	28.11	3.54	43.04
RW-1	6/9/2014	6946.06	6918.01	6913.00	33.06	28.05	5.01	43.04
RW-1	9/18/2014	6946.06	6917.75	NA	NA	28.31	NA	43.04
RW-1	11/13/2014	6946.06	6917.91	6913.02	33.04	28.15	4.89	43.04
RW-1	3/23/2015	6946.06	6917.96	6913.26	32.80	28.10	4.70	43.04
RW-1	6/9/2015	6946.06	6918.36	6913.96	32.10	27.70	4.40	43.04
RW-1	8/23/2015	6946.06	6917.98	6916.04	30.02	28.08	1.94	43.04
RW-1	10/29/2015	6946.06	6918.41	6915.96	30.10	27.65	2.45	43.04
RW-1	3/4/2016	6946.06	6918.01	6915.51	30.55	28.05	2.50	43.04
RW-1	6/8/2016	6946.06	6918.08	6914.26	31.80	27.98	3.82	43.04
RW-1	9/13/2016	6946.06	6918.16	6914.02	32.04	27.90	4.14	43.04
RW-1	11/16/2016	6946.06	6918.26	6915.16	30.90	27.80	3.10	43.04
RW-1	3/16/2017	6946.06	6919.01	6915.51	30.55	27.05	3.50	43.04
RW-1	6/20/2017	6946.06	6919.29	6917.64	28.42	26.77	1.65	43.04
RW-1	9/19/2017	6946.06	6919.54	6918.46	27.60	26.52	1.08	43.04
RW-1	12/12/2017	6946.06	6919.56	6918.56	27.50	26.50	1.00	43.04
RW-1	2/13/2018	6946.06	6919.12	6918.84	27.22	26.94	0.28	43.04
RW-1	4/25/2018	6946.06	6919.12	6918.85	27.21	26.94	0.27	43.35
RW-1	8/16/2018	6946.06	6918.62	6918.36	27.70	27.44	0.26	43.45
RW-1	11/7/2018	6946.06	NA	NA	NA	NA	NA	43.45
RW-1	3/28/2019	6946.06	NA	NA	NA	NA	NA	43.45
RW-1	5/8/2019	6946.06	NA	NA	NA	NA	NA	43.45
RW-1	8/16/2019	6946.06	NA	NA	NA	NA	NA	43.45
RW-1	11/1/2019	6946.06	NA	NA	NA	NA	NA	43.45
RW-1	9/19/2020	6946.06	6917.99	6915.86	30.20	28.07	2.13	43.45
RW-1	11/10/2020	6946.06	6916.56	6915.73	30.33	29.50	0.83	43.45
RW-1	12/8/2020	6946.06	6916.56	6915.73	30.33	29.50	0.83	43.45

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
RW-2	3/17/2014	6928.53	NA	6903.94	24.59	ND	NA	39.80
RW-2	6/9/2014	6928.53	NA	6904.74	23.79	ND	NA	39.80
RW-2	9/18/2014	6928.53	NA	6904.58	23.95	ND	NA	39.80
RW-2	11/13/2014	6928.53	NA	6904.63	23.90	ND	NA	39.80
RW-2	3/23/2015	6928.53	NA	6905.01	23.52	ND	NA	39.80
RW-2	6/9/2015	6928.53	NA	6905.51	23.02	ND	NA	39.80
RW-2	8/23/2015	6928.53	NA	6905.16	23.37	ND	NA	39.80
RW-2	10/29/2015	6928.53	NA	6905.73	22.80	ND	NA	39.80
RW-2	3/4/2016	6928.53	NA	6906.08	22.45	ND	NA	39.80
RW-2	6/8/2016	6928.53	NA	6906.22	22.31	ND	NA	39.80
RW-2	9/13/2016	6928.53	NA	6906.06	22.47	ND	NA	39.80
RW-2	11/16/2016	6928.53	NA	6906.31	22.22	ND	NA	39.80
RW-2	3/16/2017	6928.53	NA	6906.88	21.65	ND	NA	39.80
RW-2	6/20/2017	6928.53	NA	6907.34	21.19	ND	NA	39.80
RW-2	9/19/2017	6928.53	NA	6907.82	20.71	ND	NA	39.80
RW-2	12/5/2017	6928.53	NA	6908.19	20.34	ND	NA	40.00
RW-2	2/19/2018	6928.53	NA	6908.53	20.00	ND	NA	40.00
RW-2	4/25/2018	6928.53	NA	6908.50	20.03	ND	NA	39.99
RW-2	8/16/2018	6928.53	NA	6908.43	20.10	ND	NA	40.00
RW-2	11/7/2018	6928.53	NA	NA	NA	NA	NA	40.00
RW-2	3/28/2019	6928.53	NA	NA	NA	NA	NA	40.00
RW-2	5/8/2019	6928.53	NA	NA	NA	NA	NA	40.00
RW-2	8/16/2019	6928.53	NA	NA	NA	NA	NA	40.00
RW-2	11/1/2019	6928.53	NA	NA	NA	NA	NA	40.00
RW-2	9/19/2020	6928.53	6906.43	6906.30	22.23	22.10	0.13	40.00
RW-2	11/9/2020	6928.53	6906.44	6906.25	22.28	22.09	0.19	40.00
RW-2	12/8/2020	6928.53	6906.33	6906.15	22.38	22.20	0.18	40.00
RW-5	3/14/2014	6943.57	NA	6915.65	27.92	ND	NA	39.59
RW-5	6/9/2014	6943.57	NA	6914.77	28.80	ND	NA	39.59
RW-5	9/18/2014	6943.57	NA	6914.76	28.81	ND	NA	39.59
RW-5	11/13/2014	6943.57	NA	6914.87	28.70	ND	NA	39.59
RW-5	3/23/2015	6943.57	NA	6914.47	29.10	ND	NA	39.59
RW-5	6/9/2015	6943.57	NA	6914.77	28.80	ND	NA	39.59
RW-5	8/23/2015	6943.57	NA	6914.49	29.08	ND	NA	39.59
RW-5	10/29/2015	6943.57	NA	6915.60	27.97	ND	NA	39.59
RW-5	3/4/2016	6943.57	NA	6915.35	28.22	ND	NA	39.59
RW-5	6/7/2016	6943.57	NA	6915.35	28.22	ND	NA	39.59
RW-5	9/13/2016	6943.57	NA	6915.87	27.70	ND	NA	39.59
RW-5	11/16/2016	6943.57	NA	6916.17	27.40	ND	NA	39.59
RW-5	3/16/2017	6943.57	NA	6916.04	27.53	ND	NA	39.59
RW-5	6/20/2017	6943.57	6918.27	6910.27	33.30	25.30	8.00	39.59
RW-5	9/19/2017	6943.57	6918.11	6911.92	31.65	25.46	6.19	39.59
RW-5	12/12/2017	6943.57	6918.82	6909.57	34.00	24.75	9.25	39.59
RW-5	2/9/2018	6943.57	6918.07	6909.97	33.60	25.50	8.10	39.59
RW-5	4/25/2018	6943.57	6916.95	6911.23	32.34	26.62	5.72	39.59
RW-5	8/16/2018	6943.57	6916.37	6910.99	32.58	27.20	5.38	39.51
RW-5	11/7/2018	6943.57	NA	NA	NA	NA	NA	39.51

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
RW-5	3/28/2019	6943.57	NA	NA	NA	NA	NA	39.51
RW-5	5/8/2019	6943.57	NA	NA	NA	NA	NA	39.51
RW-5	8/16/2019	6943.57	NA	NA	NA	NA	NA	39.51
RW-5	11/1/2019	6943.57	NA	NA	NA	NA	NA	39.51
RW-5	9/19/2020	6943.57	6913.98	6910.76	32.81	29.59	3.22	39.51
RW-5	11/9/2020	6943.57	6913.71	6910.54	33.03	29.86	3.17	39.51
RW-5	12/8/2020	6943.57	6910.42	6904.06	39.51	33.15	6.36	39.51
RW-6	3/17/2014	6944.01	NA	6915.97	28.04	ND	NA	40.90
RW-6	6/23/2014	6944.01	NA	6915.16	28.85	ND	NA	40.90
RW-6	9/18/2014	6944.01	NA	6915.12	28.89	ND	NA	40.90
RW-6	11/13/2014	6944.01	NA	6915.18	28.83	ND	NA	40.90
RW-6	3/23/2015	6944.01	NA	6914.83	29.18	ND	NA	40.90
RW-6	6/9/2015	6944.01	NA	6915.33	28.68	ND	NA	40.90
RW-6	8/23/2015	6944.01	NA	6914.95	29.06	ND	NA	40.90
RW-6	10/29/2015	6944.01	NA	6916.04	27.97	ND	NA	40.90
RW-6	3/4/2016	6944.01	NA	6915.76	28.25	ND	NA	40.90
RW-6	6/7/2016	6944.01	NA	6915.77	28.24	ND	NA	40.90
RW-6	9/13/2016	6944.01	NA	6916.02	27.99	ND	NA	40.90
RW-6	11/16/2016	6944.01	NA	6916.29	27.72	ND	NA	40.90
RW-6	3/16/2017	6944.01	NA	6916.44	27.57	ND	NA	40.90
RW-6	6/20/2017	6944.01	6918.51	6910.39	33.62	25.50	8.12	40.90
RW-6	9/19/2017	6944.01	6918.12	6913.04	30.97	25.89	5.08	40.90
RW-6	12/12/2017	6944.01	6919.18	6910.16	33.85	24.83	9.02	40.90
RW-6	2/9/2018	6944.01	6918.36	6910.96	33.05	25.65	7.40	40.90
RW-6	4/25/2018	6944.01	6917.08	6912.32	31.69	26.93	4.76	40.83
RW-6	8/16/2018	6944.01	6916.58	6912.23	31.78	27.43	4.35	40.85
RW-6	11/7/2018	6944.01	NA	NA	NA	NA	NA	40.85
RW-6	3/28/2019	6944.01	NA	NA	NA	NA	NA	40.85
RW-6	5/8/2019	6944.01	NA	NA	NA	NA	NA	40.85
RW-6	8/16/2019	6944.01	NA	NA	NA	NA	NA	40.85
RW-6	9/19/2020	6944.01	6914.29	6911.37	32.64	29.72	2.92	40.85
RW-6	11/9/2020	6944.01	6914.03	6910.96	33.05	29.98	3.07	40.85
RW-6	12/8/2020	6944.01	6913.83	6910.70	33.31	30.18	3.13	40.85
SMW-2	9/11/2014	6883.97	NA	6858.87	25.10	ND	NA	52.80
SMW-2	8/10/2015	6883.97	NA	6859.09	24.88	ND	NA	52.80
SMW-2	9/9/2016	6883.97	NA	6859.13	24.84	ND	NA	52.80
SMW-2	9/11/2017	6883.97	NA	6859.18	24.79	ND	NA	52.80
SMW-2	8/15/2018	6883.97	NA	6859.48	24.49	ND	NA	52.80
SMW-2	8/19/2019	6883.97	NA	6858.67	25.30	ND	NA	52.80
SMW-2	9/14/2020	6883.97	NA	6859.27	24.70	ND	NA	53.11
SMW-4	9/11/2014	6879.52	NA	6850.42	29.10	ND	NA	69.68
SMW-4	8/10/2015	6879.52	NA	6850.20	29.32	ND	NA	69.68
SMW-4	9/6/2016	6879.52	NA	6850.52	29.00	ND	NA	69.68
SMW-4	9/11/2017	6879.52	NA	6850.19	29.33	ND	NA	69.68
SMW-4	8/15/2018	6879.52	NA	6850.48	29.04	ND	NA	69.68
SMW-4	12/6/2018	6879.52	NA	6850.27	29.25	ND	NA	69.68
SMW-4	8/13/2019	6879.52	NA	6850.42	29.10	ND	NA	69.68

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
SMW-4	9/14/2020	6879.52	NA	6850.37	29.15	ND	NA	62.90
STP1-NW	3/10/2015	6904.47	NA	6883.73	20.74	ND	NA	50.00
STP1-NW	6/2/2015	6904.47	NA	6883.75	20.72	ND	NA	50.00
STP1-NW	8/11/2015	6904.47	NA	6883.68	20.79	ND	NA	50.00
STP1-NW	10/29/2015	6904.47	NA	6883.87	20.60	ND	NA	50.00
STP1-NW	3/1/2016	6904.47	NA	6883.92	20.55	ND	NA	50.00
STP1-NW	6/7/2016	6904.47	NA	6883.58	20.89	ND	NA	50.00
STP1-NW	9/9/2016	6904.47	NA	6883.27	21.20	ND	NA	50.00
STP1-NW	11/14/2016	6904.47	NA	6883.45	21.02	ND	NA	50.00
STP1-NW	2/21/2017	6904.47	NA	6884.00	20.47	ND	NA	50.00
STP1-NW	6/2/2017	6904.47	NA	6883.81	20.66	ND	NA	50.00
STP1-NW	9/5/2017	6904.47	NA	6883.66	20.81	ND	NA	50.00
STP1-NW	12/4/2017	6904.47	NA	6883.92	20.55	ND	NA	49.74
STP1-NW	2/9/2018	6904.47	NA	6883.92	20.55	ND	NA	49.73
STP1-NW	4/26/2018	6904.47	NA	6883.83	20.64	ND	NA	49.65
STP1-NW	8/15/2018	6904.47	NA	6883.55	20.92	ND	NA	49.78
STP1-NW	11/19/2018	6904.47	NA	NA	NA	NA	NA	49.78
STP1-NW	2/13/2019	6904.47	NA	6884.12	20.35	ND	NA	50.00
STP1-NW	5/8/2019	6904.47	NA	6884.93	19.54	ND	NA	50.00
STP1-NW	8/21/2019	6904.47	NA	6883.68	20.79	ND	NA	50.00
STP1-NW	10/22/2019	6904.47	NA	6883.71	20.76	ND	NA	50.00
STP1-NW	12/8/2020	6904.47	NA	6883.69	20.78	ND	NA	50.28
STP1-SW	3/10/2015	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	6/2/2015	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	8/11/2015	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	10/29/2015	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	3/8/2016	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	6/7/2016	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	9/9/2016	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	11/14/2016	6912.38	NA	Dry	Dry	ND	NA	29.10
STP1-SW	2/21/2017	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	6/2/2017	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	9/5/2017	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	12/4/2017	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	2/9/2018	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	4/26/2018	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	8/15/2018	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	11/19/2018	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	2/13/2019	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	5/8/2019	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	8/21/2019	6912.38	NA	NA	NA	NA	NA	29.10

**APPENDIX A. FLUID LEVEL MEASUREMENTS
MARATHON PETROLEUM COMPANY
GALLUP REFINING DIVISION, GALLUP, NEW MEXICO**

Location	Date Measured	Measuring Point Elevation (ft amsl)	Product Surface Elevation (ft amsl)	Water Surface Elevation (ft amsl)	Depth To Water (ft)	Depth To Product (ft)	Product Thickness (ft)	Total Depth (ft)
STP1-SW	10/22/2019	6912.38	NA	NA	NA	NA	NA	29.10
STP1-SW	12/8/2020	6912.38	NA	6883.15	29.23	NA	NA	29.25

Notes:

amsl = above mean sea level

ft = feet

NA = Not applicable

ND = Not detected

Appendix B – LIF/HP Methods

**APPENDIX B. LIF/HP TECHNOLOGY
LIF/HP INVESTIGATION REPORT
GALLUP REFINERY, GALLUP, NEW MEXICO**

Laser-Induced Fluorescence

Dakota Technologies, LLC, describes LIF technology as a direct optical sensing tool that uses laser light to cause certain polycyclic aromatic hydrocarbons (PAHs) found in petroleum derived SPH to fluoresce (Dakota 2021). The UVOST[®] is housed in a shock-protected optical compartment attached to the end of a DP probe string. Fiber optic cable, pre-strung in the probe rods, continuously transmits fluorescence data back to the rig-mounted computer, providing a real time log of fluorescence data points at sub-inch intervals. The Optical Screening Tool computer software transforms the fluorescence data into multi-wavelength waveforms that are specific to the types of PAHs present in a particular SPH mixture. LIF response intensity is influenced by the quantity of hydrocarbons present and the waveform pattern is a function of the relative proportions of the PAHs present. The LIF response is compared to that of a known reference standard and is presented as percent of the reference emitter (% RE). Direct-push drilling application of LIF provides vertical high-resolution data on SPH distribution in the subsurface. UVOST[®] signal responses correlate to free phase and residual SPH only. Vapor, sorbed, and dissolved hydrocarbon phases are invisible to the UVOST[®] system.

The UVOST[®] LIF log displays total signal logs consisting of four wavelength channels and can callout individual waveforms, a wavelength “fingerprint” display, to aid in identification and depth specific relative SPH quantities. The LIF data log displays depth on the vertical axis and fluorescence signal intensity on the horizontal axis. The signal intensity in % RE is based on a proprietary, calibrated reference emitter, which is a known fluorescence and not a specific petroleum hydrocarbon concentration. In general, the subsurface-SPH instrument responses depend on the SPH properties (e.g., quantity and type) and subsurface soil properties. However, the signal response is not directly correlated to whether a SPH is mobile or to a specific SPH recoverability. In this sense, a UVOST[®] log provides a semi-quantitative representation of the SPH saturation magnitude and reveals the SPH-impacted soil depth and breadth (Dakota 2021).

Hydraulic Profiling Tool

For this investigation an HP tool was coupled with the LIF tool. The HP tool provides formation permeability data through water injection pressure measurement as the tool is advanced into the subsurface (Geoprobe 2013). The LIF/HP probe is advanced into unconsolidated soils to assess centimeter-scale subsurface permeability. As the probe is pushed through the soil, water is injected into the soil column at a controlled rate. Total injection pressure is measured by a transducer while the injection flow rate is measured (McCall 2011).

The HP tool measures downhole hydraulic pressure (P Dwn), in pounds per square inch (psi), in response to the constant pumping rate of water into the saturated formation. Flow rate (Q) in milliliters per minute (mL/min) is the rate at which water is pumped out of the HP tool probe port. Normally, water is pumped out at a constant Q of 60 mL/min. A change in Q (usually accompanied by an inverse change in P Dwn) is an indicator of soil hydraulic properties. An estimated hydraulic conductivity (K) in feet per day (ft/d) can be internally calculated utilizing pressure and flow data in conjunction with location specific dissipation test(s). If a dissipation test is performed below the water table and the test successfully stabilizes, the result can be corrected to an absolute hydrostatic value, from which a potentiometric surface (water table) can be calculated.

**APPENDIX B. LIF/HP TECHNOLOGY
LIF/HP INVESTIGATION REPORT
GALLUP REFINERY, GALLUP, NEW MEXICO**

The estimated K (ft/d) is calculated using the equation:

$$K = \ln(Q/P') * 20.0 + 7.0$$

where: P' = downhole pressure in psi – (0.433 (psi/ft) * depth below water table (ft)) – atmospheric pressure (psi)

0.433 psi/ft = hydrostatic pressure gradient

Q = flow rate (mL/min).

Vadose zone K values are reported as estimates of the varying dry soil permeability. These values maintain qualitative value and may lend insight into vadose zone preferential pathways (Dakota 2021).

Electrical Conductivity Tool

For this investigation an EC tool was coupled with the LIF tool. The EC tool provides formation conductivity data. The electrical conductivity of unconsolidated materials is a function of the moisture content of the material and the conducting properties of the pore fluids and sediments. In the saturated zone, where variations in moisture content are small, fluid and matrix properties are the major factors. In formations where variations in ground water chemistry are small, differences in sediment size and type are the dominant control on electrical conductivity (Schulmeister, et al. 2003).

The electrical conductivity associated with sedimentary materials varies with particle size and mineral species. Silt- and sand-sized particles of covalently bonded minerals, such as quartz, mica, and feldspar, are generally nonconductive.

For this reason, electrical conductivity in sand and gravel aquifers primarily reflects variations in concentrations of dissolved constituents. Clay-sized particles, such as phyllosilicates, humic substances, and iron and manganese oxides and oxyhydroxides, tend to be highly conductive due to their extremely small size, relatively high surface area per unit volume, and charge characteristics. Thus, in formations where clay-sized particles are present, both lateral and vertical variations in lithology may be assessed using EC logs (Schulmeister, et al. 2003).

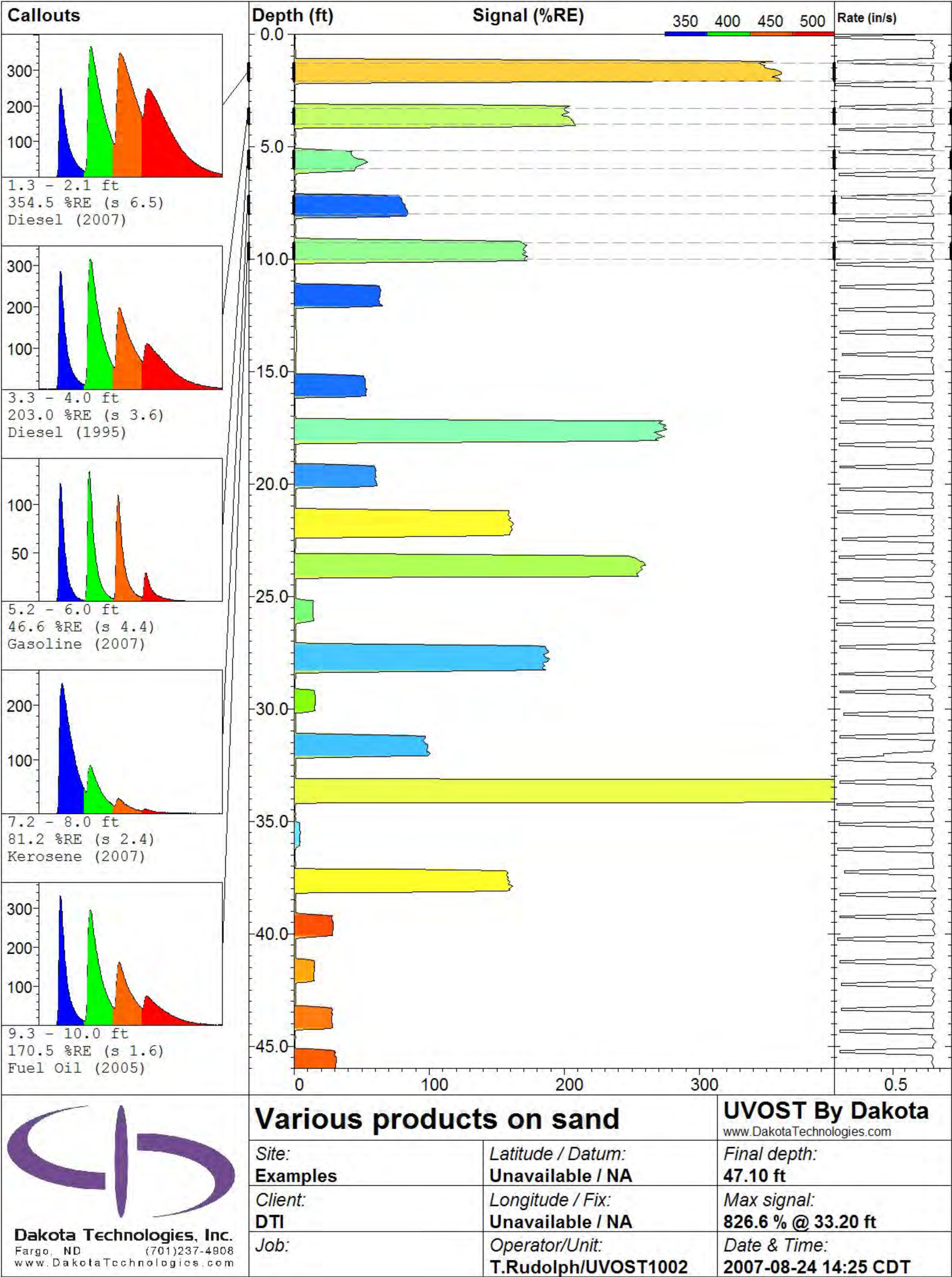
References

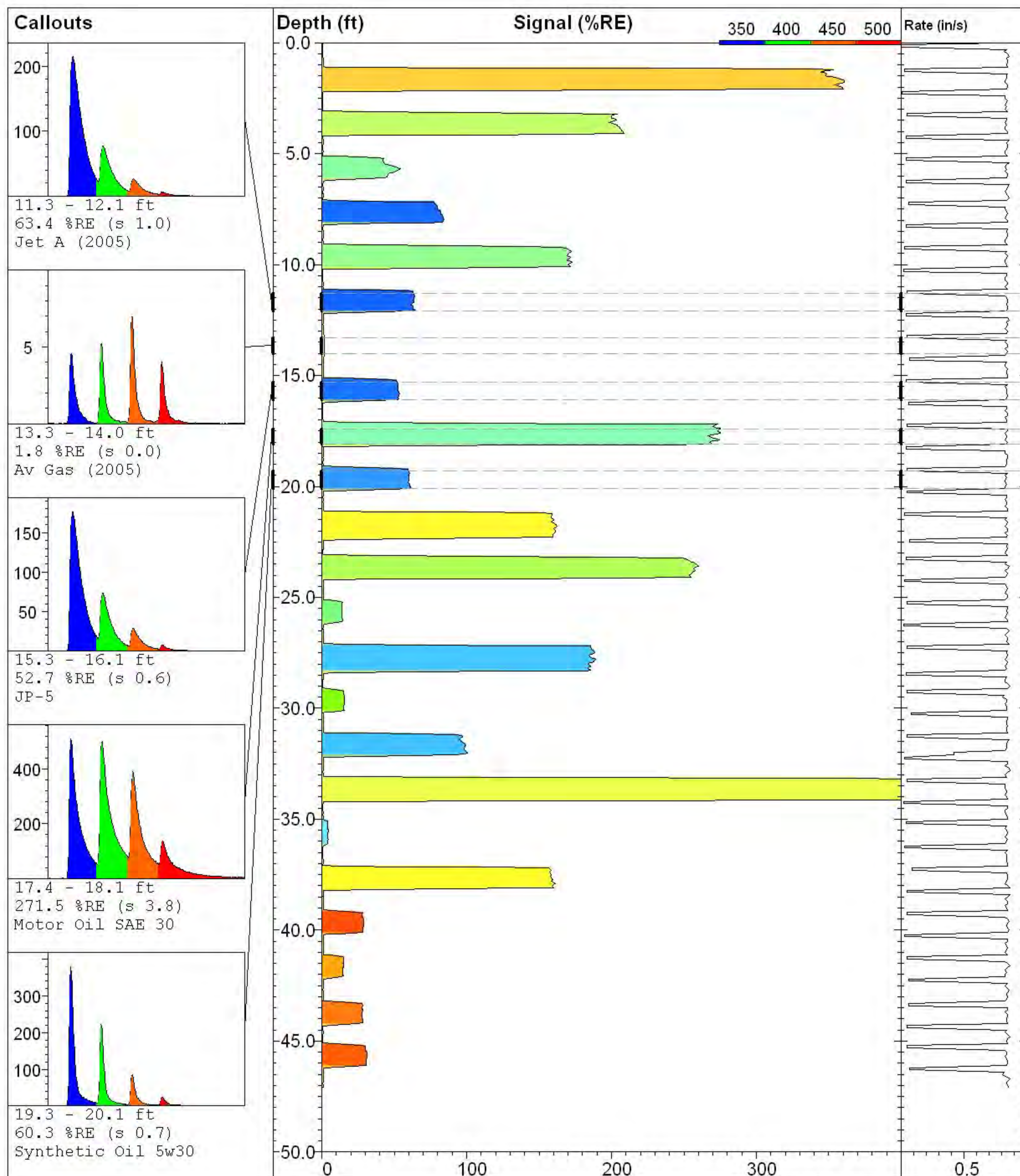
Dakota Technologies Company, LLC (Dakota). 2021. High Resolution Site Characterization Report – UVOST®-HP Investigation, Marathon Marketing Tank Farm, Gallup, NM. Project Number: 0049.21. February 10.

Geoprobe Systems (Geoprobe). 2013. Hydraulic Profiling Tool (HPT). Accessed from:
https://geoprobe.com/sites/default/files/storage/pdfs/ps_2013_di_hpt_0_0.pdf.

McCall, W. 2011. Application of the Geoprobe® HPT Logging System for Geo-Environmental Investigations. Geoprobe® Technical Bulletin No. MK3184. February.

Schulmeister, M. K., Butler Jr., J. J., Healey, J. M., Zheng, L., Wysocki, D. A., and McCall, G. W. 2003. Direct-Push Electrical Conductivity Logging for High-Resolution Hydrostratigraphic Characterization. Ground Water Monitoring and Remediation. V. 23, No. 3, p 52-62.





Dakota Technologies, Inc.
 Fargo, ND (701)237-4908
www.DakotaTechnologies.com

Various products on sand

Site:
Examples

Client:
DTI

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
T.Rudolph/UVOST1002

UVOST By Dakota

www.DakotaTechnologies.com

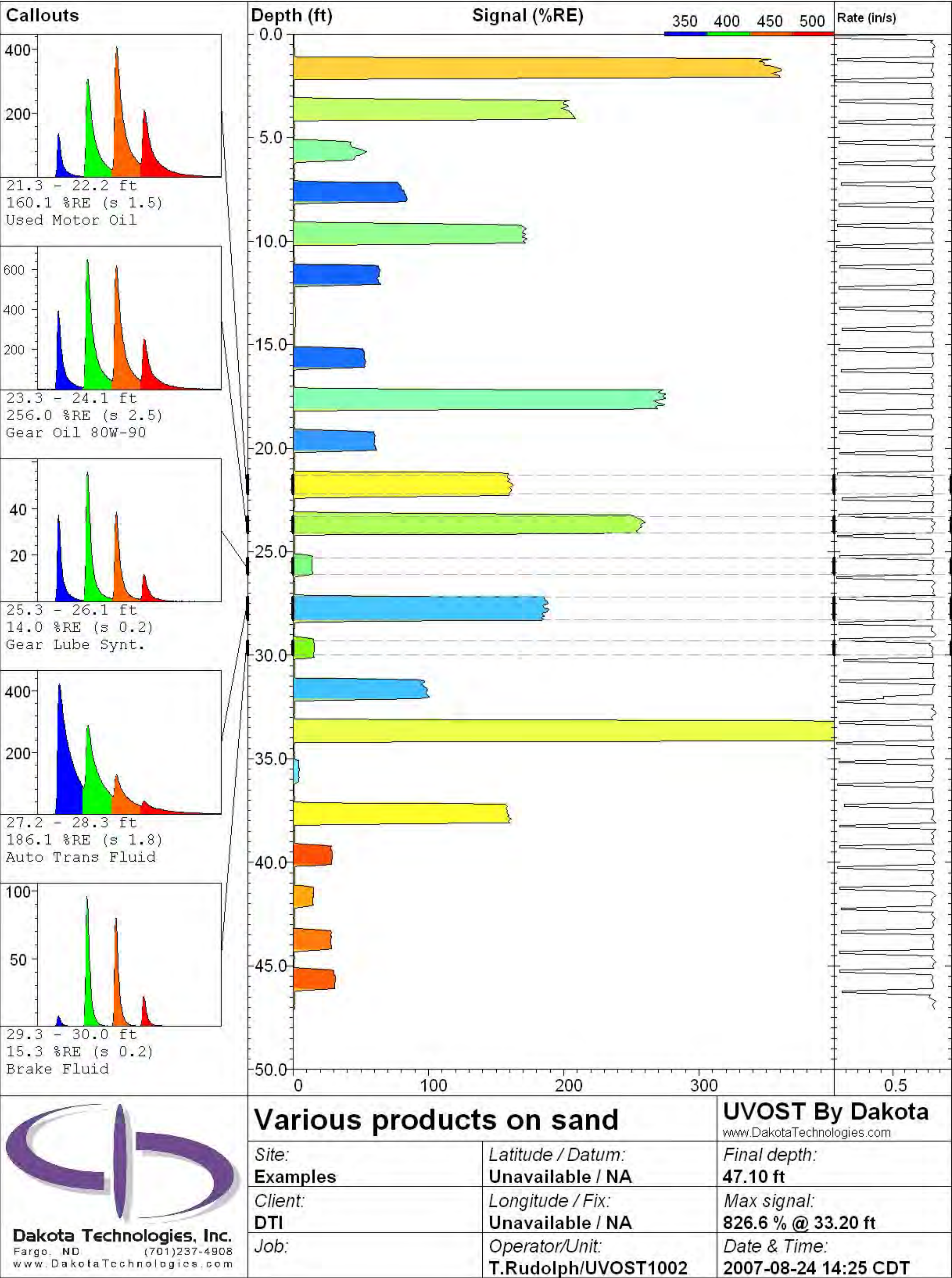
Final depth:

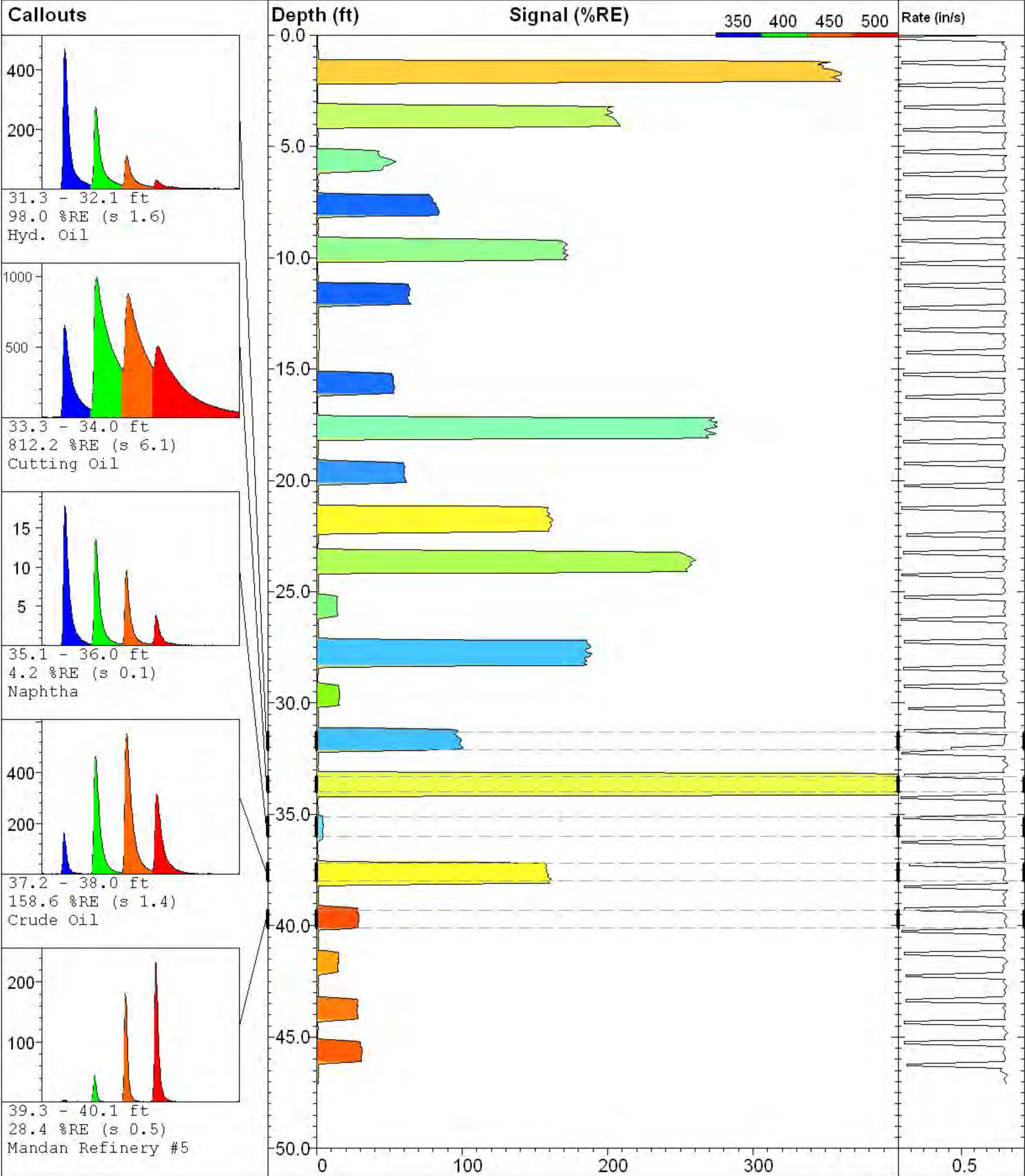
47.10 ft

Max signal:
826.6 % @ 33.20 ft

Date & Time:

2007-08-24 14:25 CDT





 Dakota Technologies, Inc. Fargo, ND (701)237-4908 www.DakotaTechnologies.com		Various products on sand		UVOST By Dakota www.DakotaTechnologies.com	
Site: Examples		Latitude / Datum: Unavailable / NA		Final depth: 47.10 ft	
Client: DTI		Longitude / Fix: Unavailable / NA		Max signal: 826.6 % @ 33.20 ft	
Job:		Operator/Unit: T.Rudolph/UVOST1002		Date & Time: 2007-08-24 14:25 CDT	



Dakota Technologies UVOST®-HP Reference Log

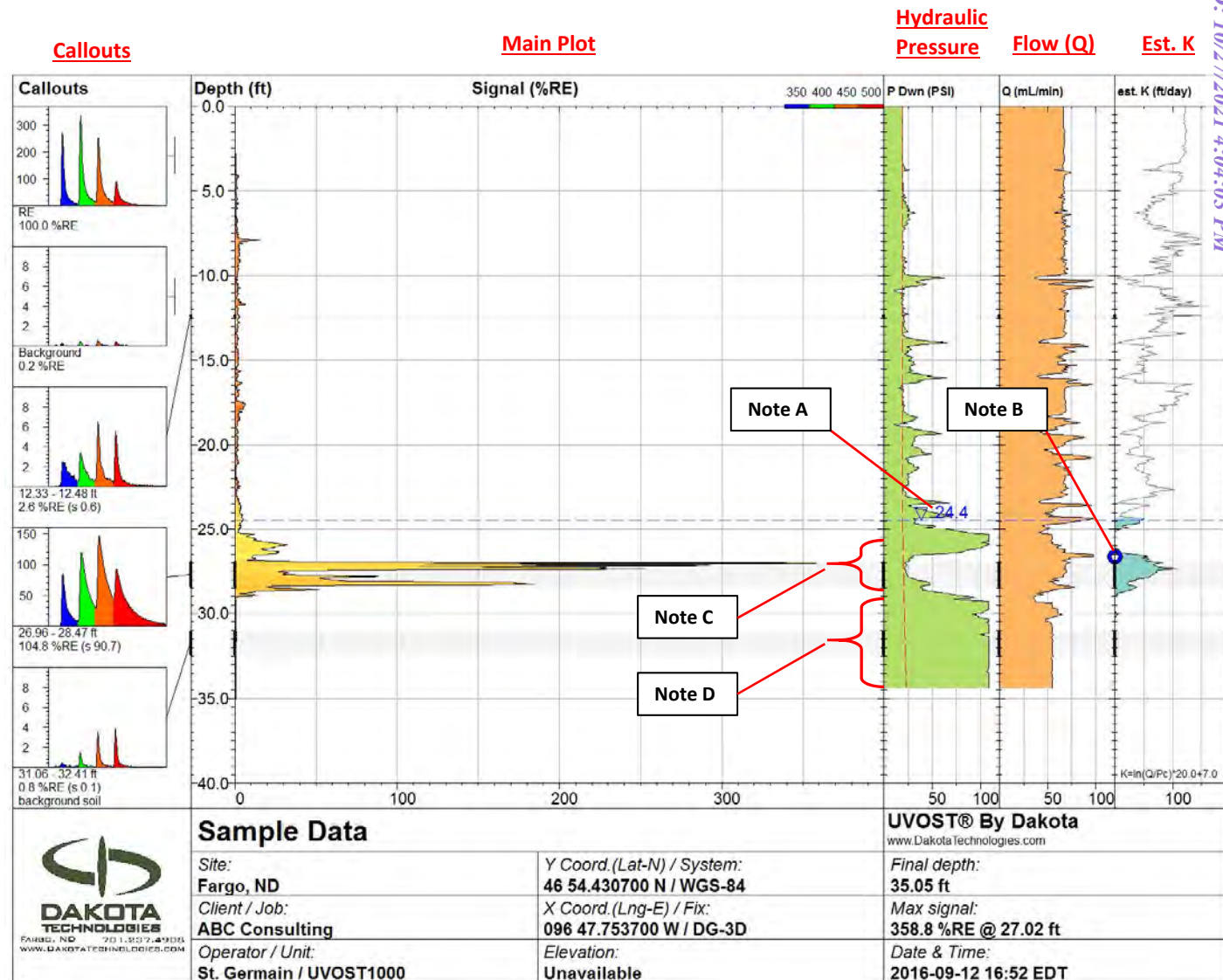
Callouts: Waveforms from selected depths or depth ranges showing the multi-wavelength waveform for that depth. The four peaks are due to fluorescence at four wavelengths and referred to as “channels”. Each channel is assigned a color. Various NAPLs will have a unique waveform “fingerprint” due to the relative amplitude of the four channels and/or broadening of one or more channels. Basic waveform statistics and any operator notes are given below the callout.

Main Plot: Signal (total fluorescence) versus depth where signal is relative to the Reference Emitter (RE). The total area of the waveform is divided by the total area of the Reference Emitter yielding the %RE. This %RE scales with the NAPL fluorescence. The fill color is based on the relative distribution of each channel's area to the total waveform area (see callout waveform). The channel-to-color relationship and corresponding wavelengths are given in the upper right corner of the plot.

Hydraulic Pressure (P Dwn): Downhole hydraulic pressure is measured in response to pumping water into the formation at a constant rate. Measurements are logged simultaneously with UVOST data. The resulting log gives insight into the permeability of the soils.

Flow (Q): Water is pumped out of the port of the UVOST-HP probe at a constant rate of 60 mL/min. A change in flow (usually accompanied by an inverse pressure change) is an indicator of hydraulic properties of the soil.

Estimated K: The estimated hydraulic conductivity (K) is internally calculated by utilizing pressure and flow data in conjunction with dissipation test(s) performed at each location. The estimated K is calculated by the equation: $K = \ln(Q/P') * 20.0 + 7.0$.



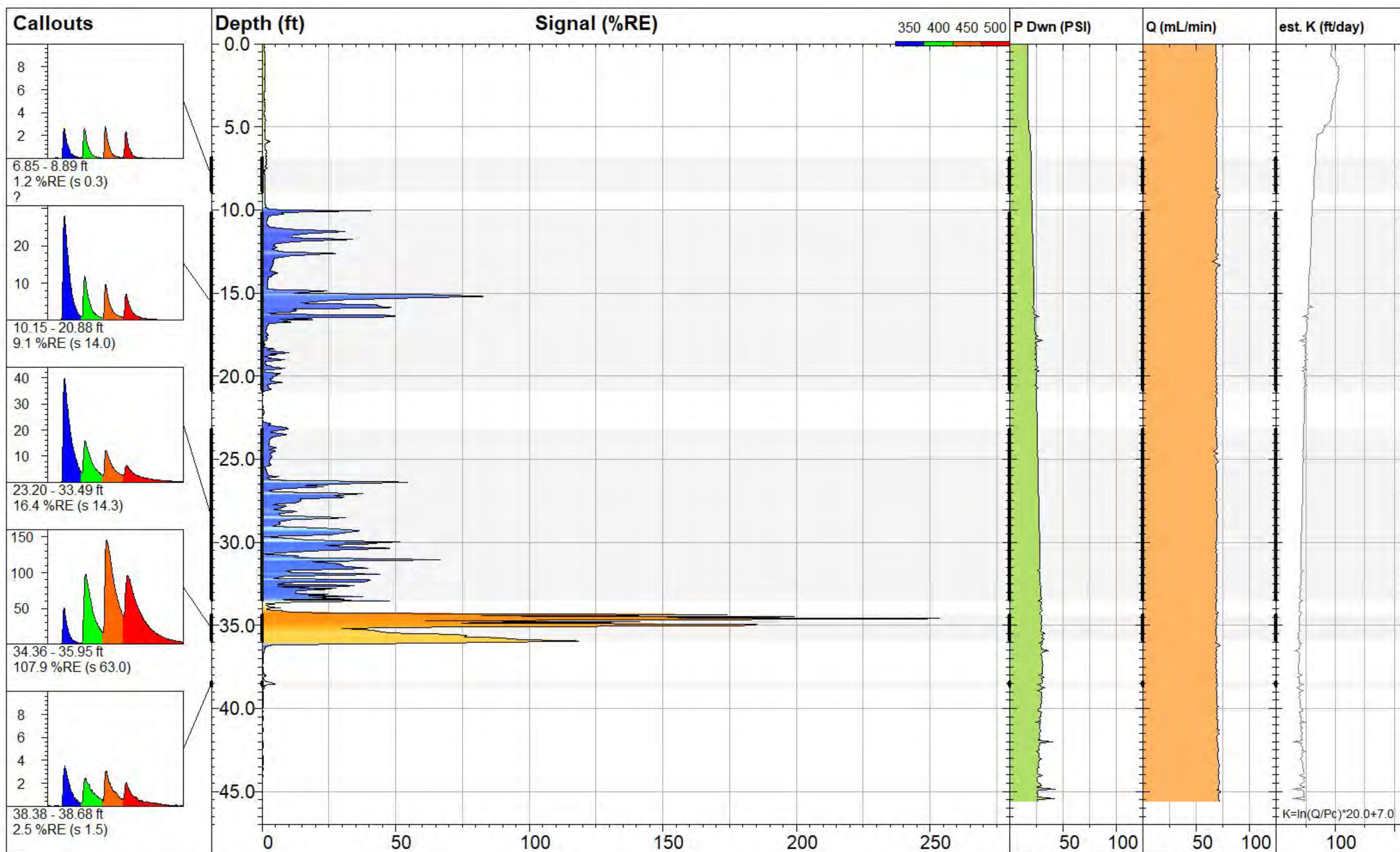
Note A: The water table has been calculated and plotted at 24.4' bgs.

Note B: The circle on the Estimated K plot represents the location(s) of dissipation tests. Here, a single dissipation test was performed at 26.67 bgs'.

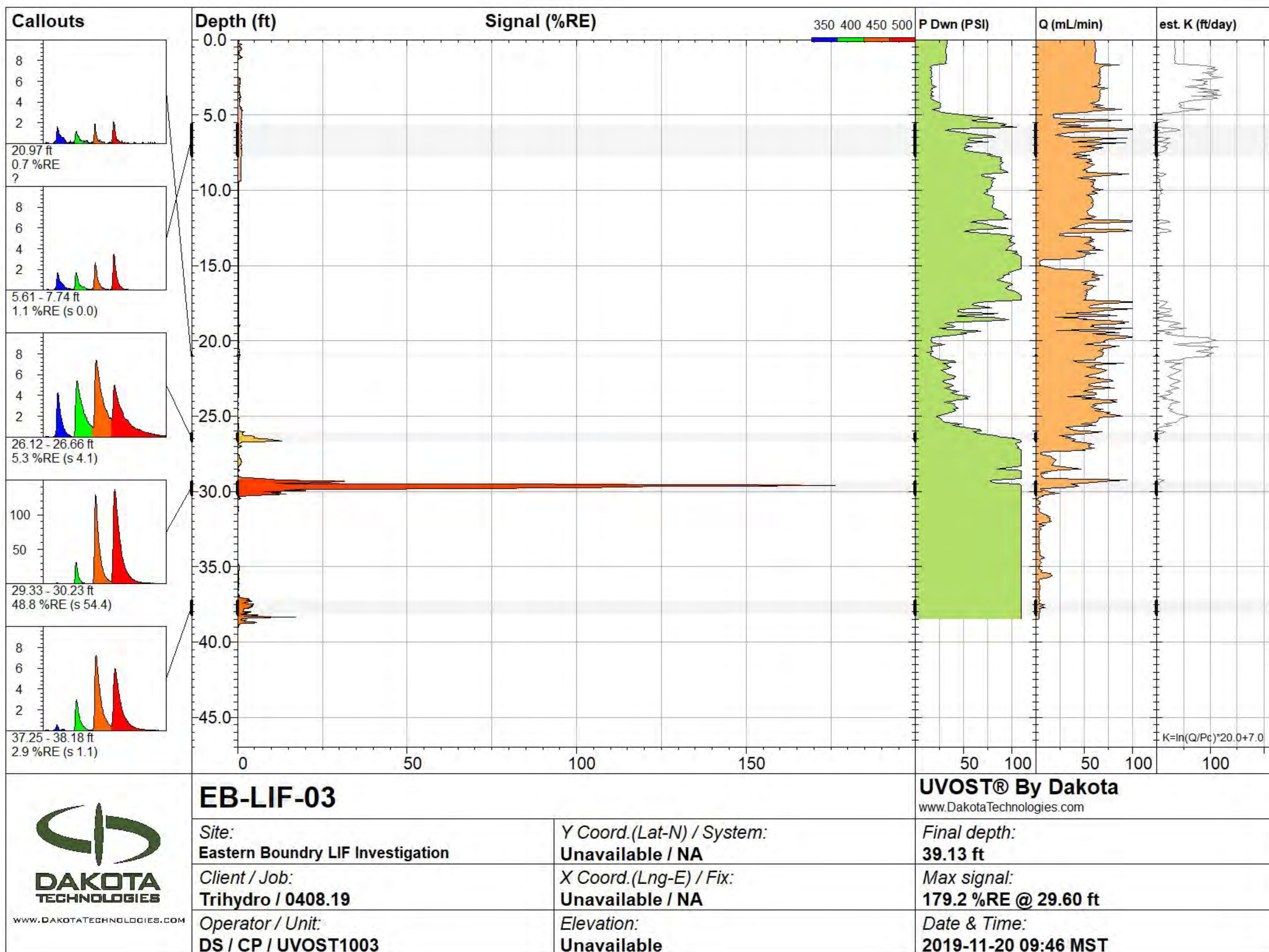
Note C: The highest LNAPL response in this log is present in an area of relatively higher permeability, as indicated by low pressure and higher estimated k values at approximately 26' to 28'.

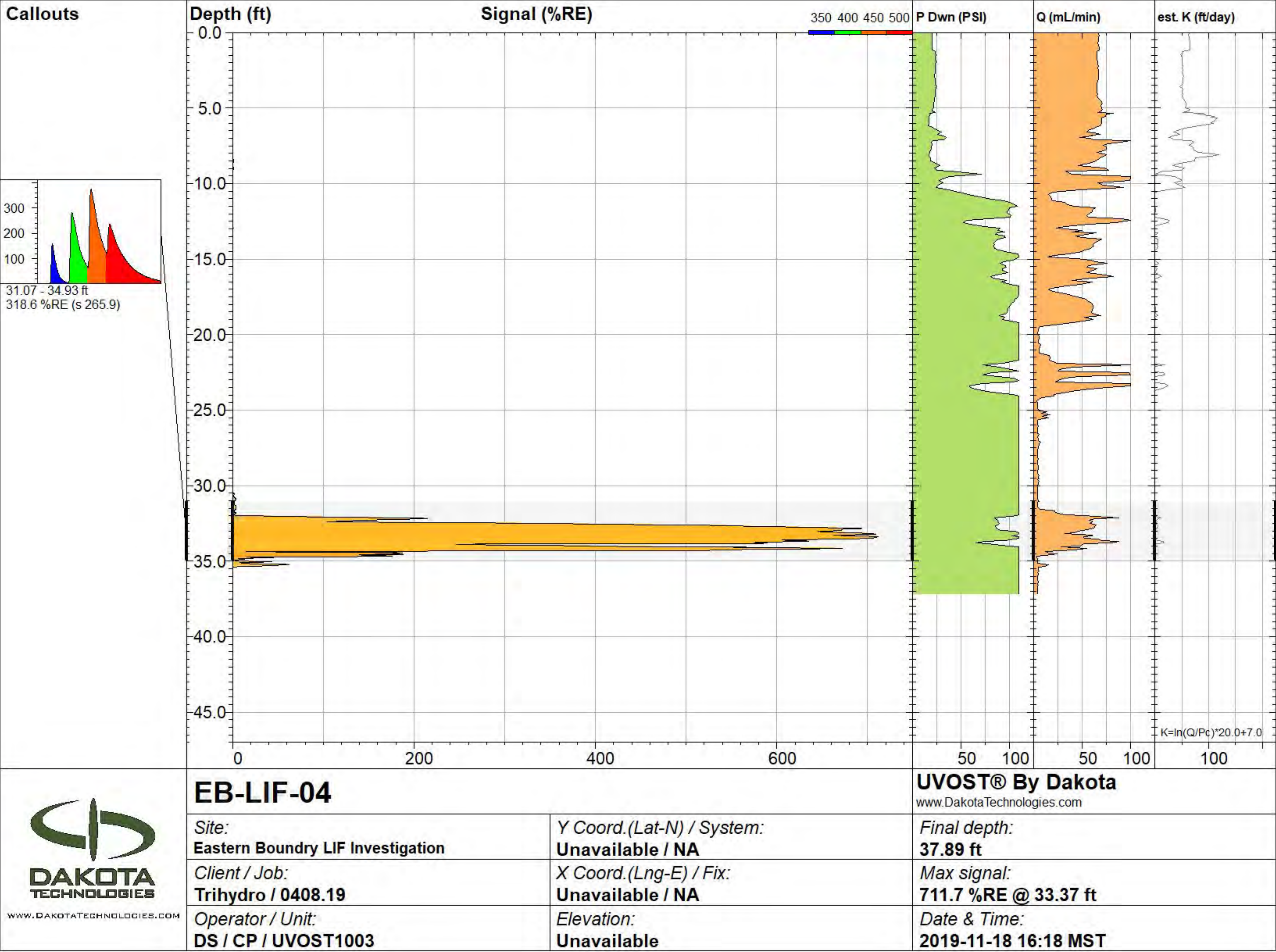
Note D: The increase in pressure starting near 29' (transducer is maxed out, 100 psi) due to low permeability conditions. In this example, the increase in pressure below the LNAPL represents a potential confining unit.

Appendix C – LIF/HP Logs

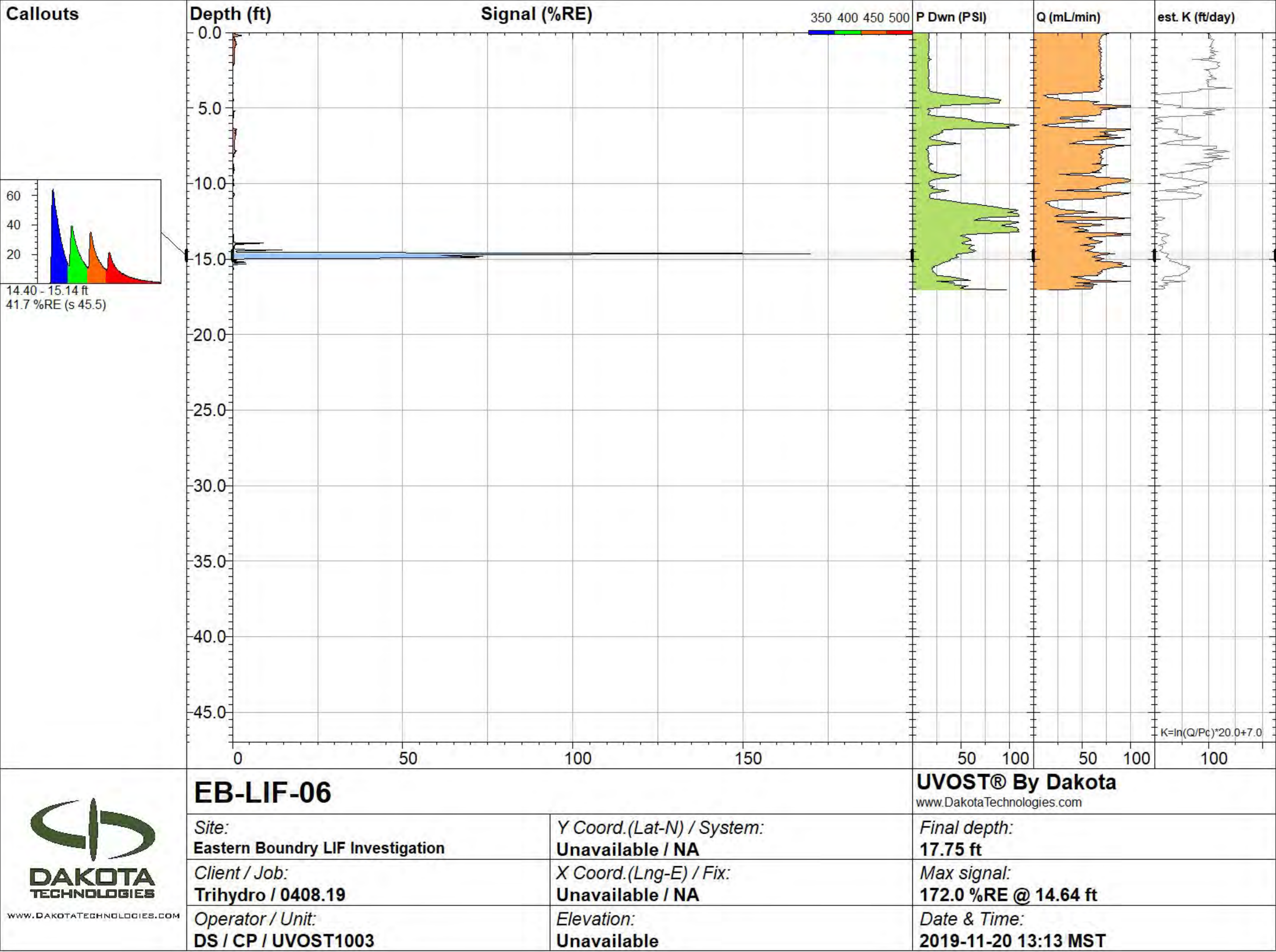


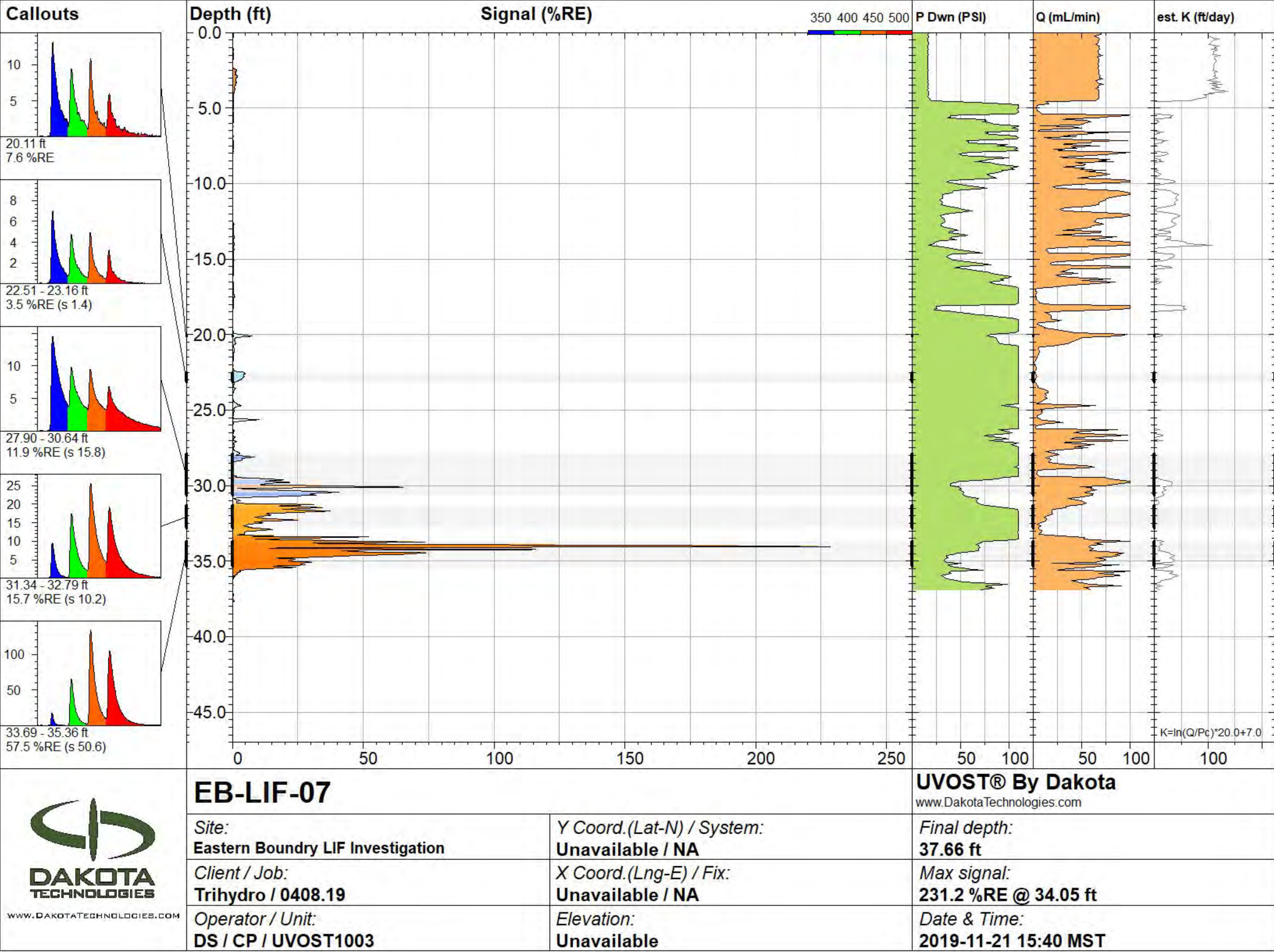
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	EB-LIF-02		UVOST® By Dakota www.DakotaTechnologies.com
	<i>Site:</i> Eastern Boundry LIF Investigation	<i>Y Coord.(Lat-N) / System:</i> Unavailable / NA	<i>Final depth:</i> 46.35 ft
	<i>Client / Job:</i> Trihydro / 0408.19	<i>X Coord.(Lng-E) / Fix:</i> Unavailable / NA	<i>Max signal:</i> 255.2 %RE @ 34.59 ft
	<i>Operator / Unit:</i> DS / CP / UVOST1003	<i>Elevation:</i> Unavailable	<i>Date & Time:</i> 2019-11-18 13:15 MST

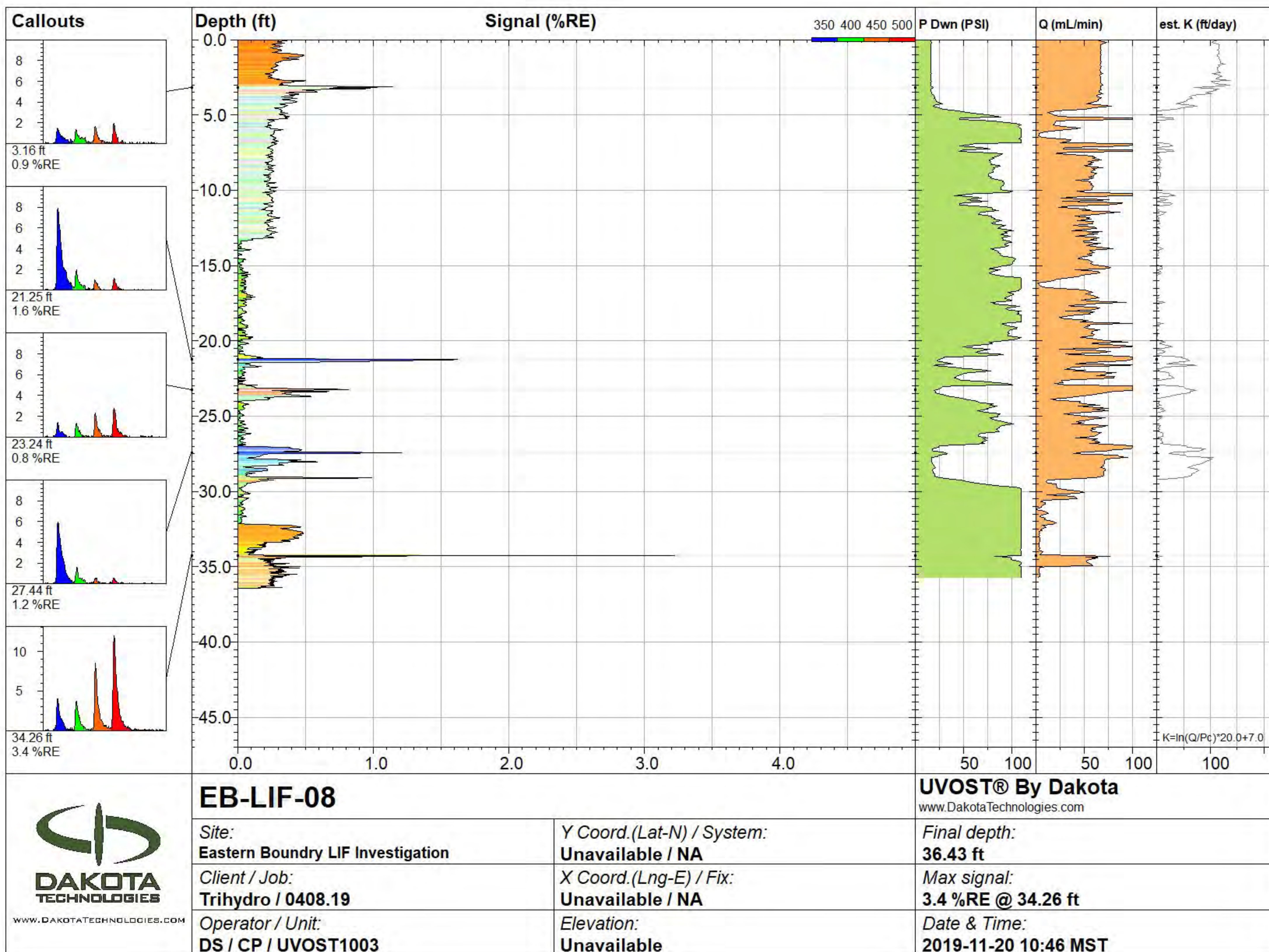


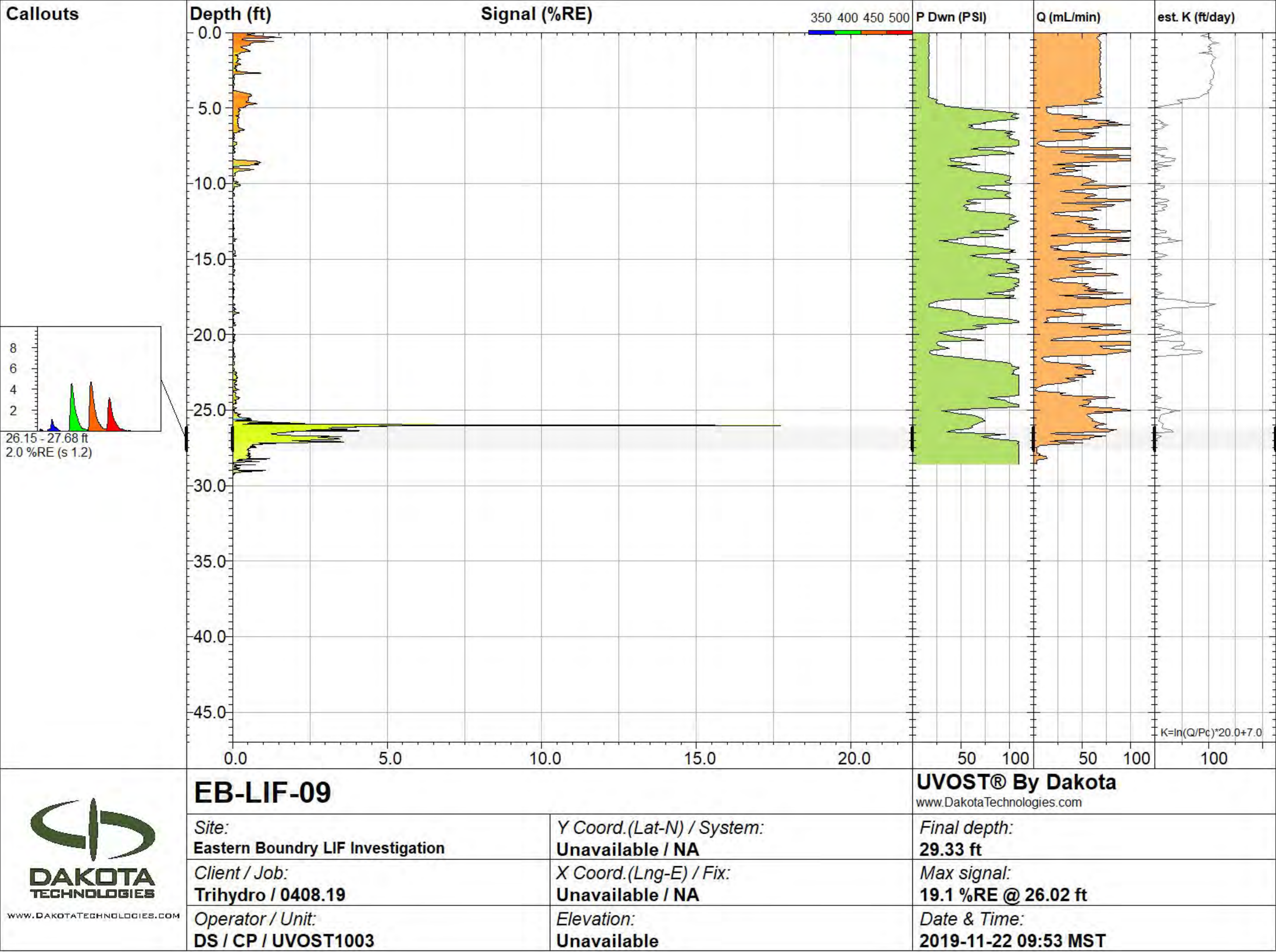




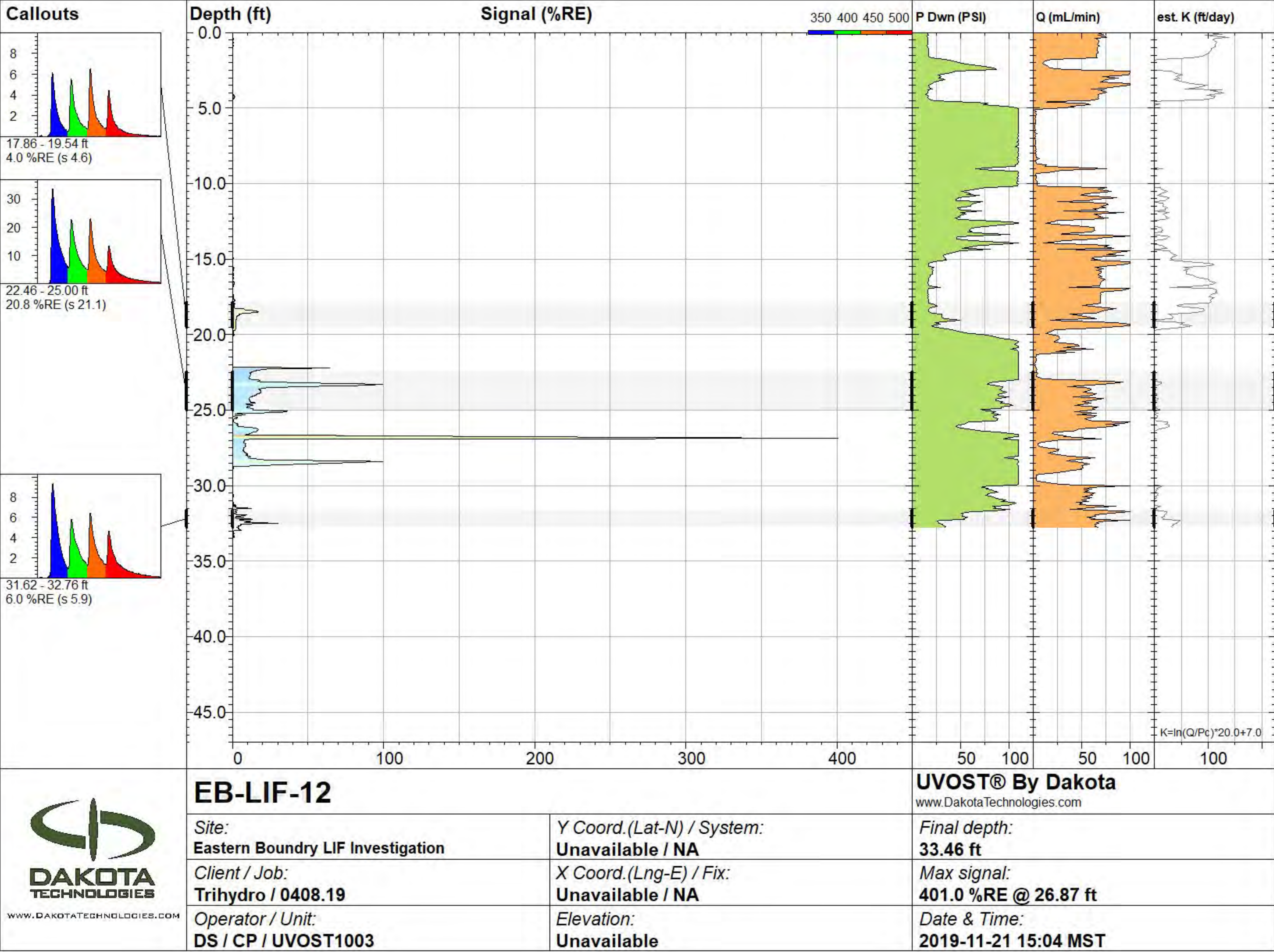


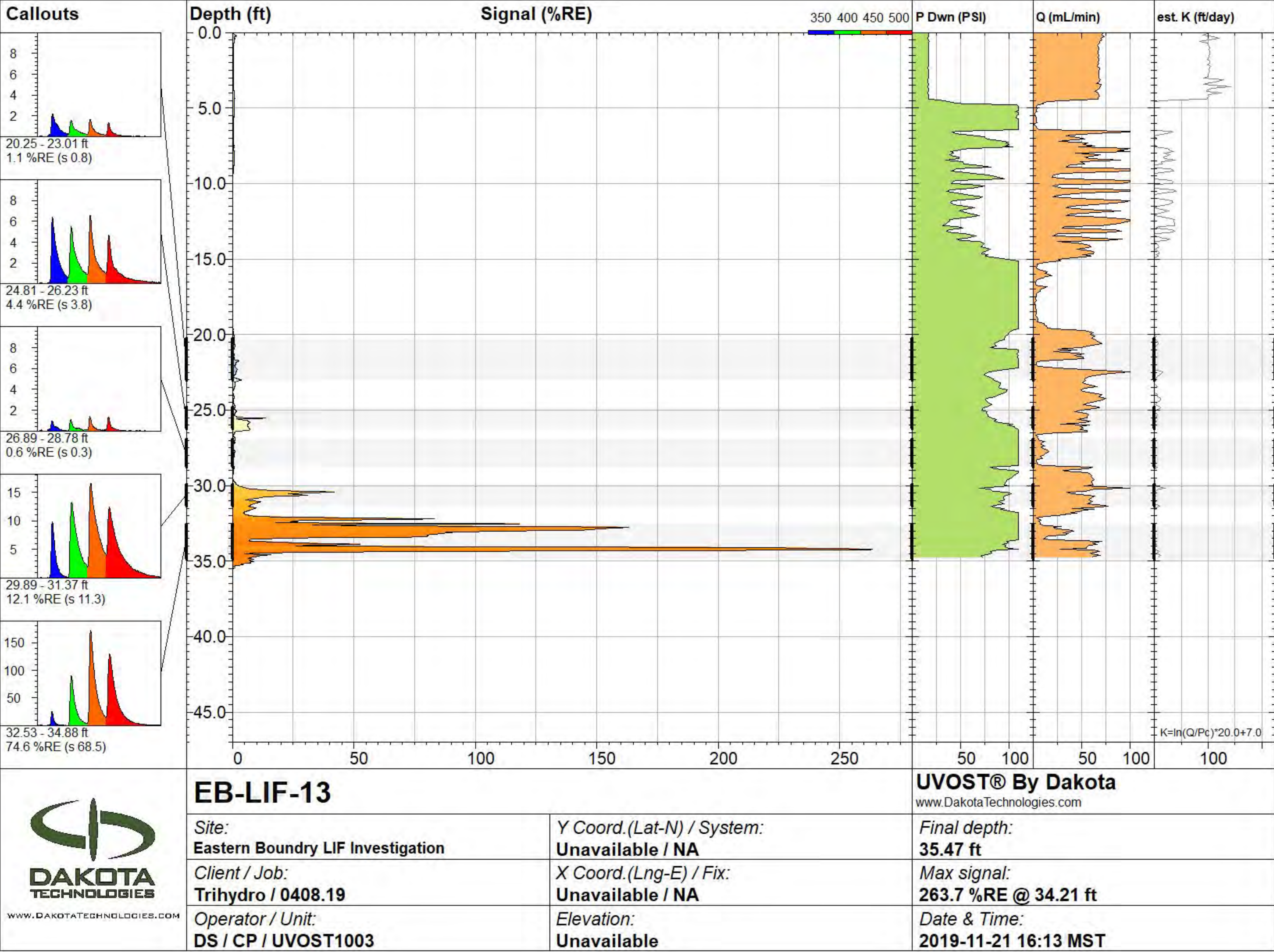


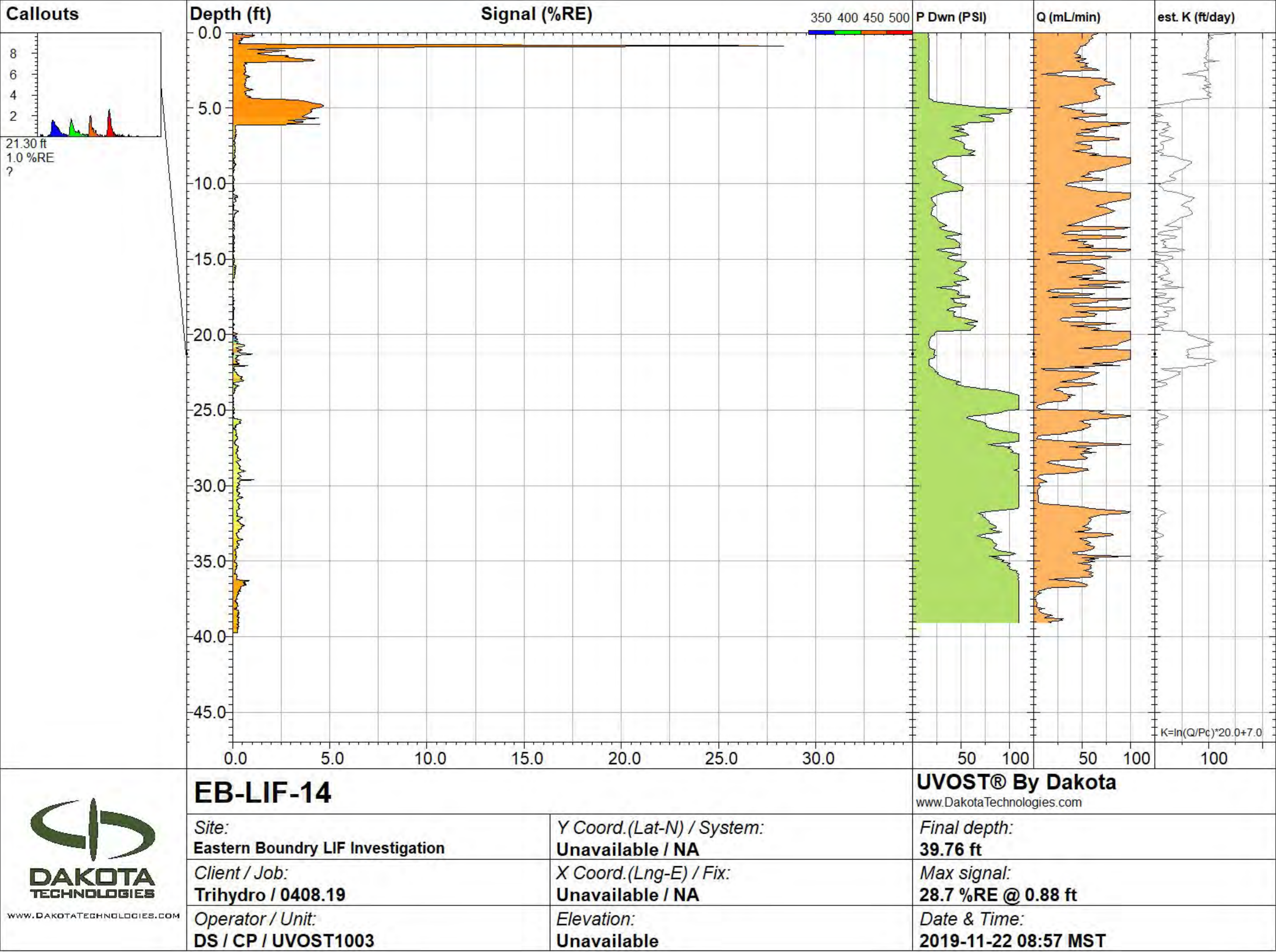


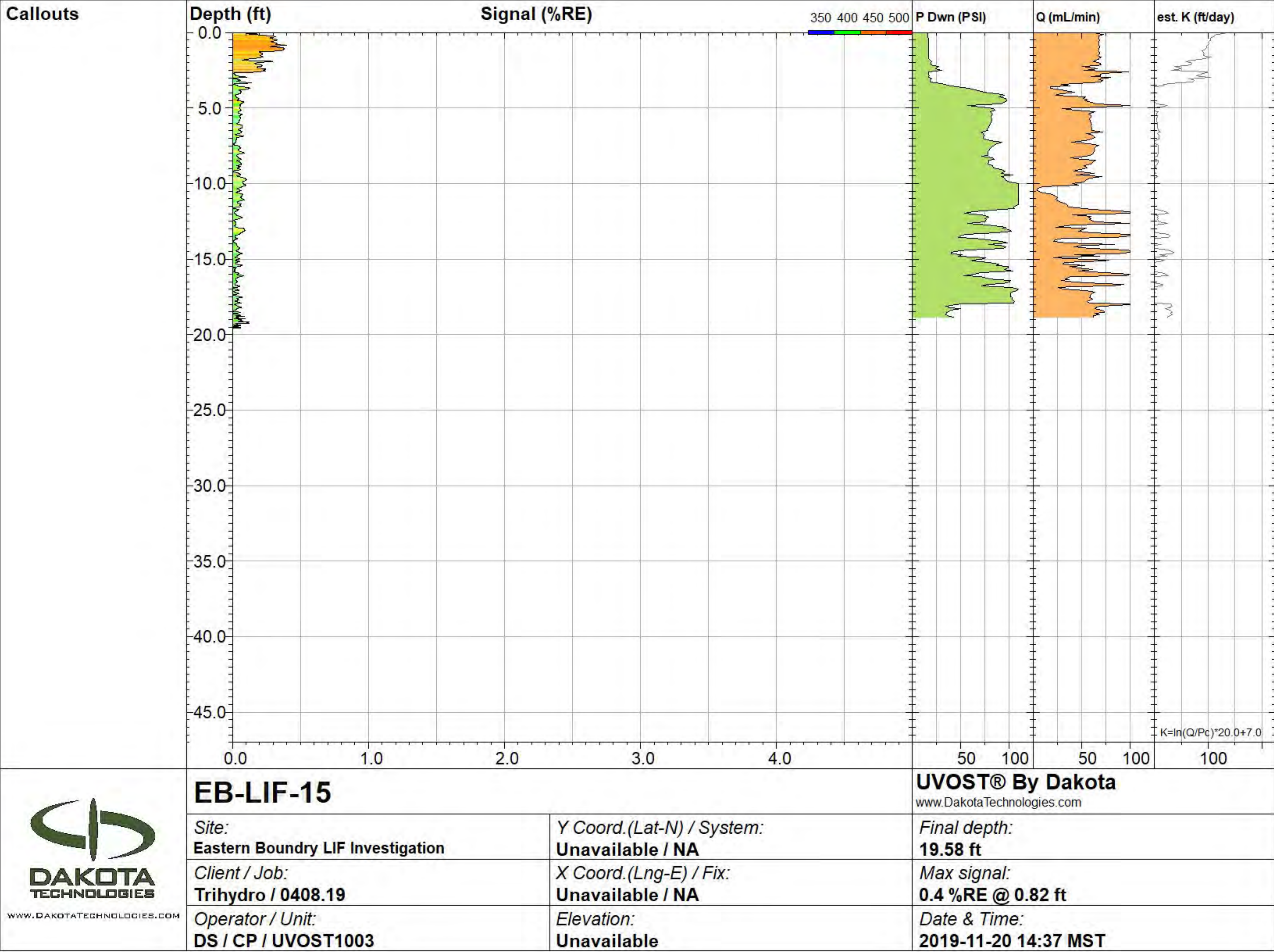


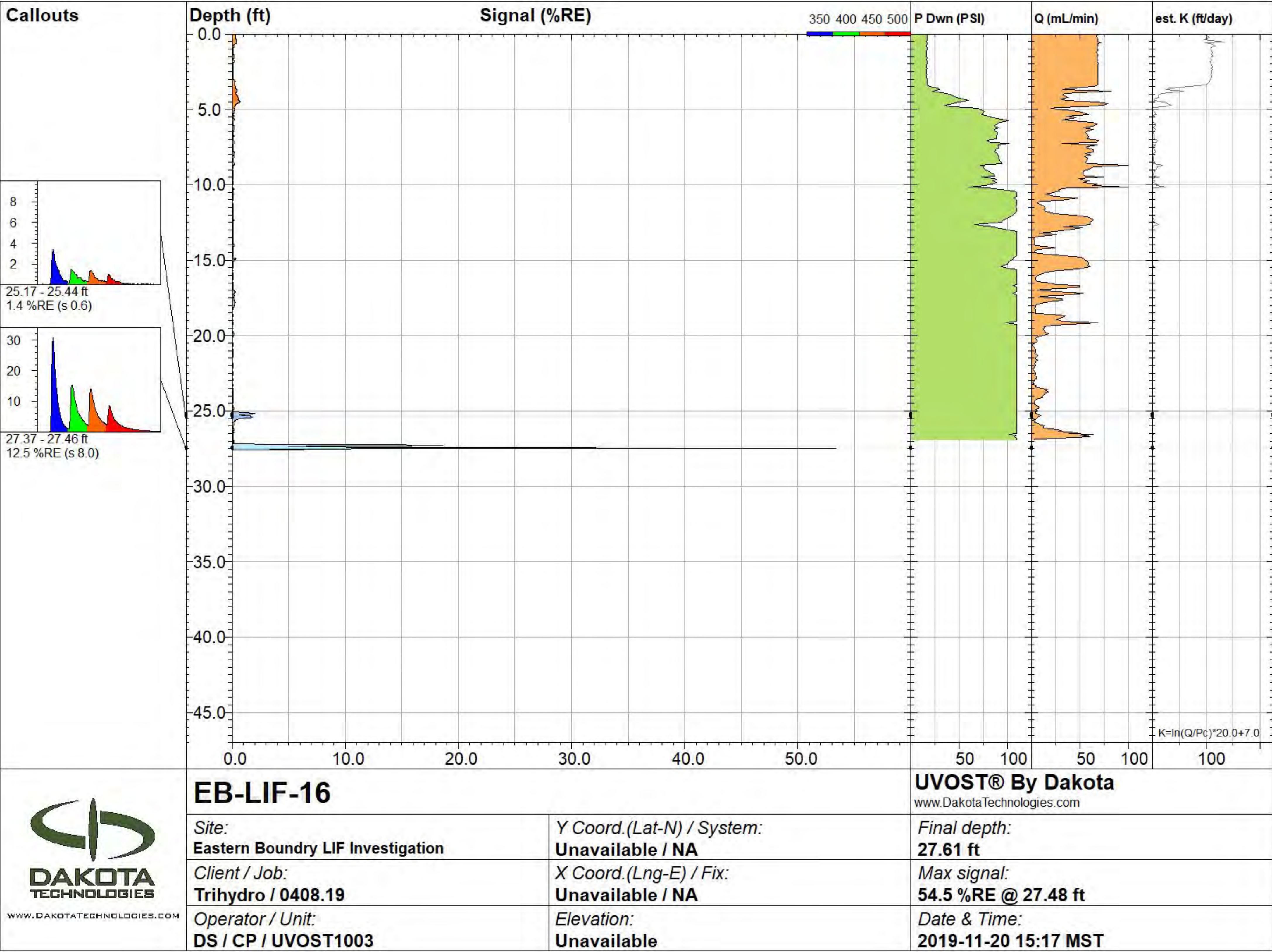


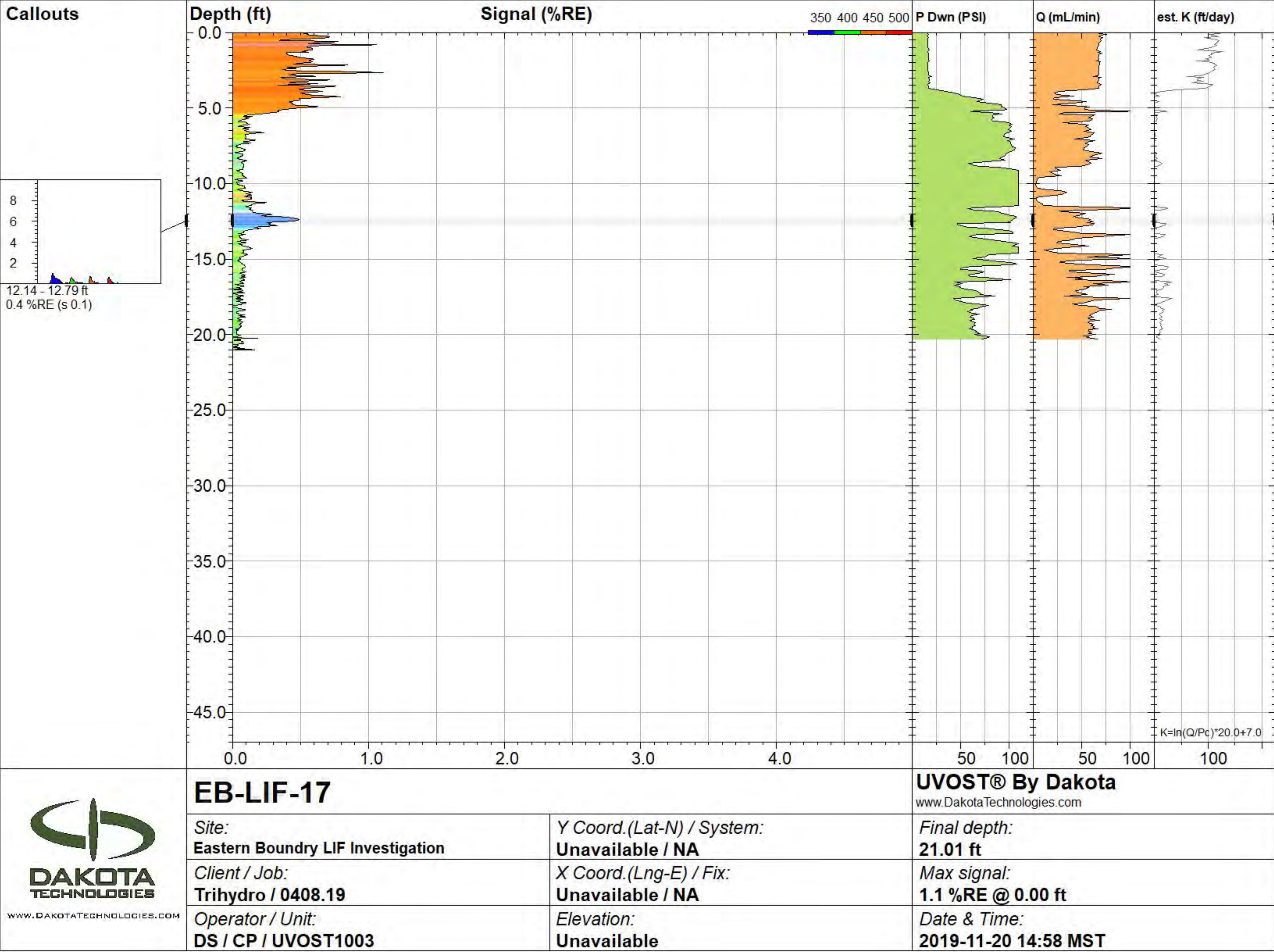








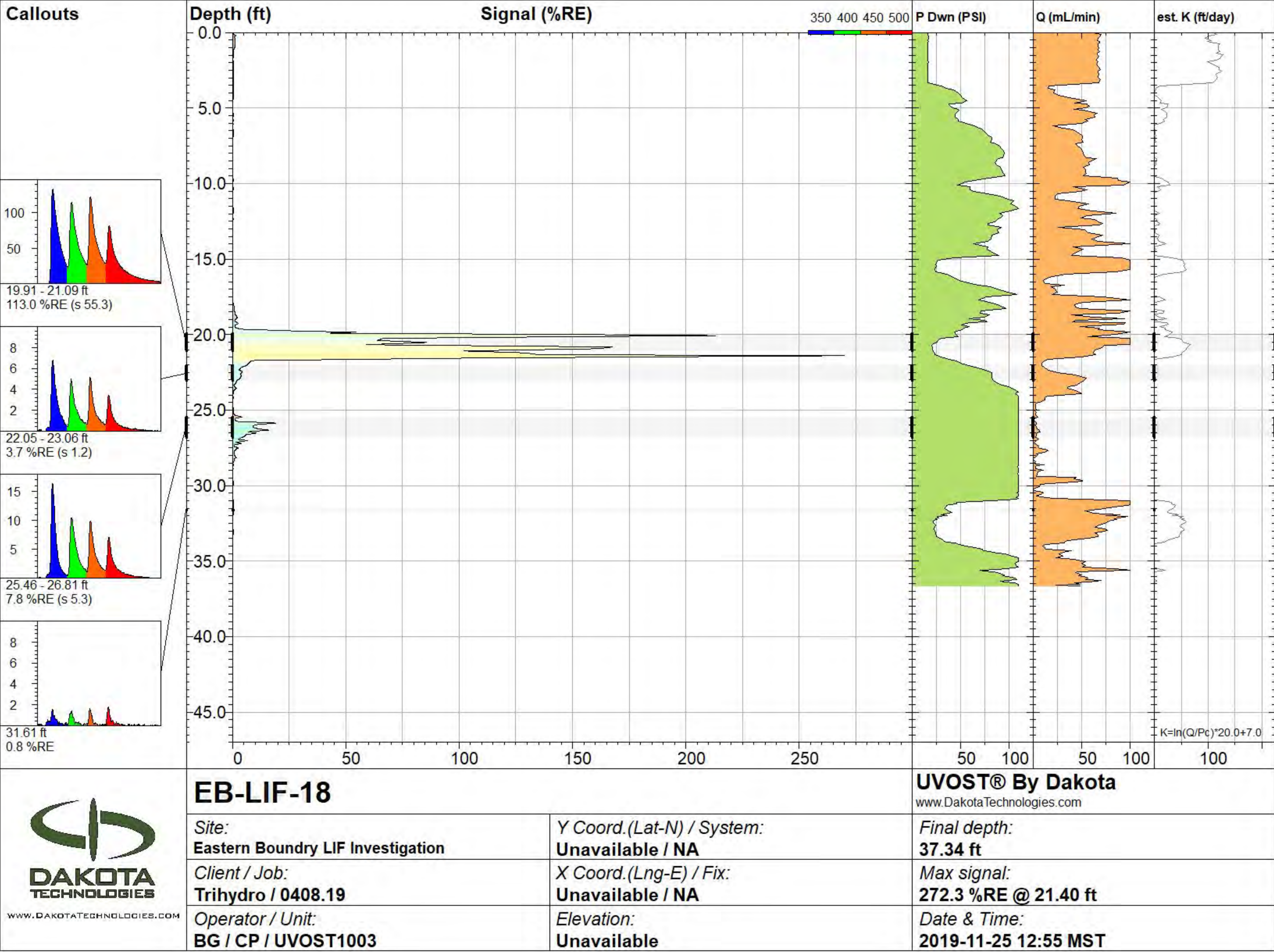


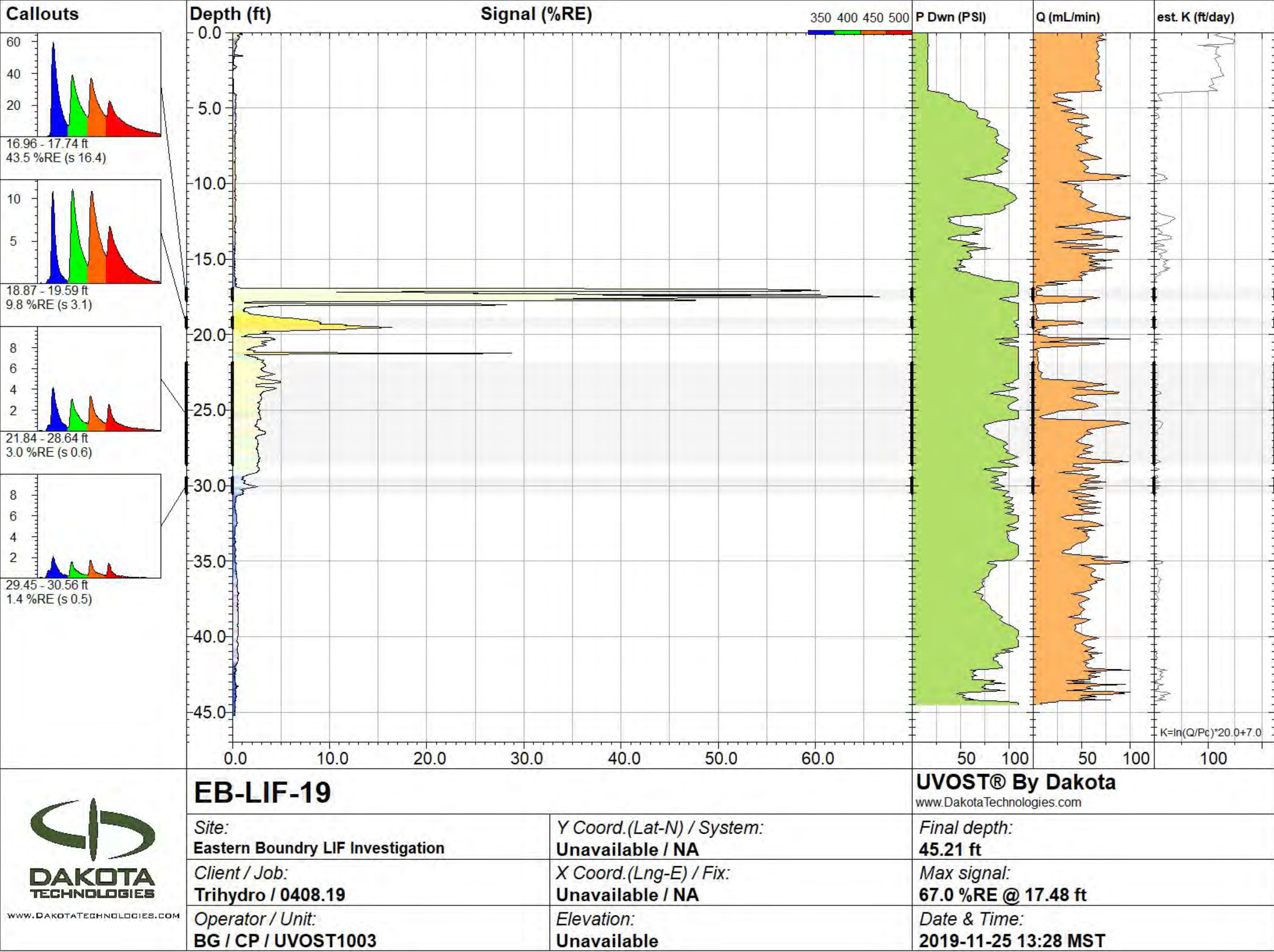


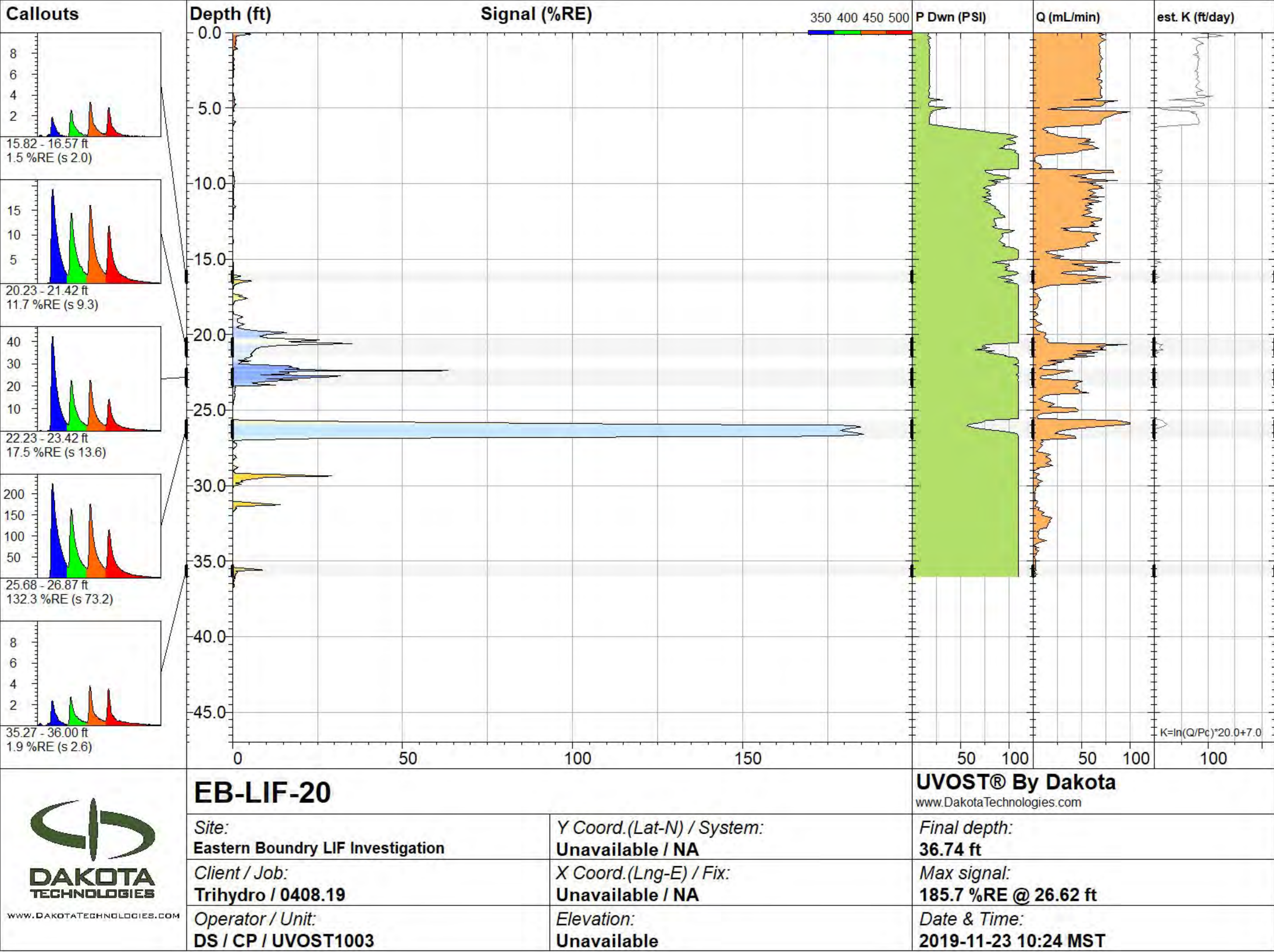
$K=\ln(Q/Pc)*20.0+7.0$



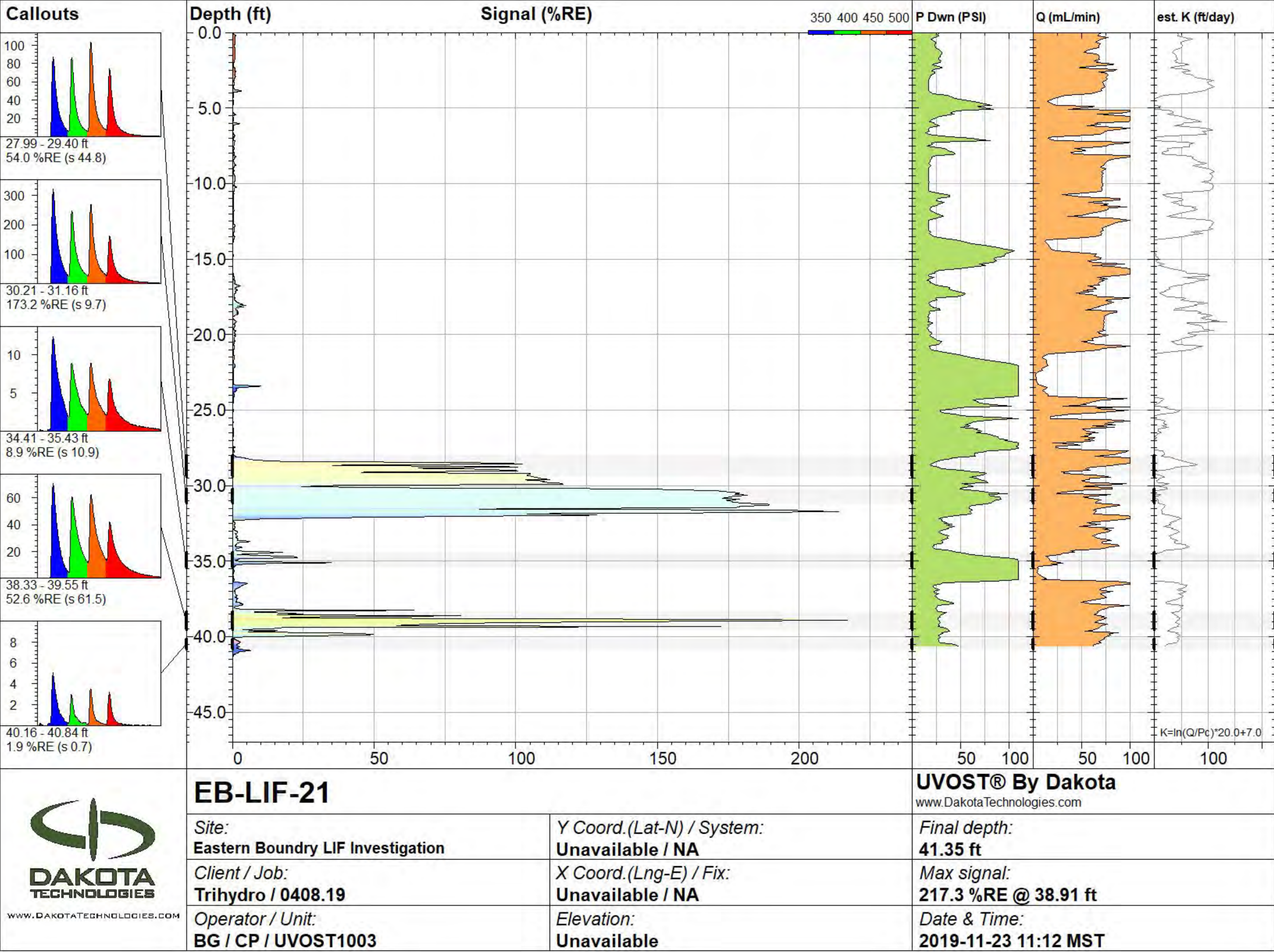
www.DAKOTATECHNOLOGIES.COM

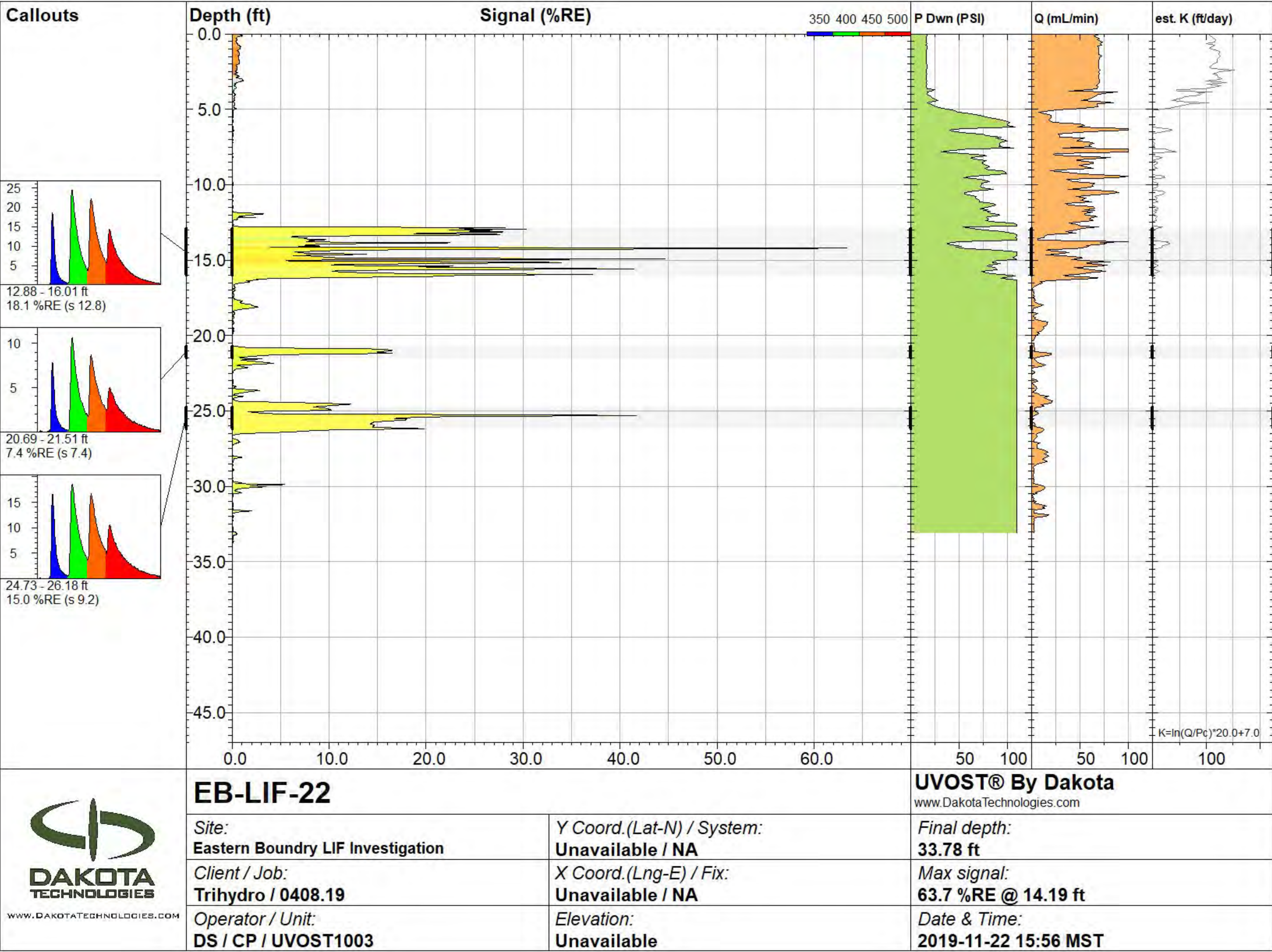


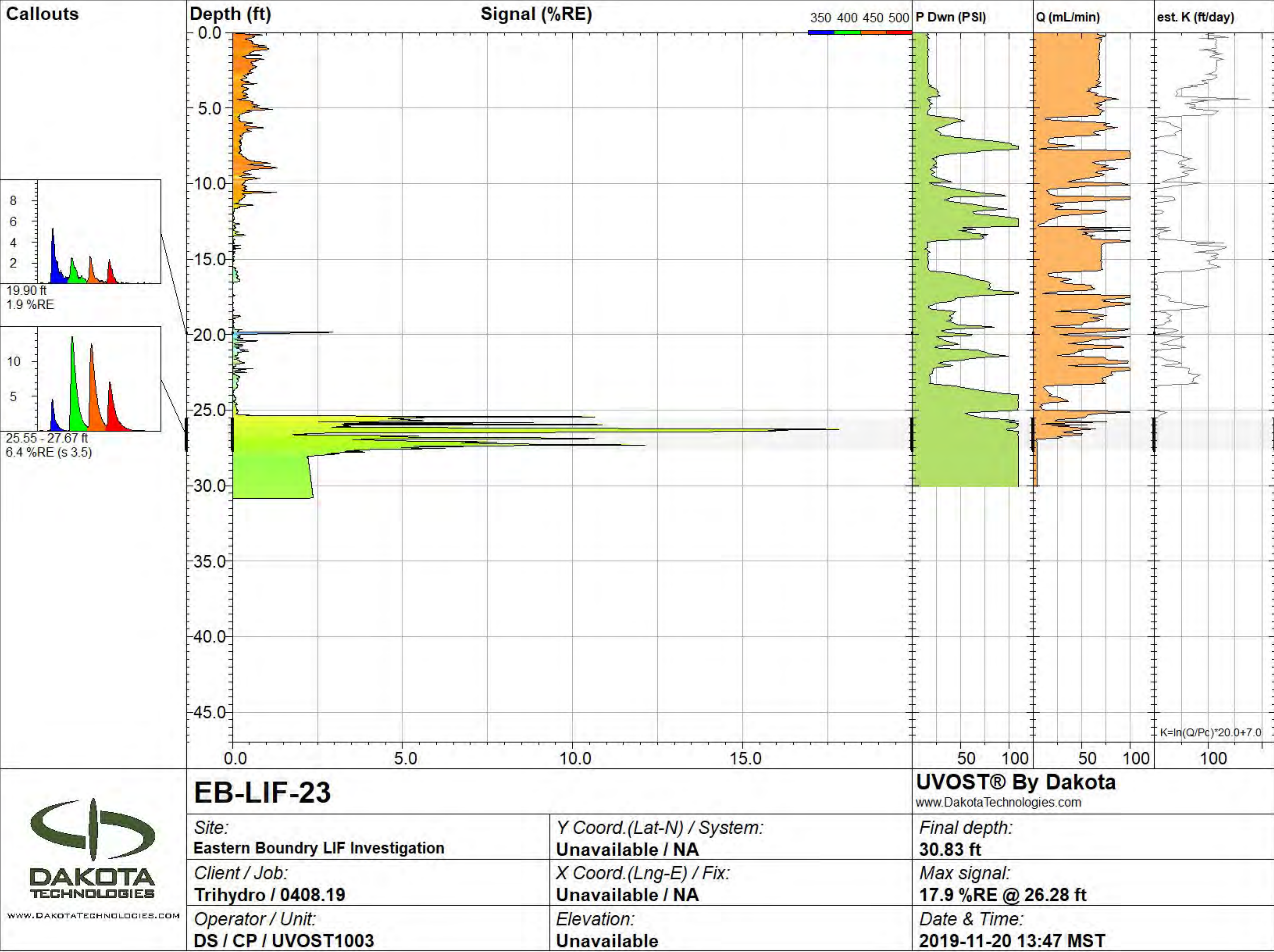




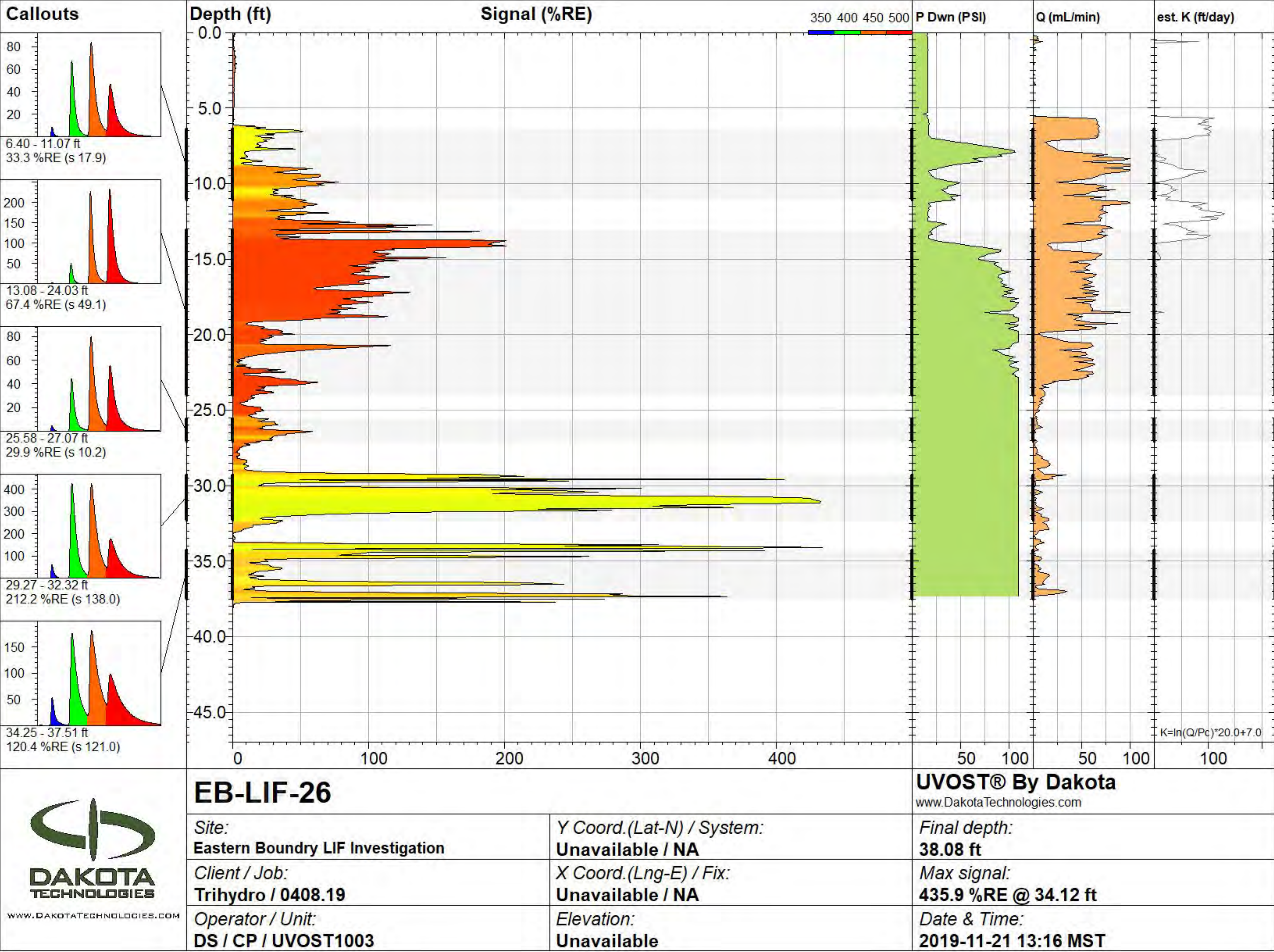
$K = \ln(Q/P_c) * 20.0 + 7.0$





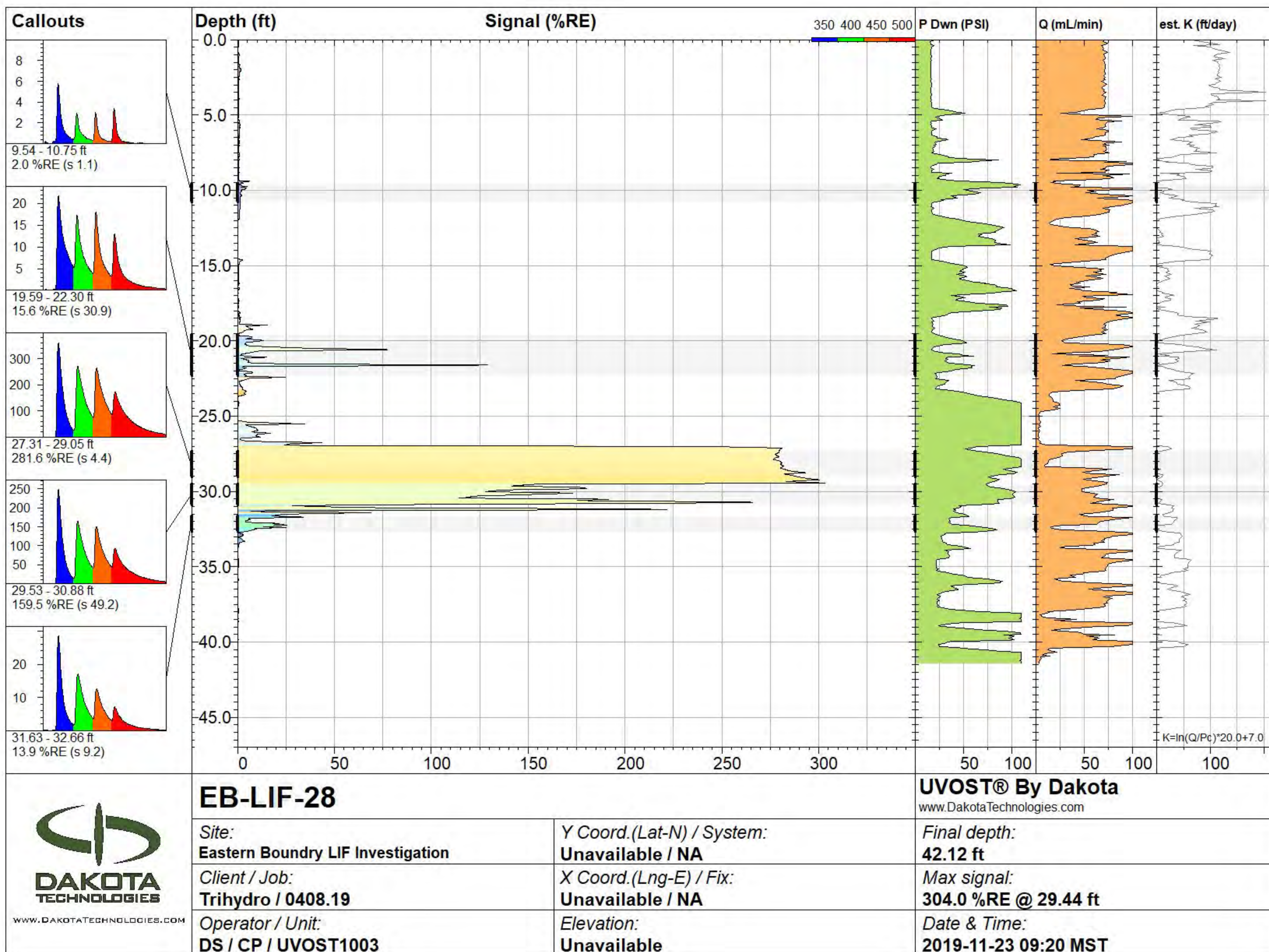


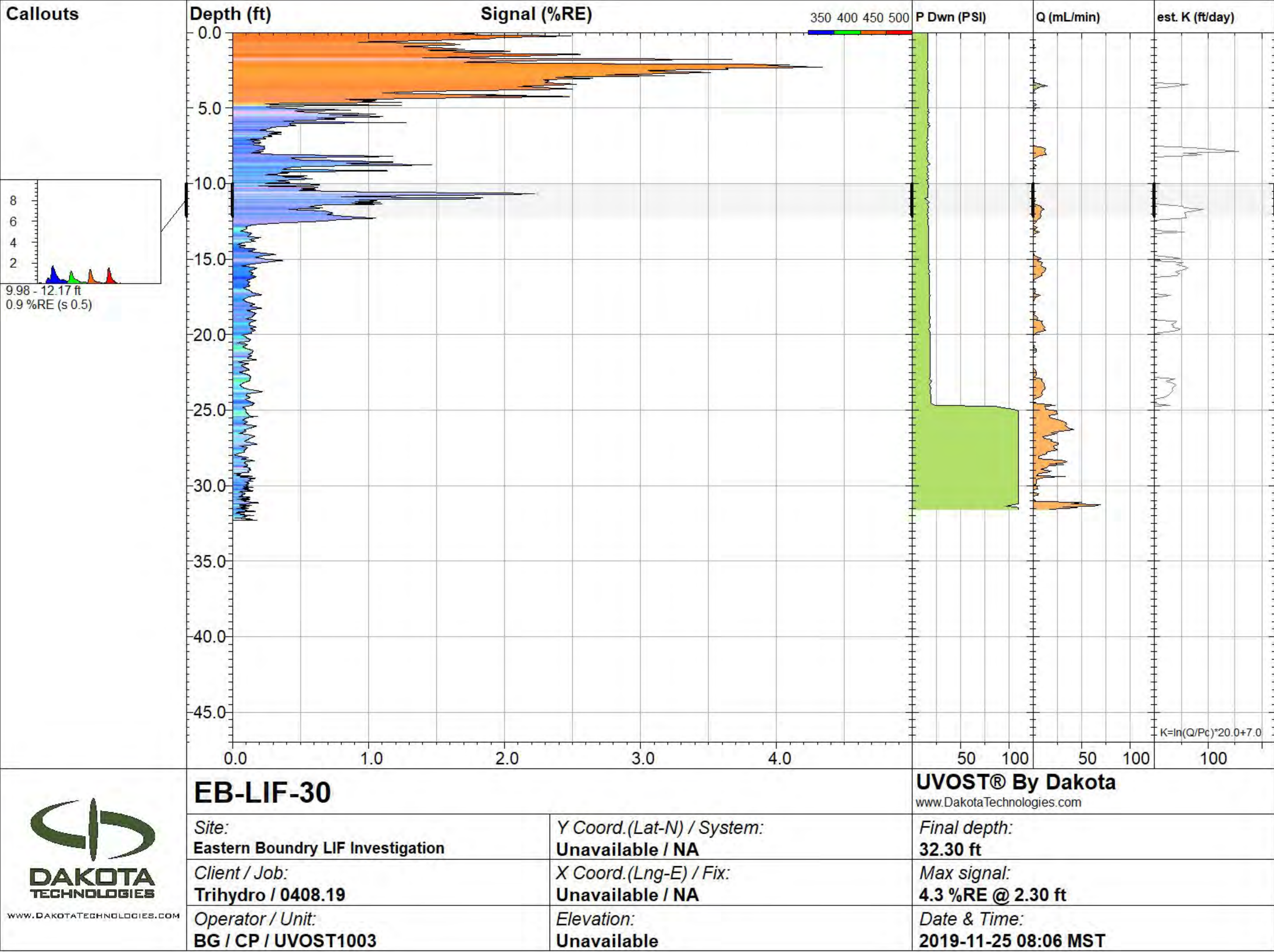


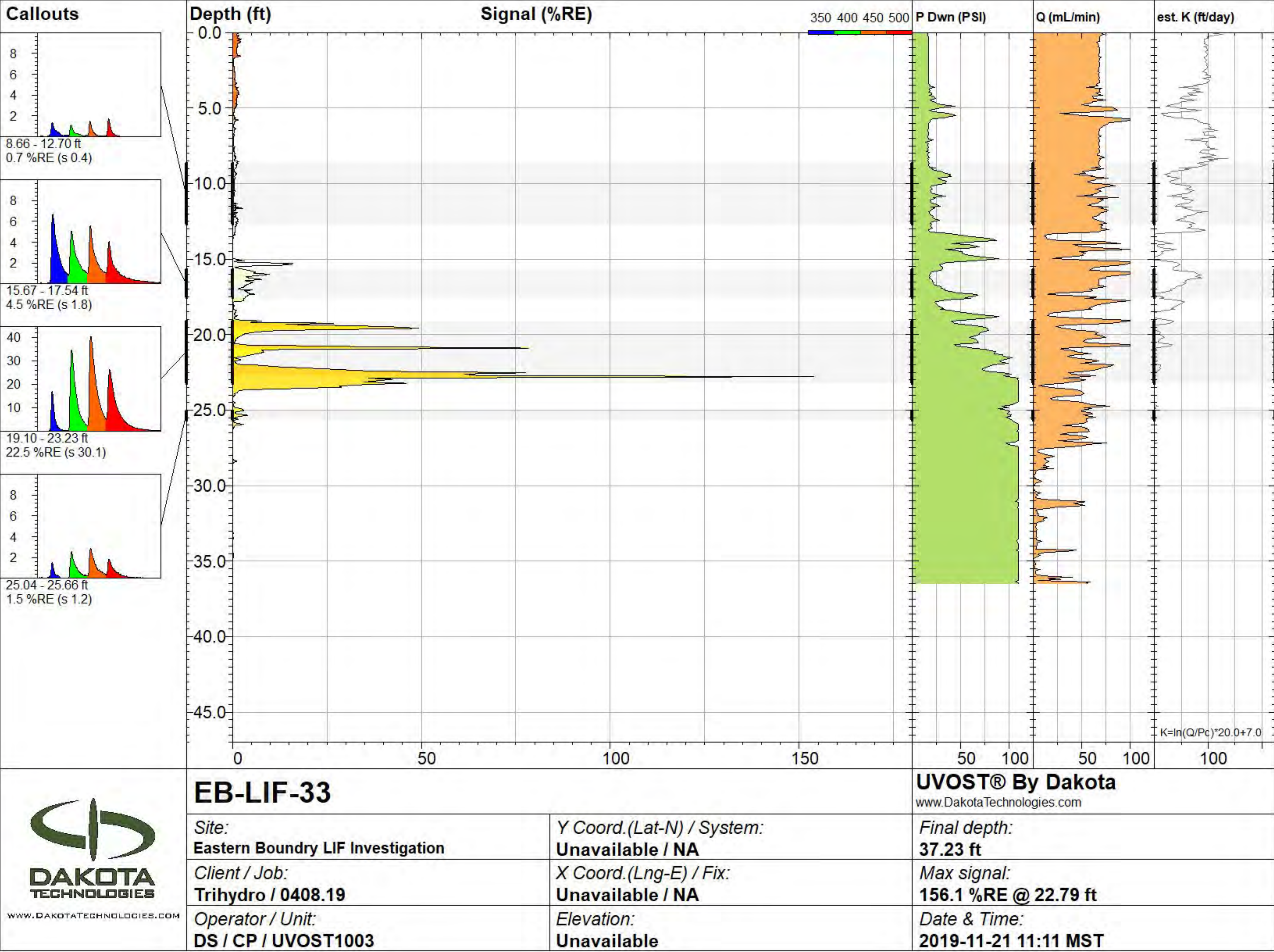


$K = \ln(Q/Pc) * 20.0 + 7.0$

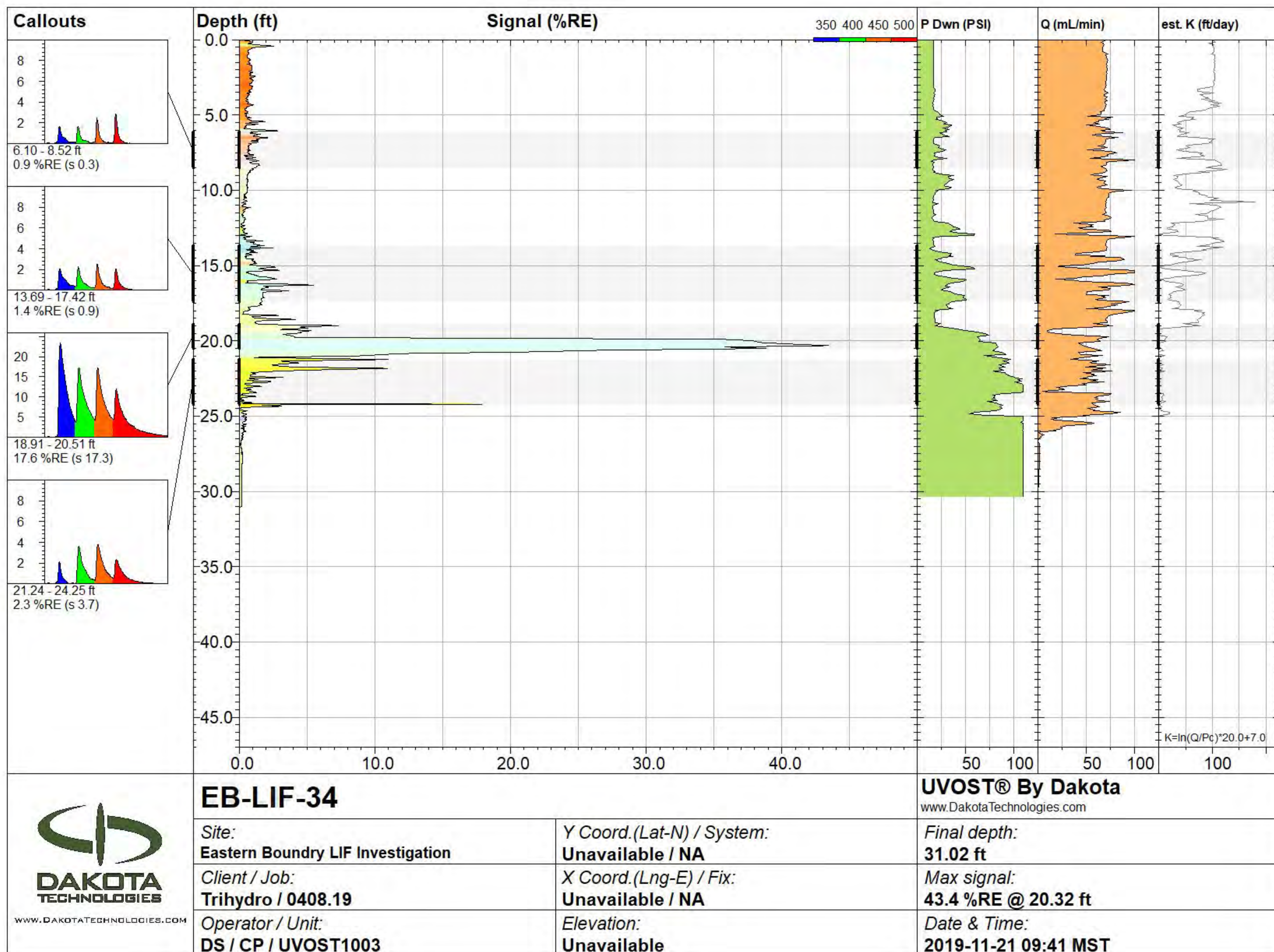


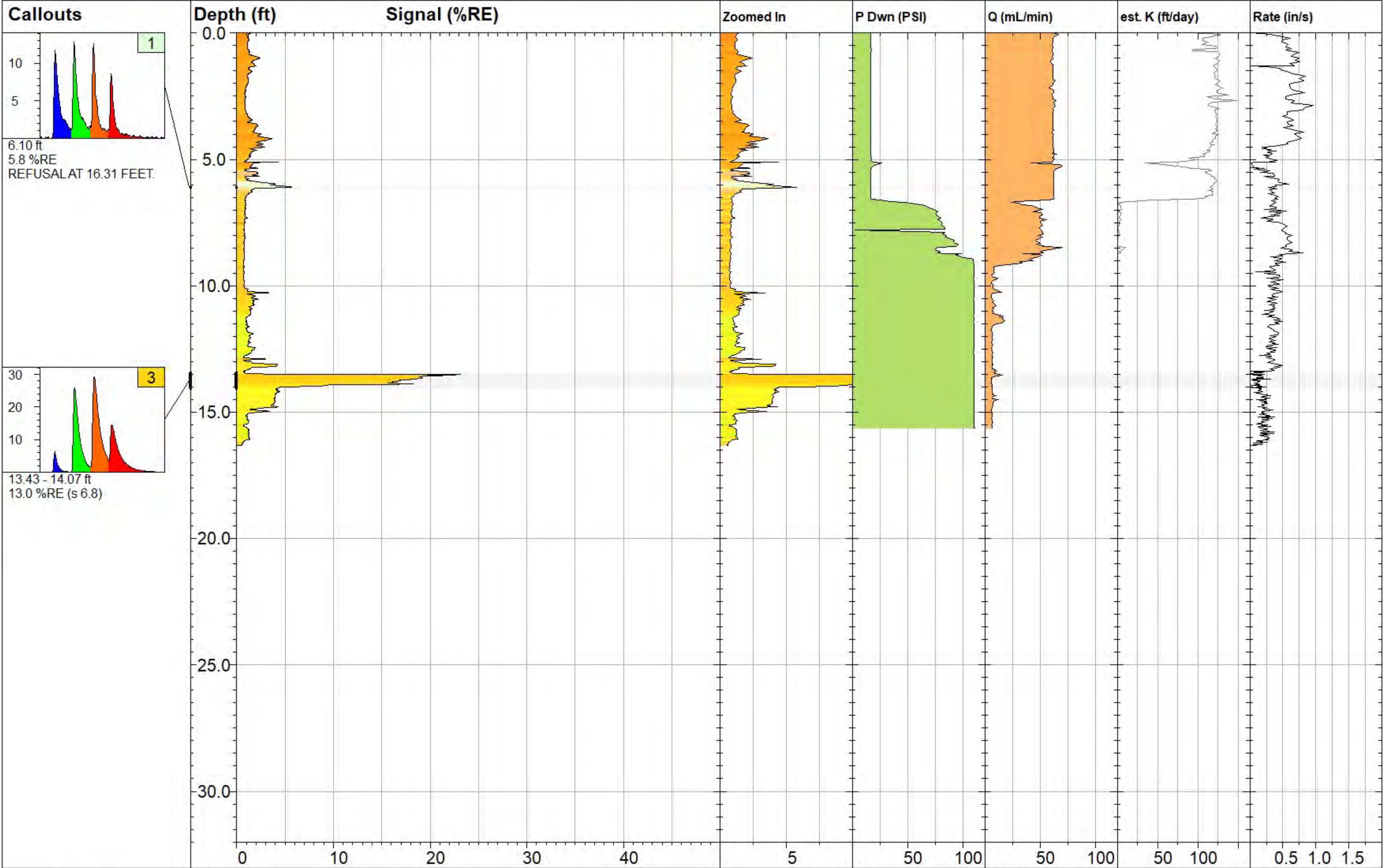




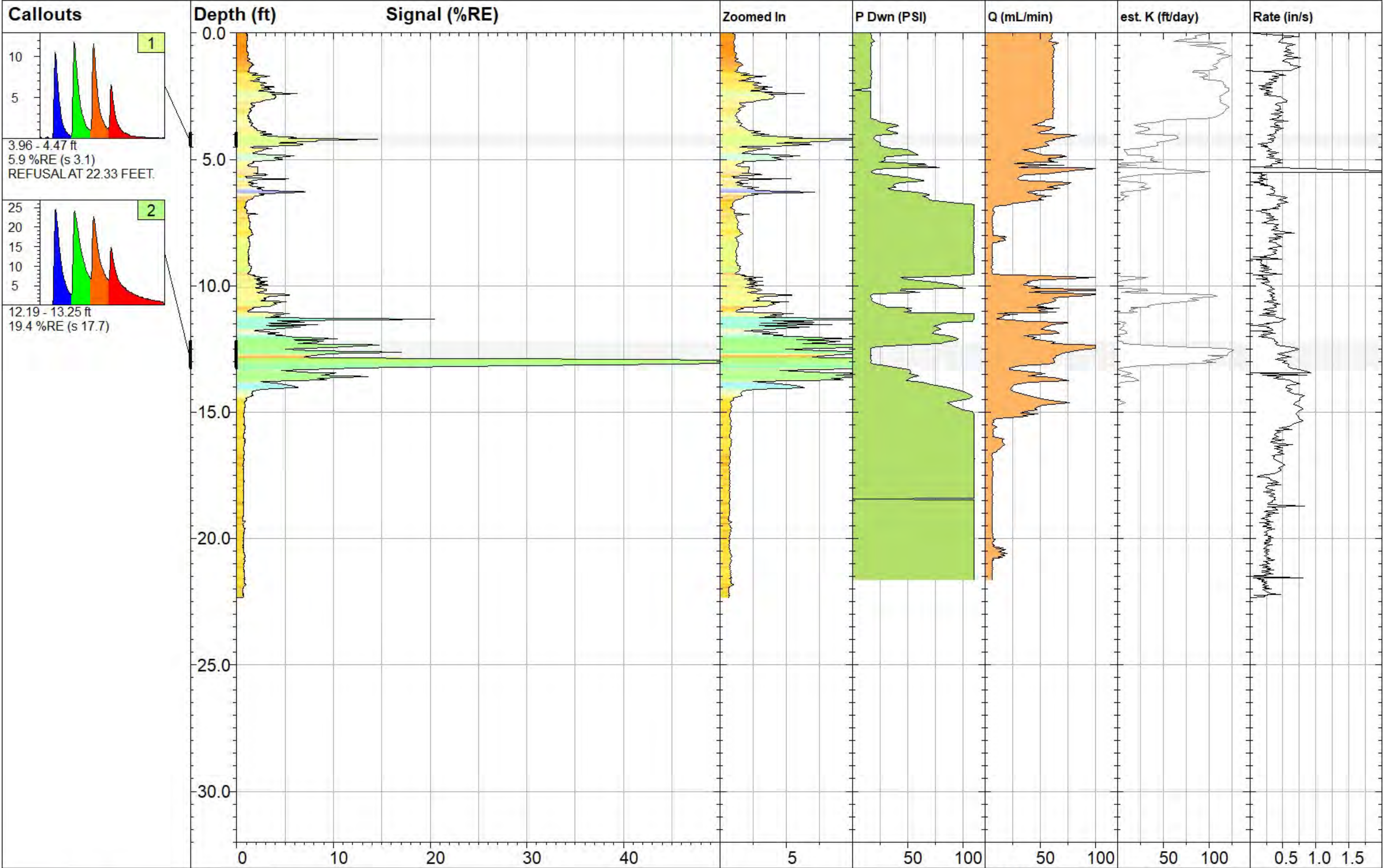


$K = \ln(Q/P_c) * 20.0 + 7.0$

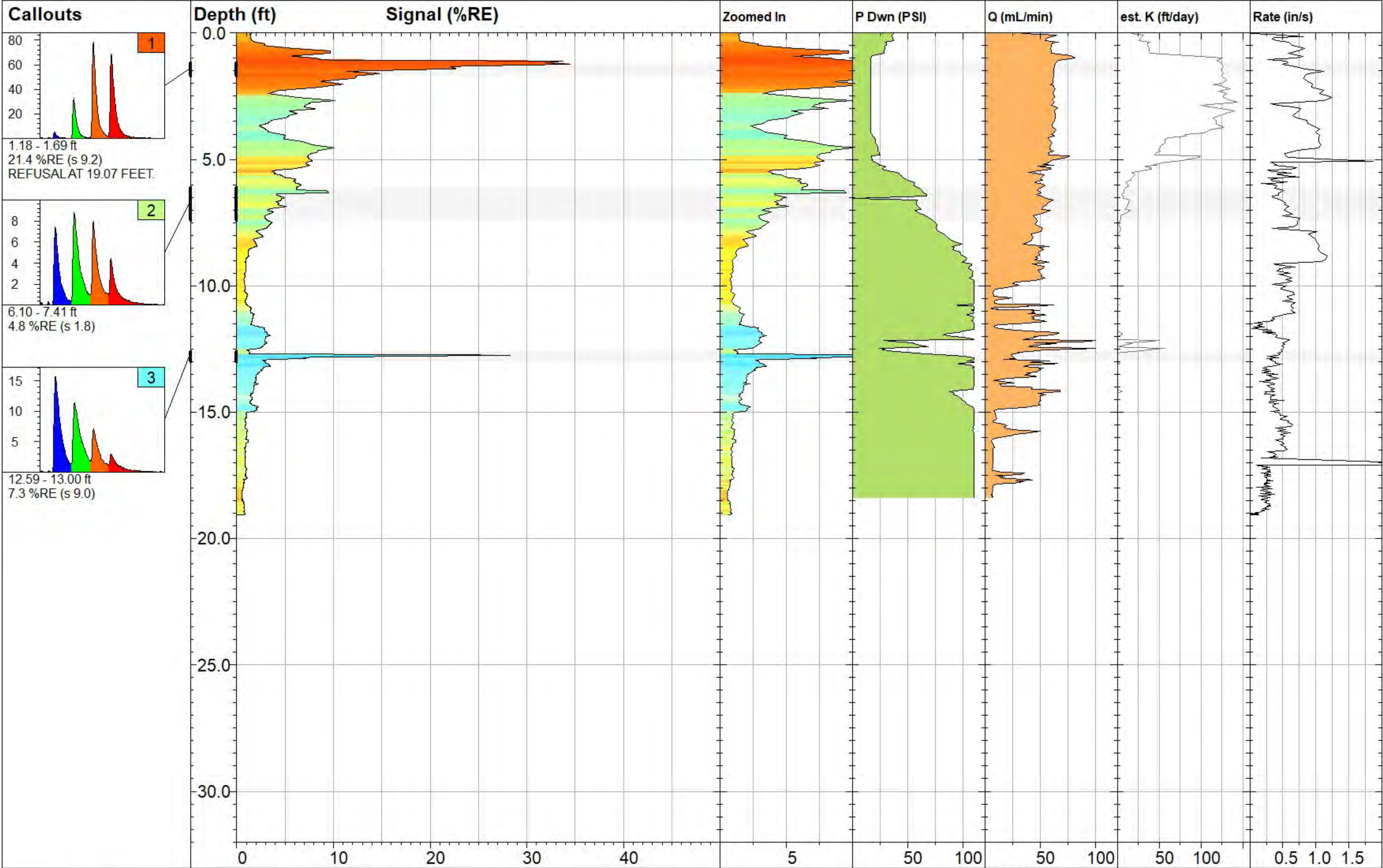




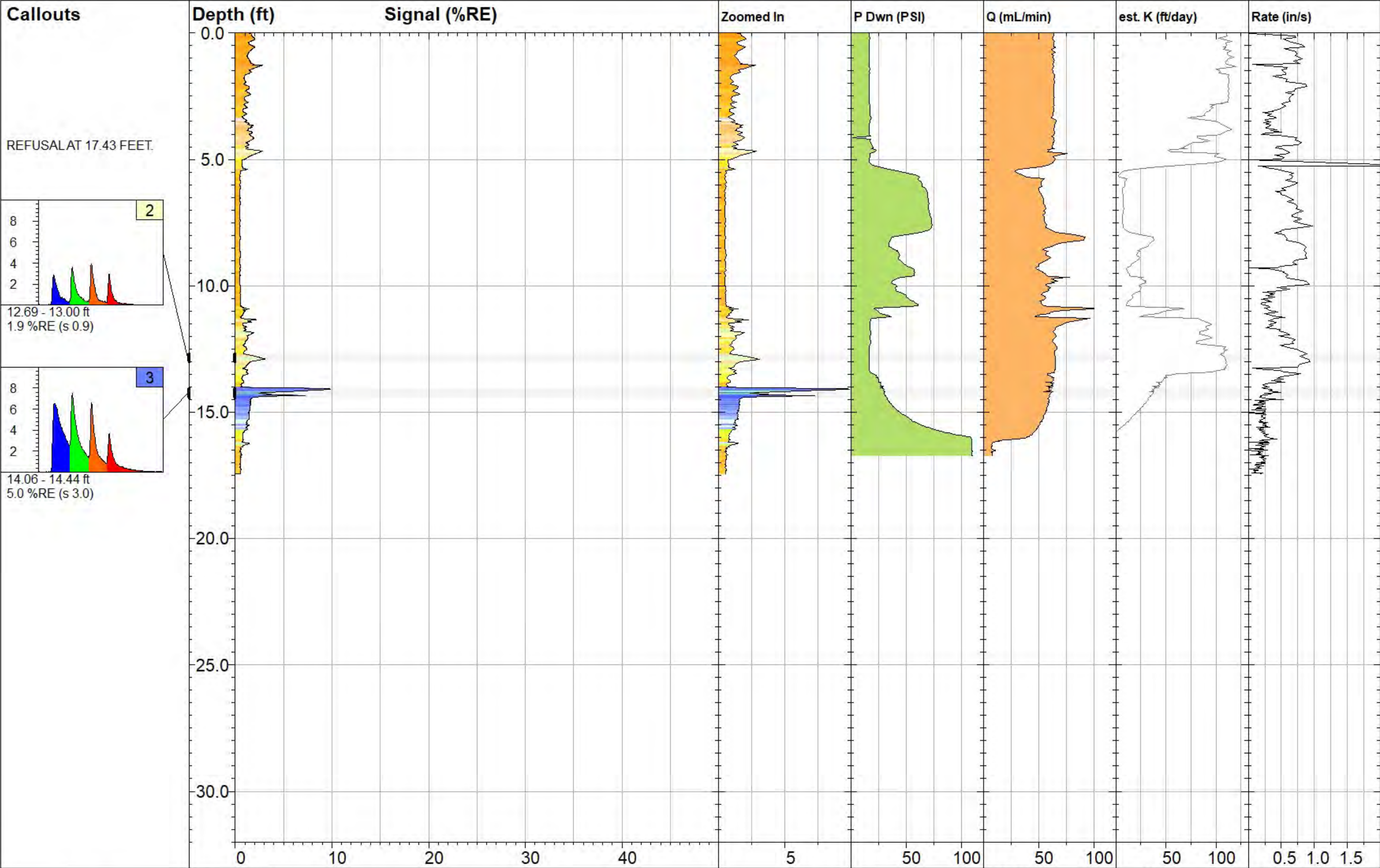
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-91			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 16.31 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 23.3 %RE @ 13.51 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-13 08:19 MDT	



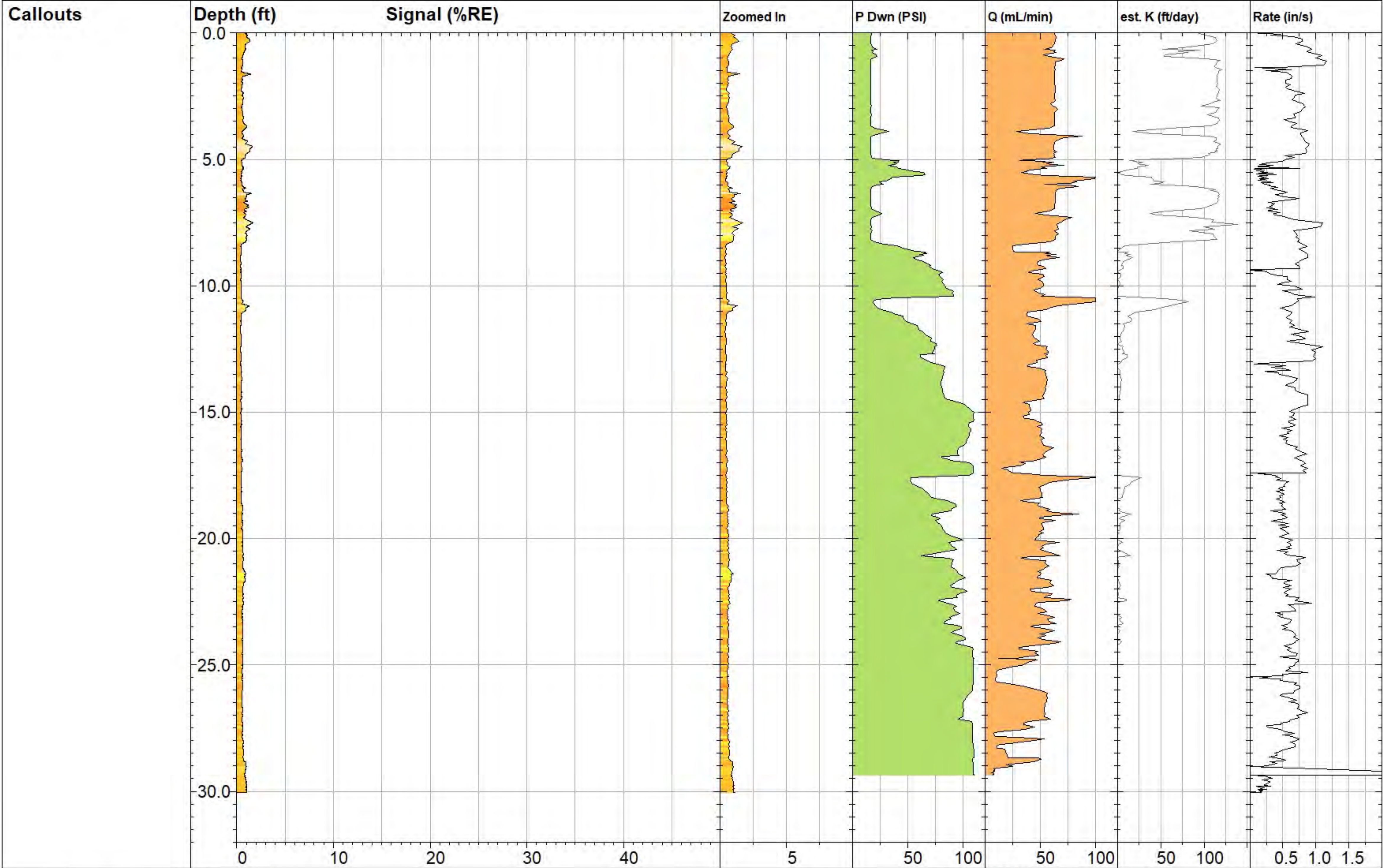
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-92		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 22.33 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 57.7 %RE @ 12.97 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-13 08:55 MDT	



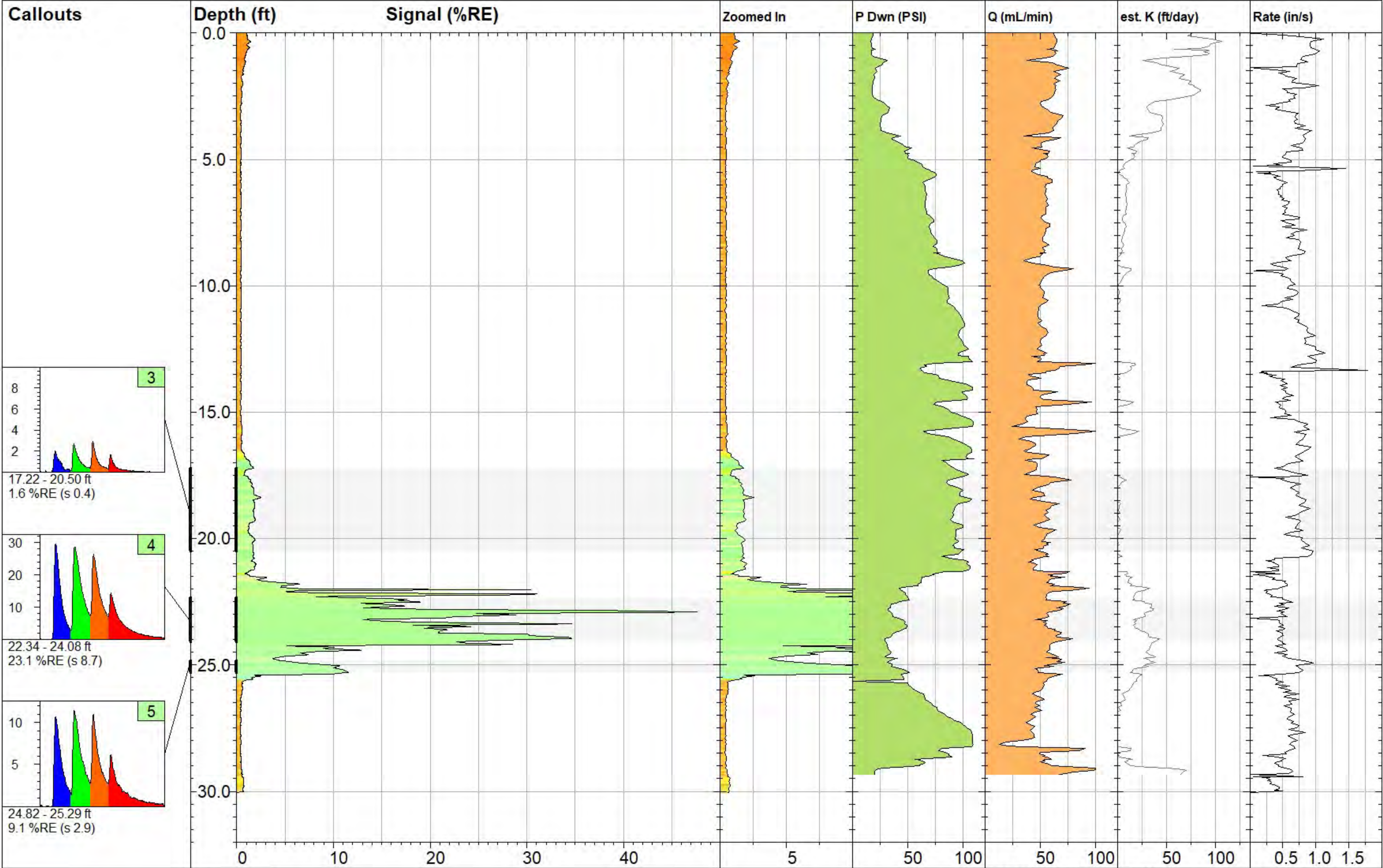
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	EB-LIF-93		UVOST® By Dakota www.DakotaTechnologies.com
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 19.07 ft
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 34.5 %RE @ 1.23 ft
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-13 09:40 MDT



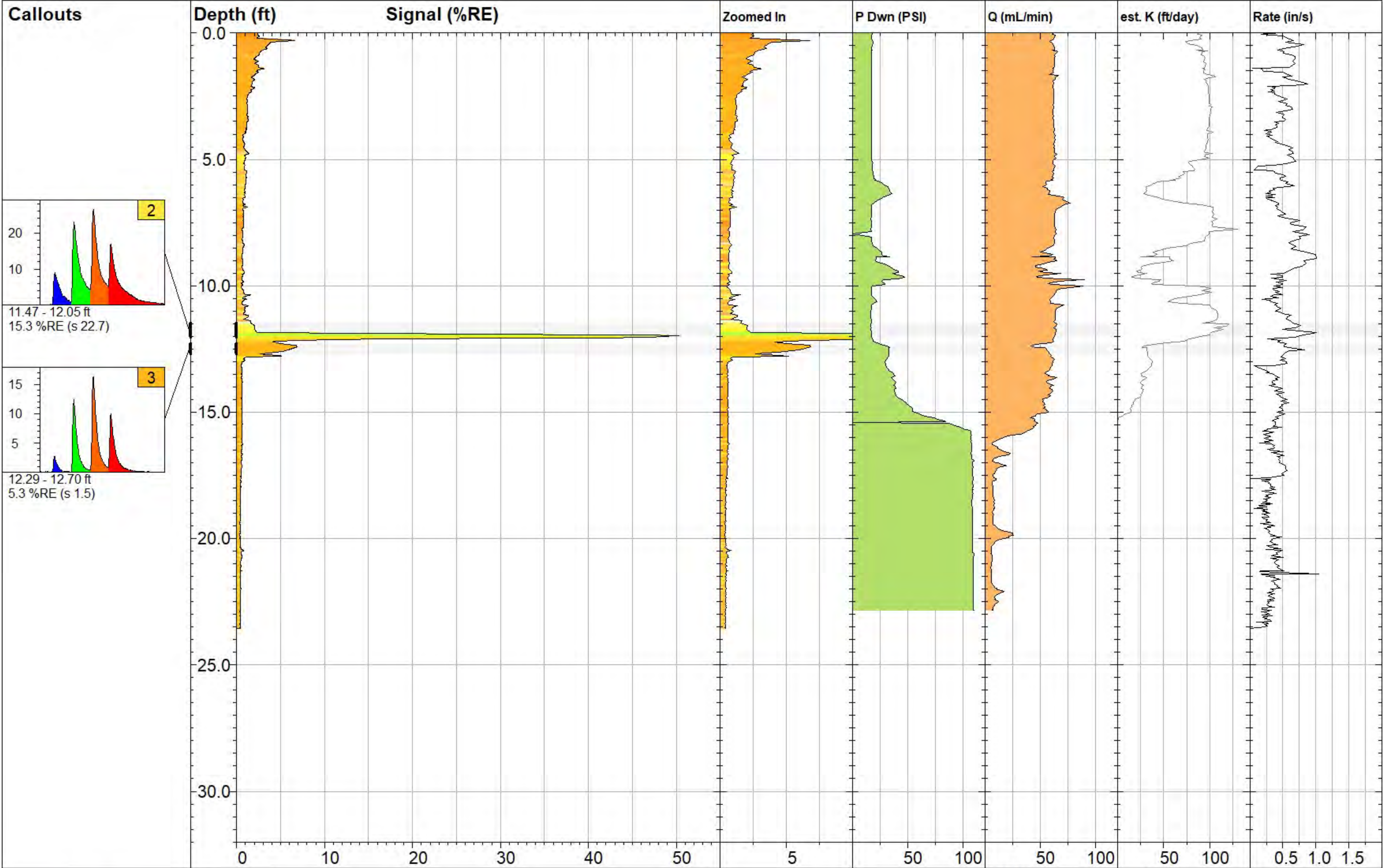
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-94			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 17.43 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 9.9 %RE @ 14.10 ft	
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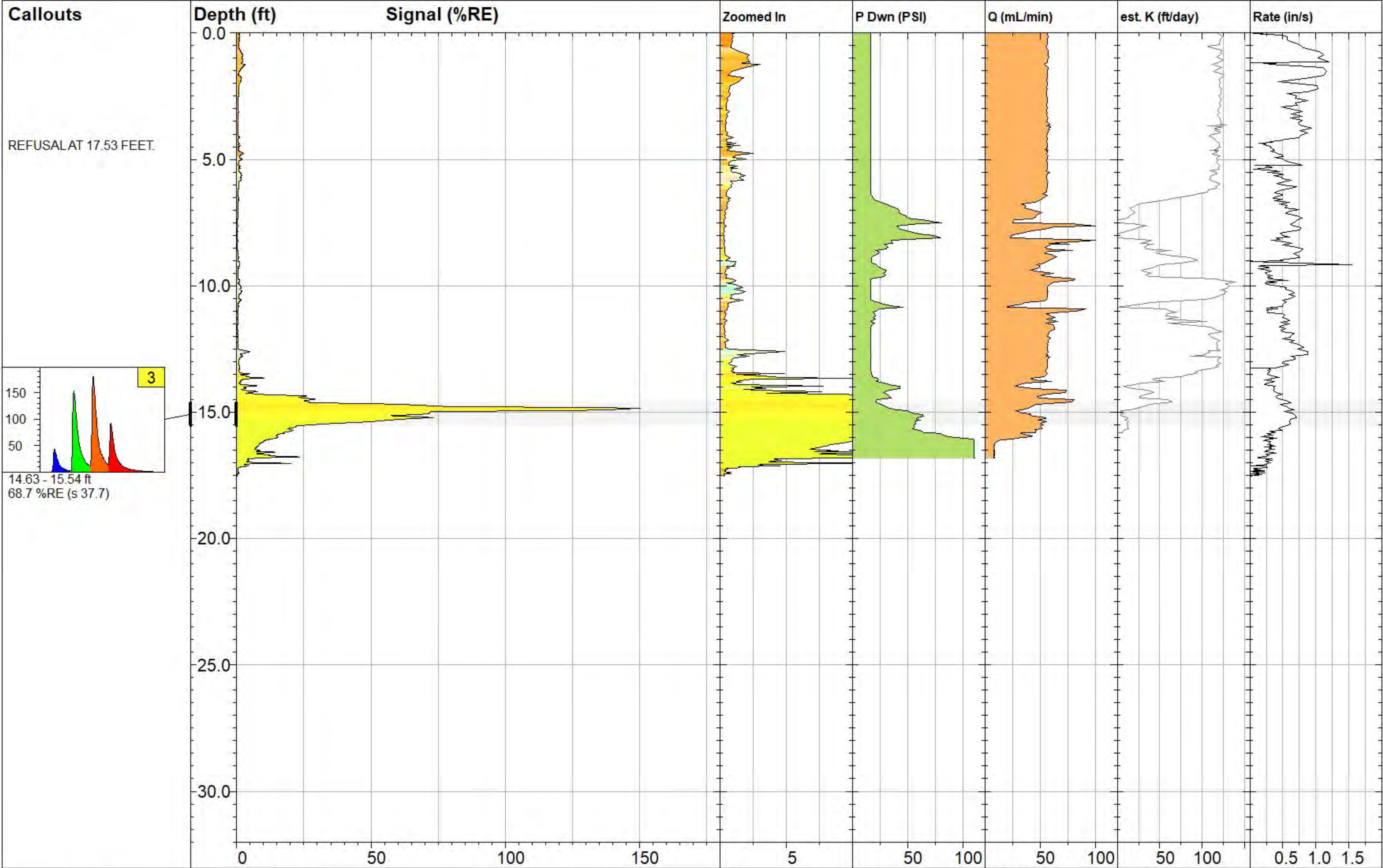
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-95		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 30.05 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 1.7 %RE @ 7.51 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-14 12:59 MDT	



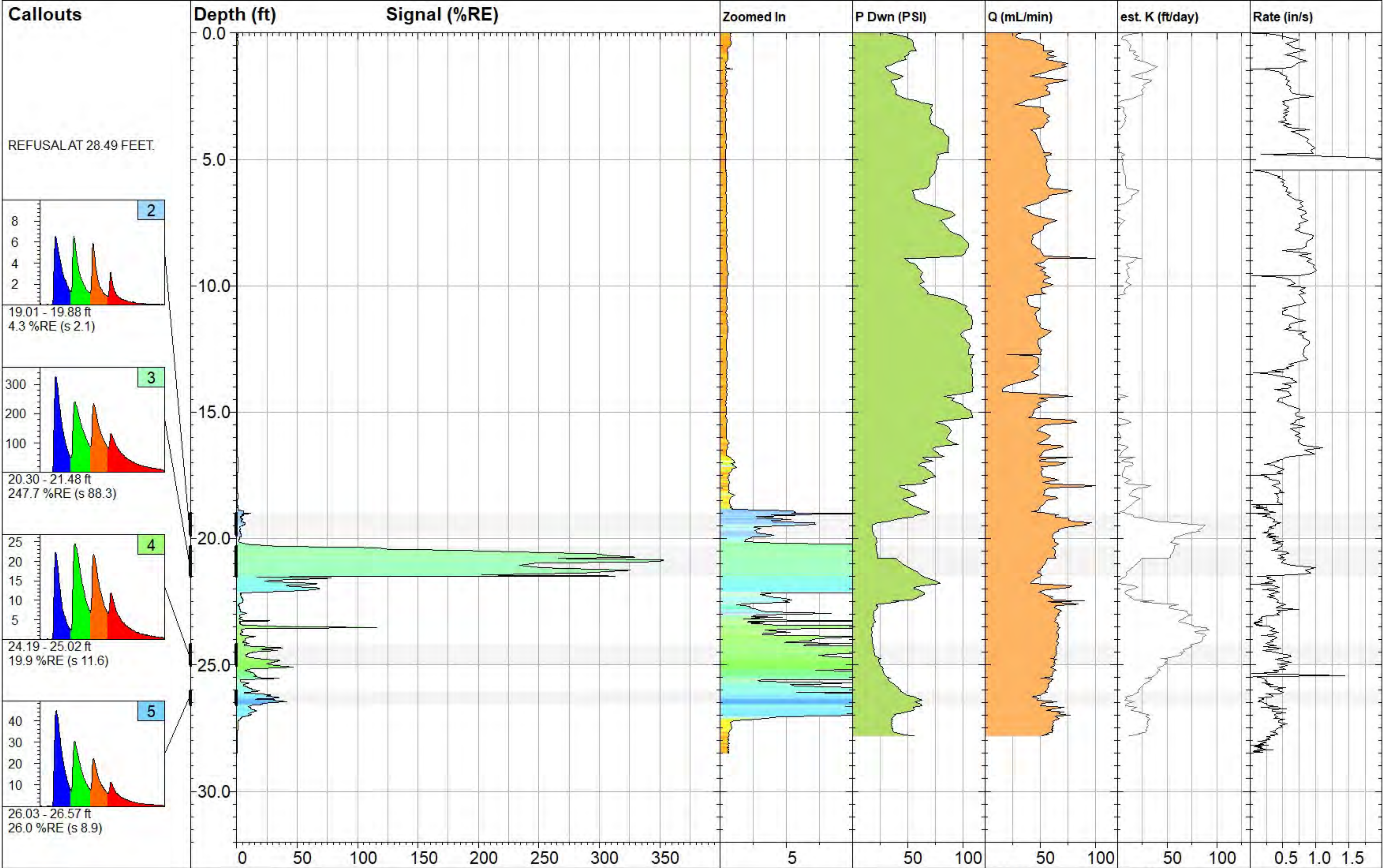
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-96			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 30.03 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 47.8 %RE @ 22.91 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-14 11:36 MDT	



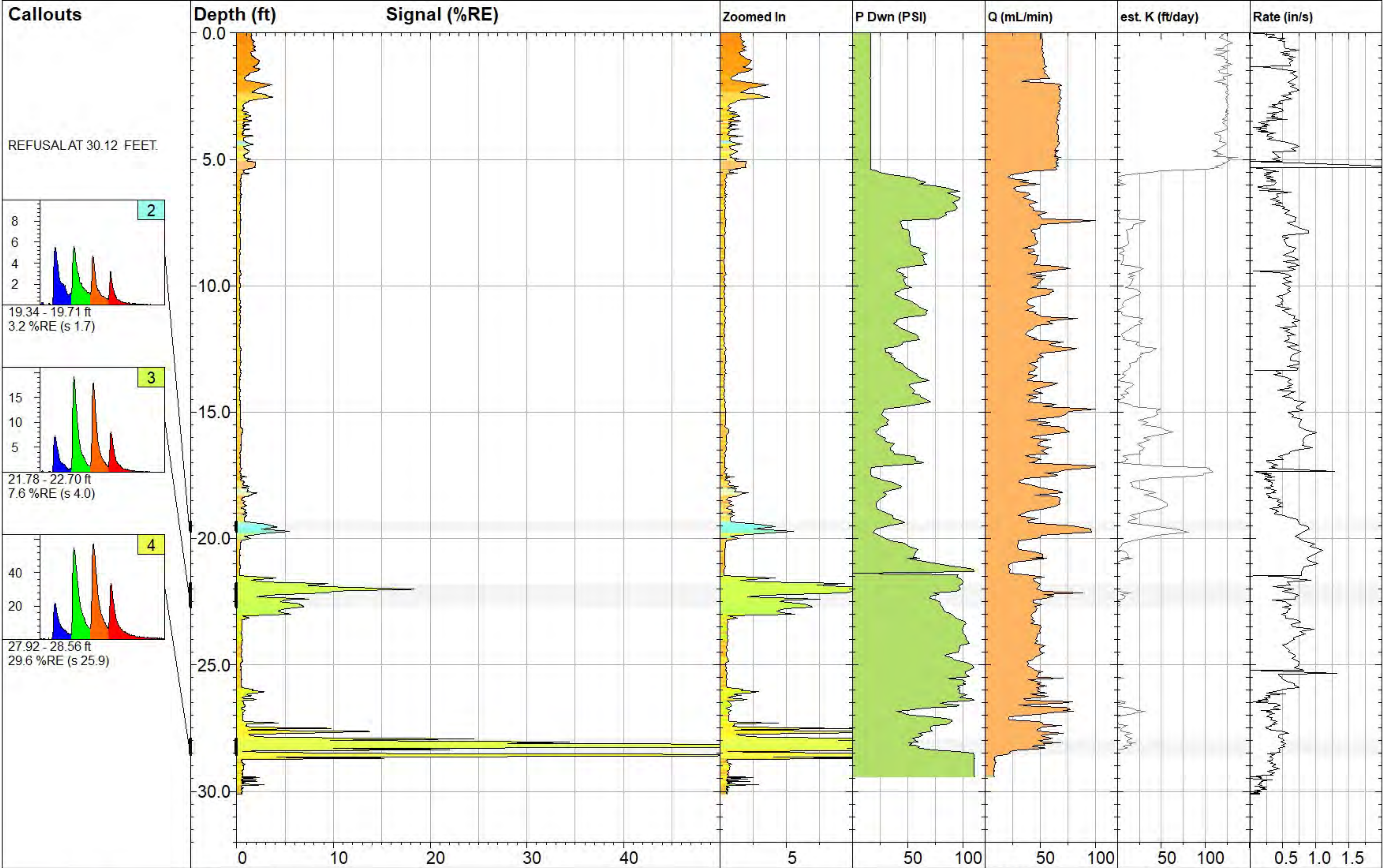
 www.DAKOTATECHNOLOGIES.COM		EB-LIF-97		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Gallup Refinery		Y Coord.(Lat/North): Unavailable		Final Depth: 23.55 ft	
Client / Job: Trihydro / 0049B.21		X Coord.(Long/East): Unavailable		Max Signal: 50.4 %RE @ 11.97 ft	
Operator / Unit: BG / UVOST1612		Elevation: Unavailable		Date & Time: 2021-05-14 10:53 MDT	



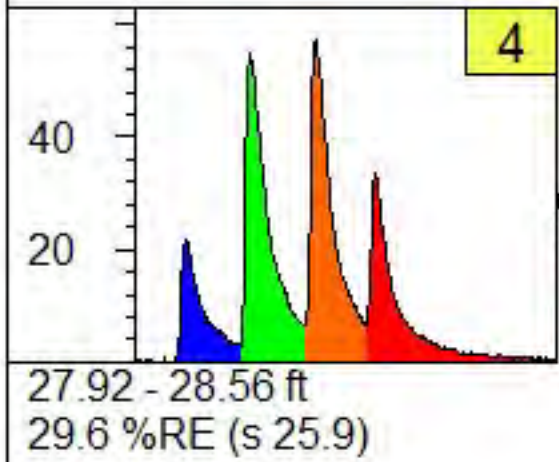
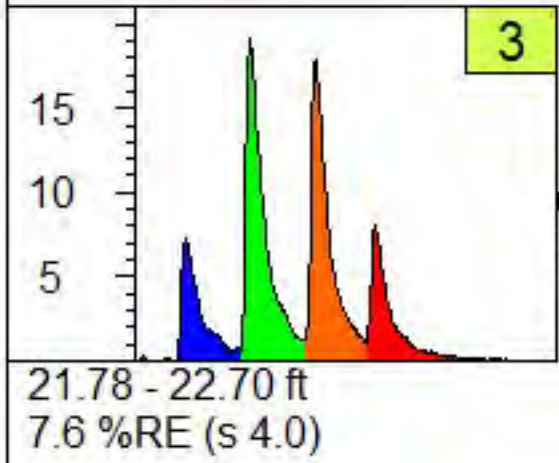
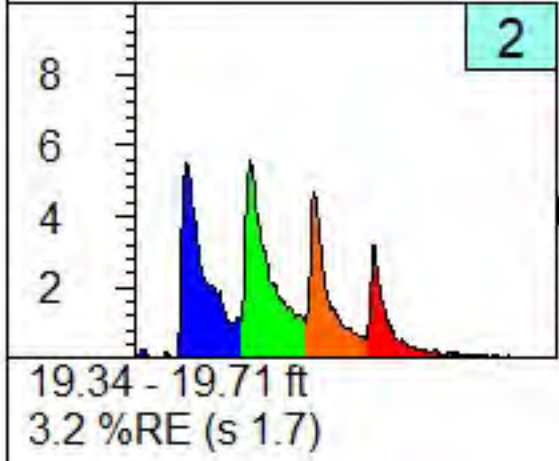
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-98		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 17.53 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 150.5 %RE @ 14.84 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-11 09:08 MDT	



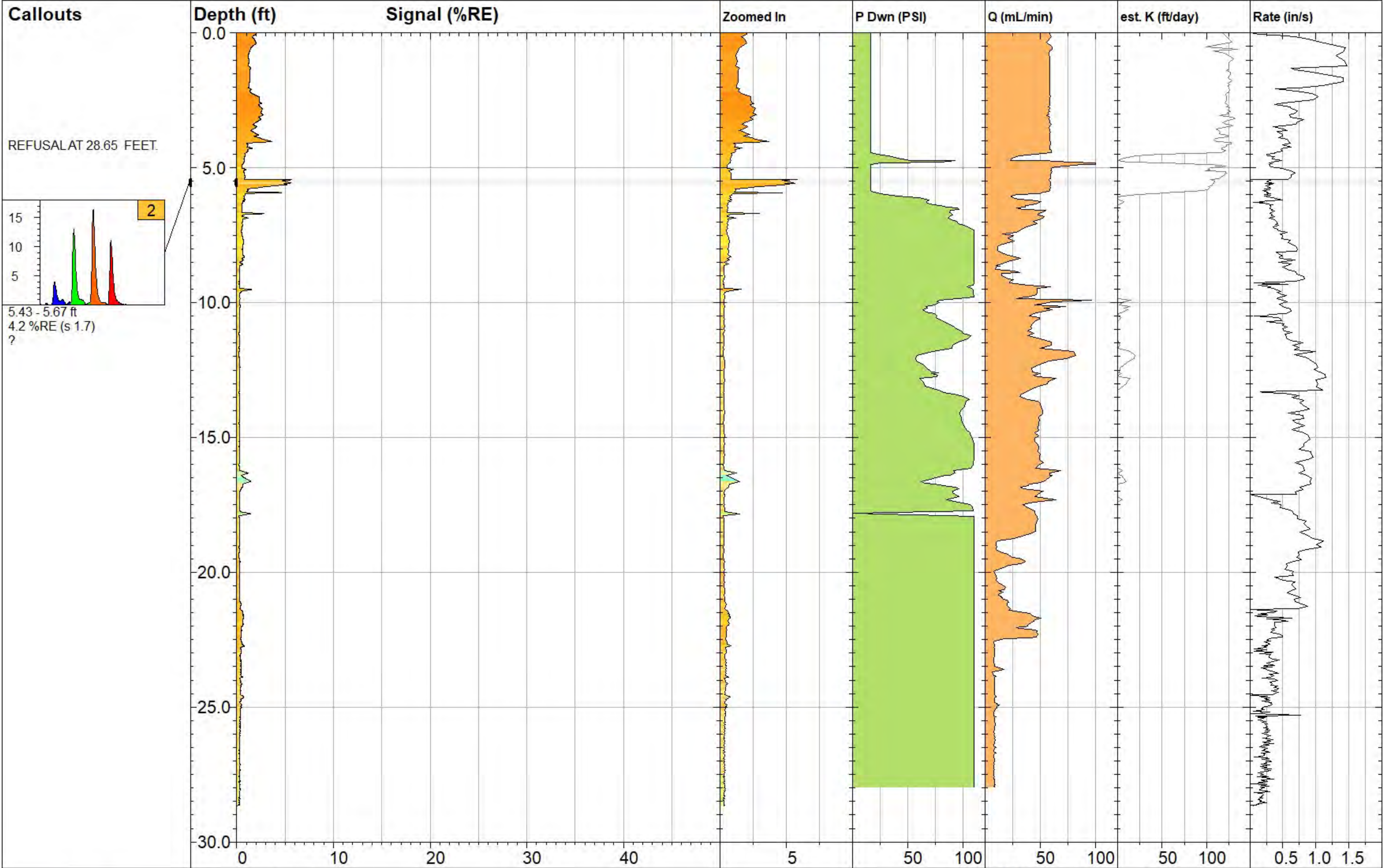
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-99		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 28.49 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 353.3 %RE @ 20.84 ft	
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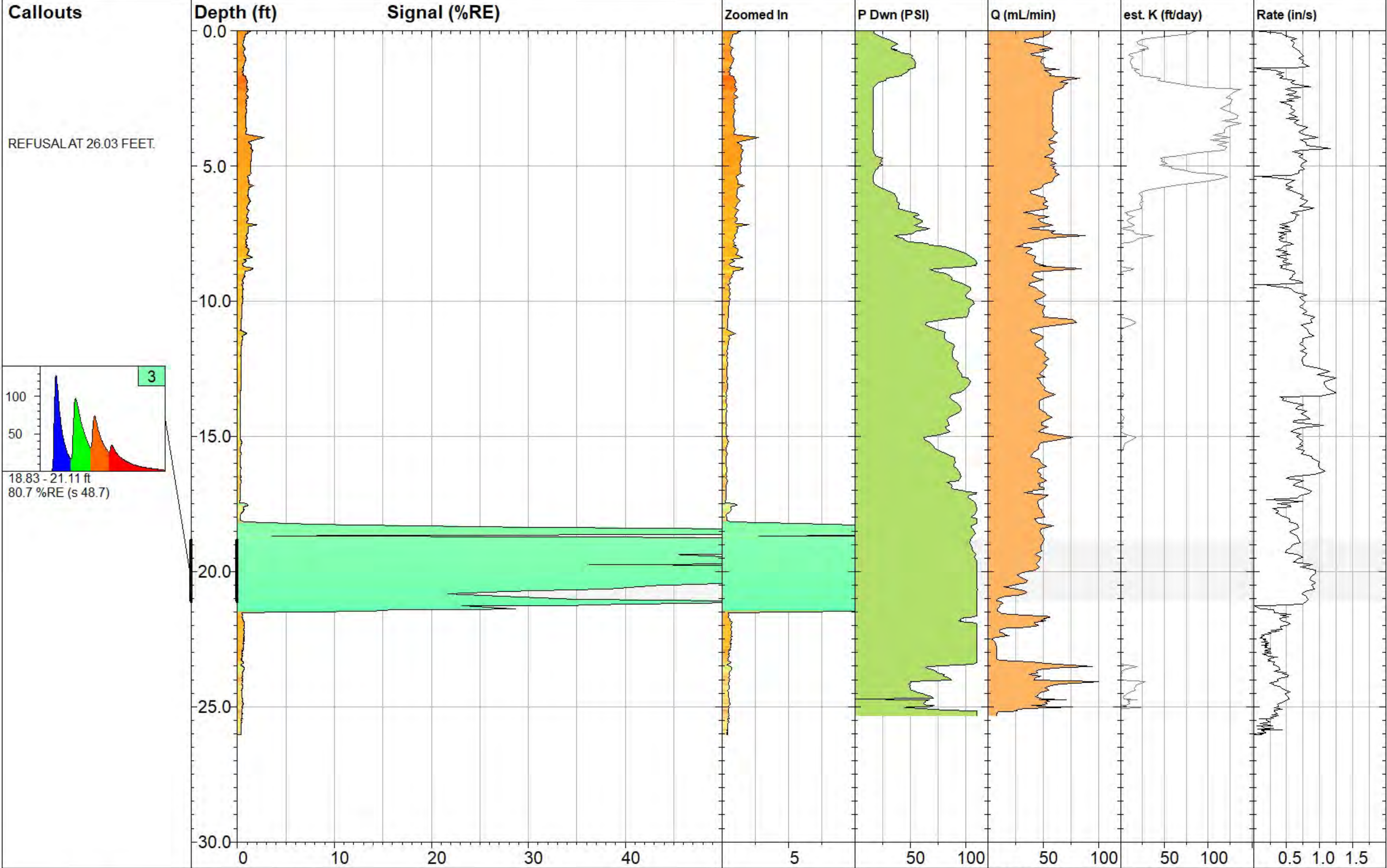
REFUSAL AT 30.12 FEET.



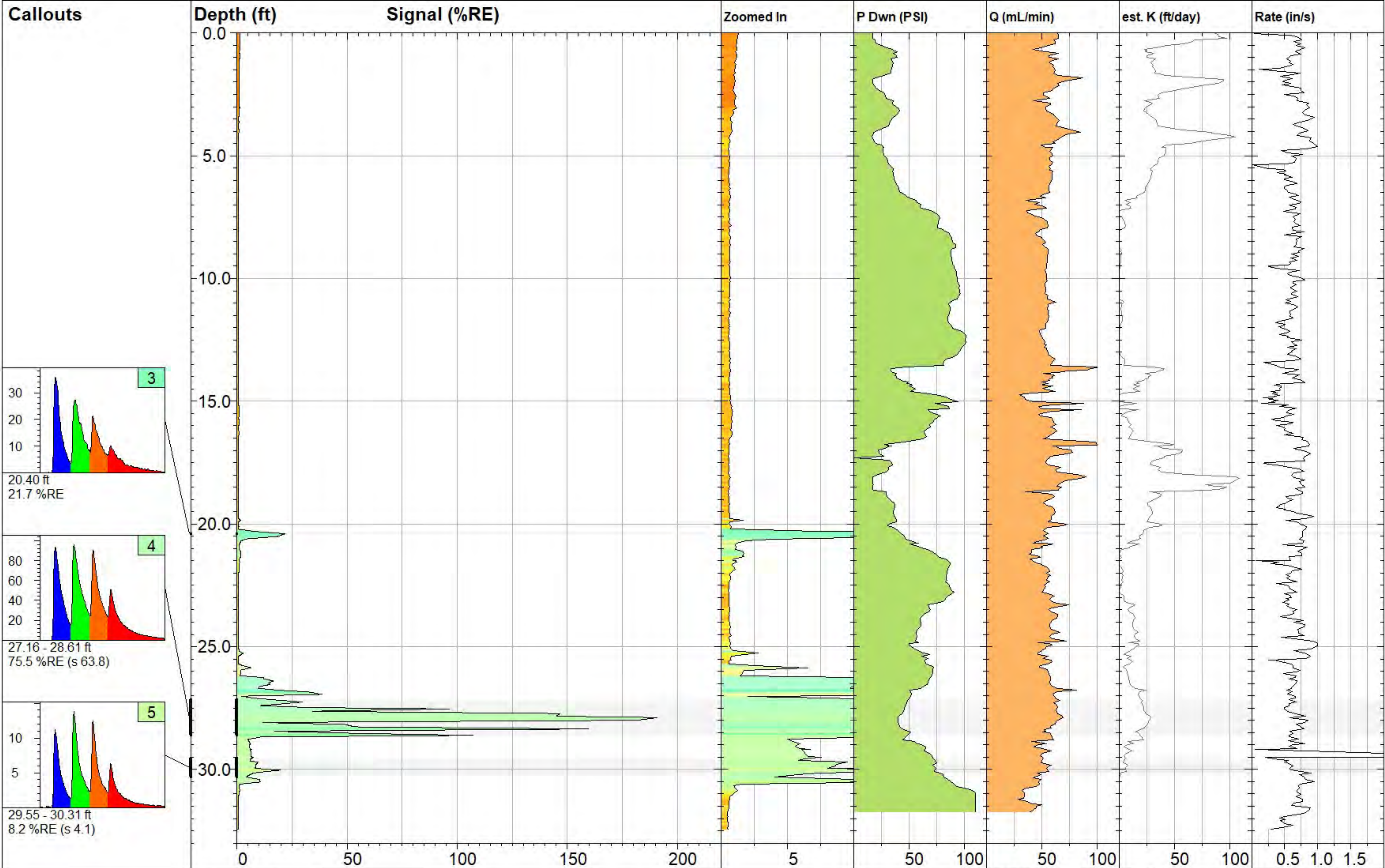
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-101		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 30.12 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 77.5 %RE @ 28.17 ft	
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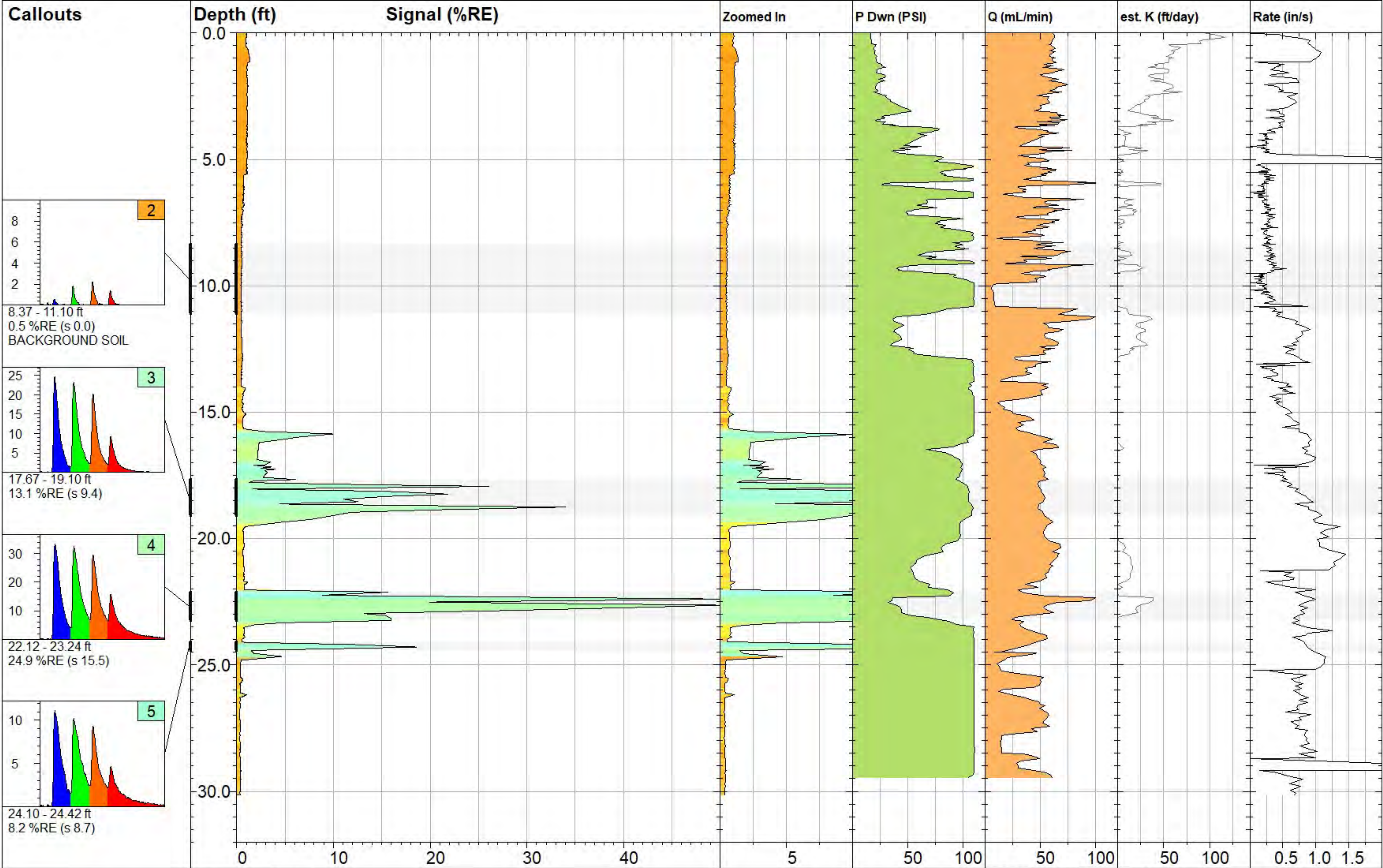
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-102		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 28.65 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 5.8 %RE @ 5.44 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-10 13:29 MDT	



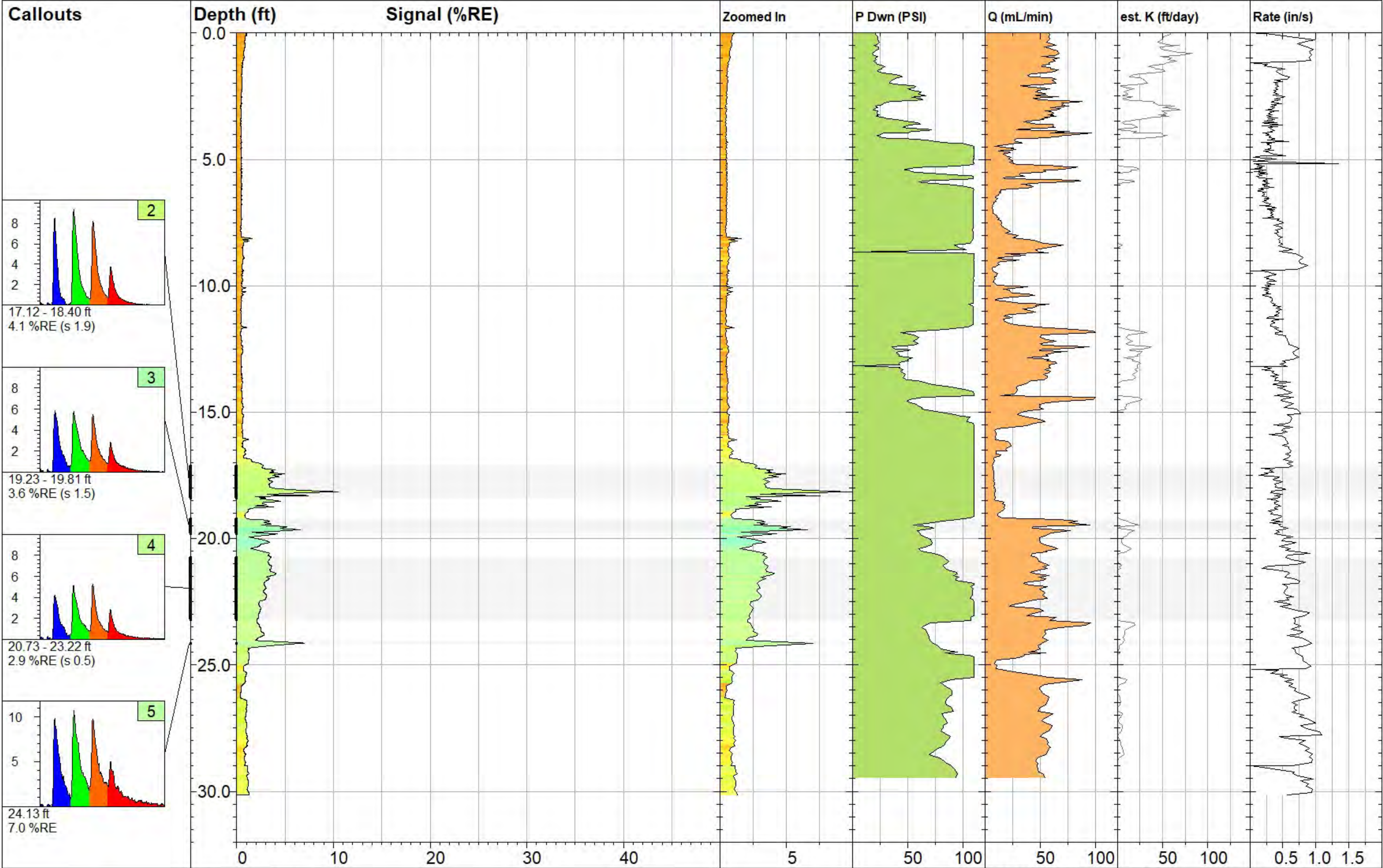
 www.DAKOTATECHNOLOGIES.COM		EB-LIF-103		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Gallup Refinery		Y Coord.(Lat/North): Unavailable		Final Depth: 26.03 ft	
Client / Job: Trihydro / 0049B.21		X Coord.(Long/East): Unavailable		Max Signal: 174.3 %RE @ 19.00 ft	
Operator / Unit: BG / UVOST1612		Elevation: Unavailable		Date & Time: 2021-05-10 14:11 MDT	



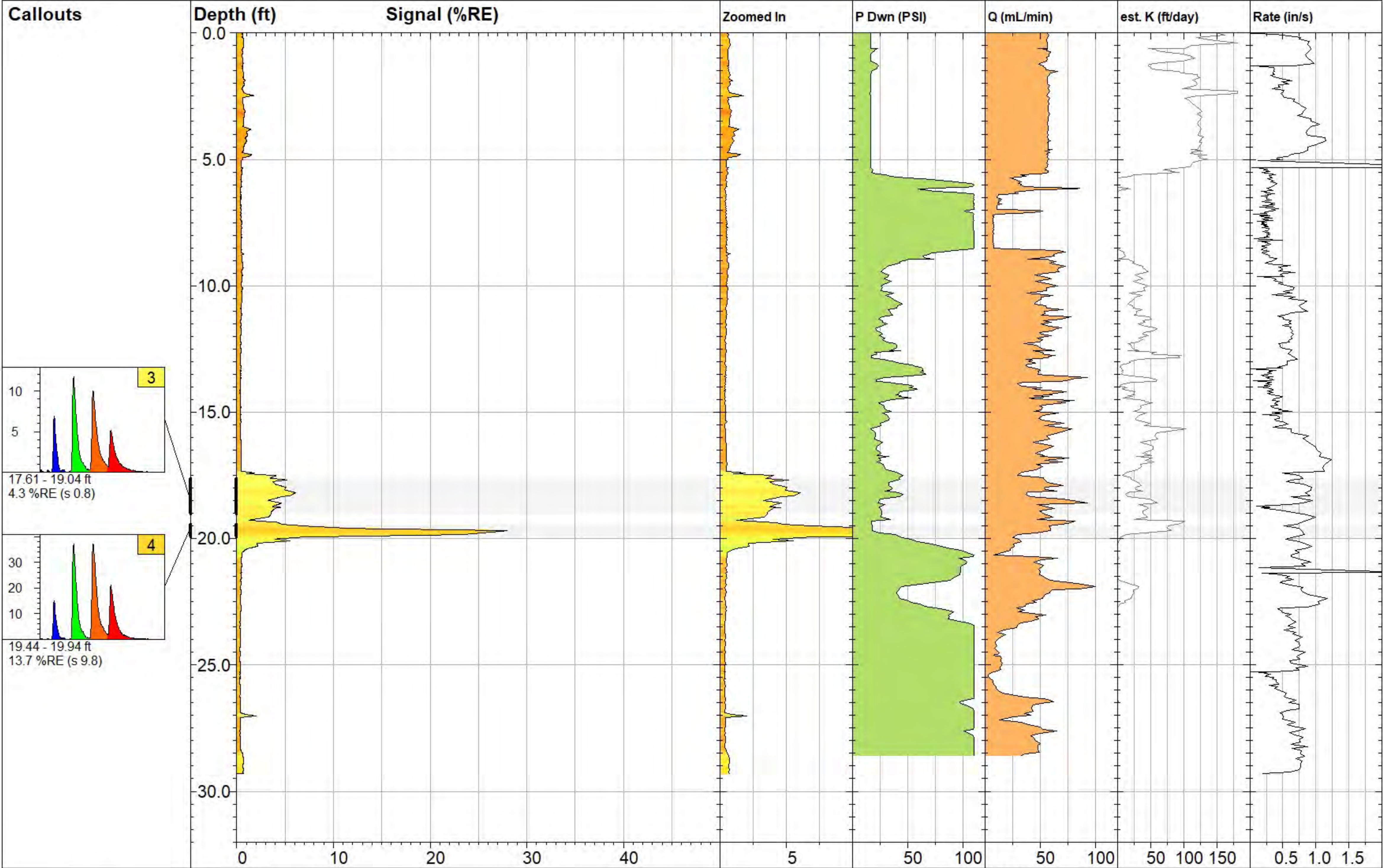
 www.DAKOTATECHNOLOGIES.COM		EB-LIF-104		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Gallup Refinery		Y Coord.(Lat/North): Unavailable		Final Depth: 32.42 ft	
Client / Job: Trihydro / 0049B.21		X Coord.(Long/East): Unavailable		Max Signal: 191.2 %RE @ 27.89 ft	
Operator / Unit: BG / UVOST1612		Elevation: Unavailable		Date & Time: 2021-05-14 07:55 MDT	



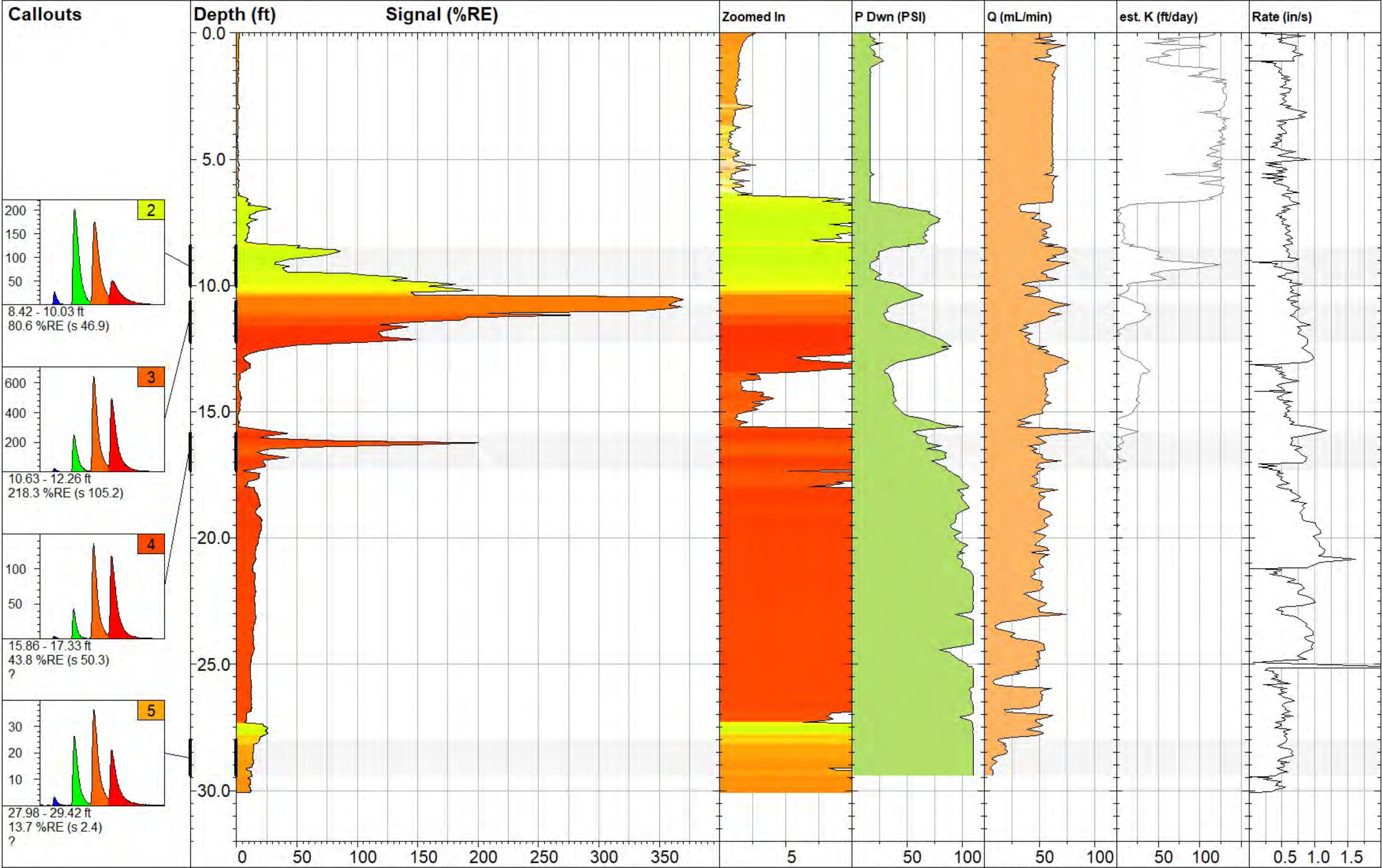
 www.DAKOTATECHNOLOGIES.COM		EB-LIF-105		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Gallup Refinery		Y Coord.(Lat/North): Unavailable		Final Depth: 30.14 ft	
Client / Job: Trihydro / 0049B.21		X Coord.(Long/East): Unavailable		Max Signal: 51.9 %RE @ 22.40 ft	
Operator / Unit: BG / UVOST1612		Elevation: Unavailable		Date & Time: 2021-05-11 12:18 MDT	



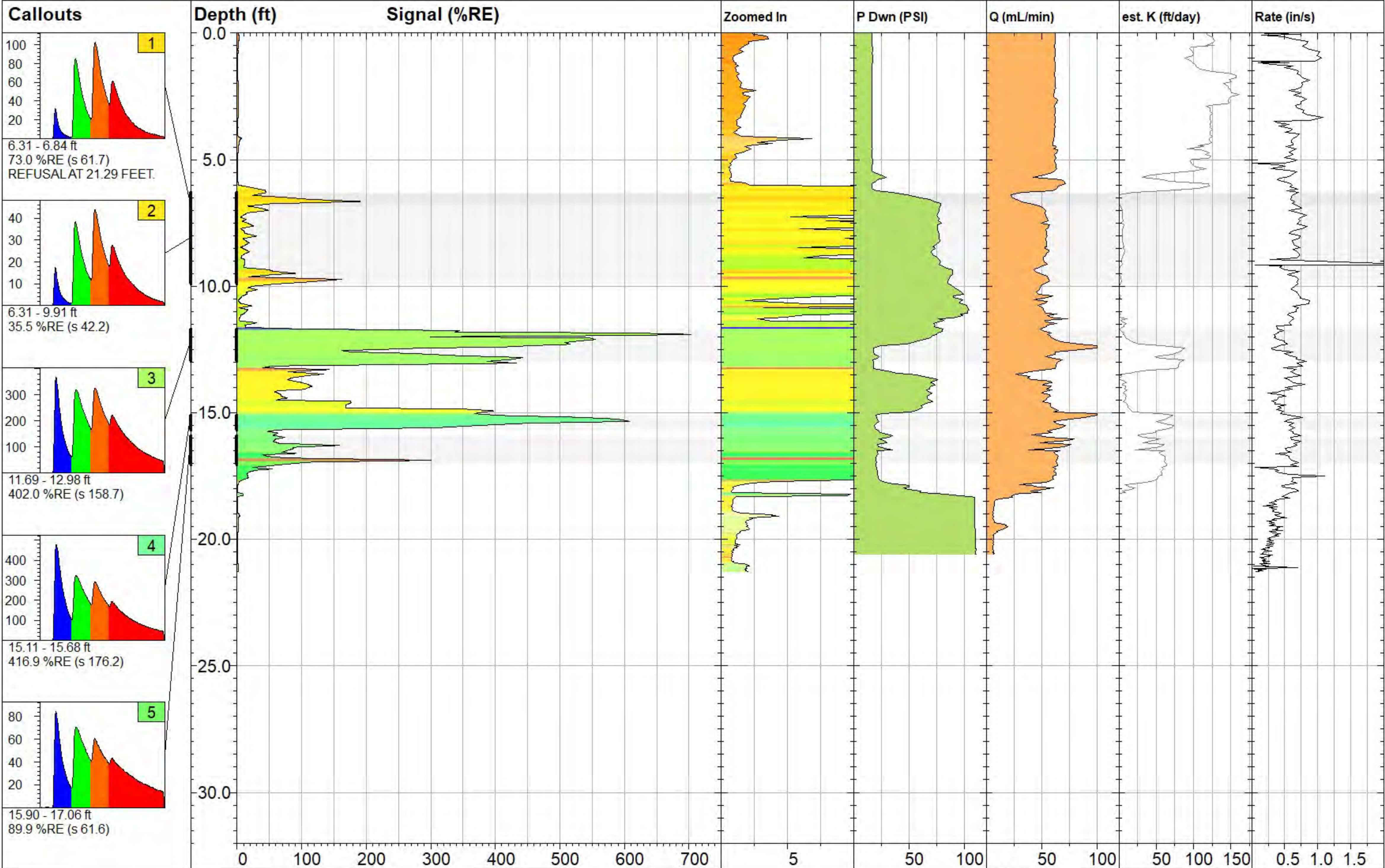
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-106			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 30.14 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 10.7 %RE @ 18.15 ft	
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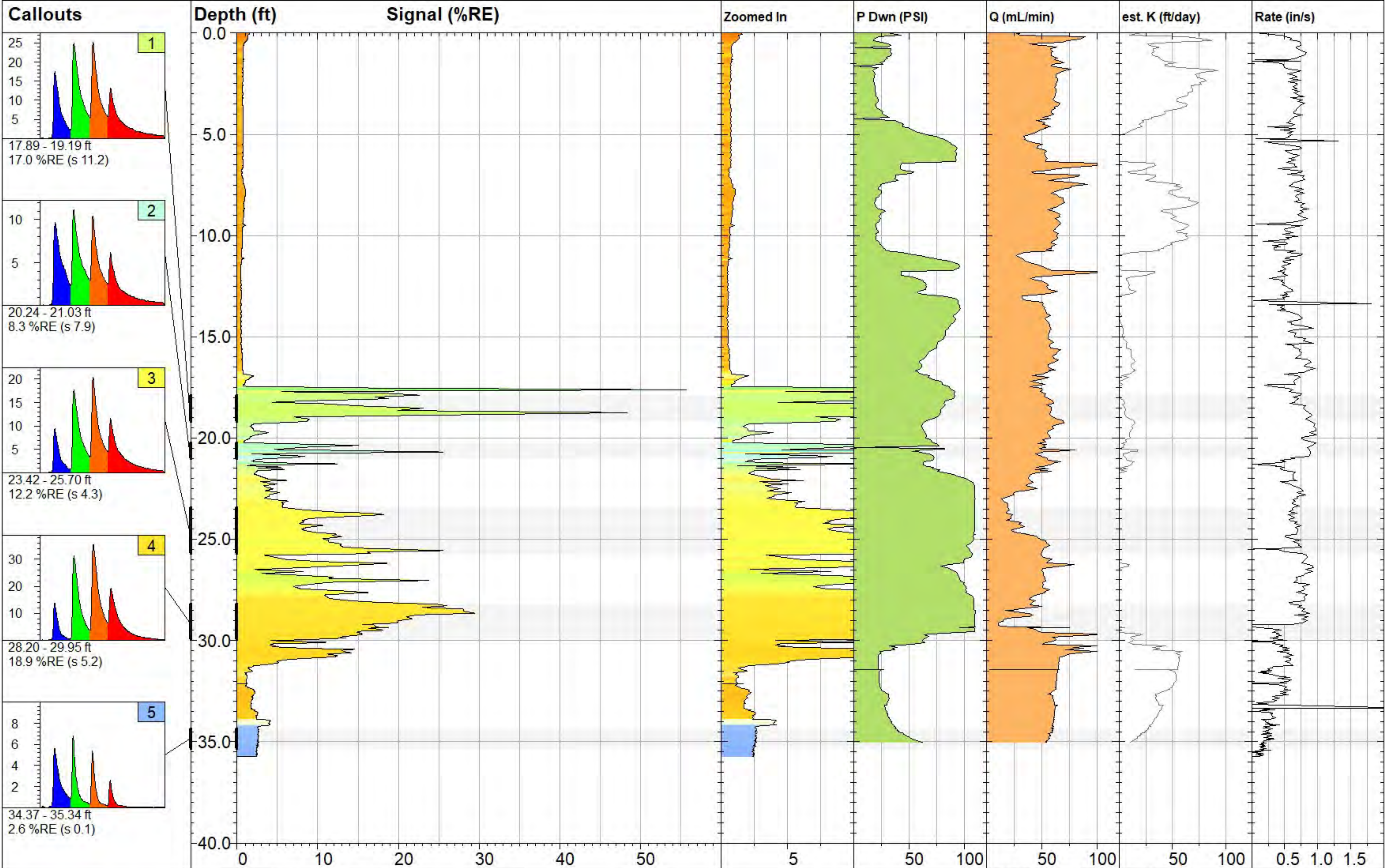
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-107			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 29.29 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 28.1 %RE @ 19.69 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-11 10:59 MDT	



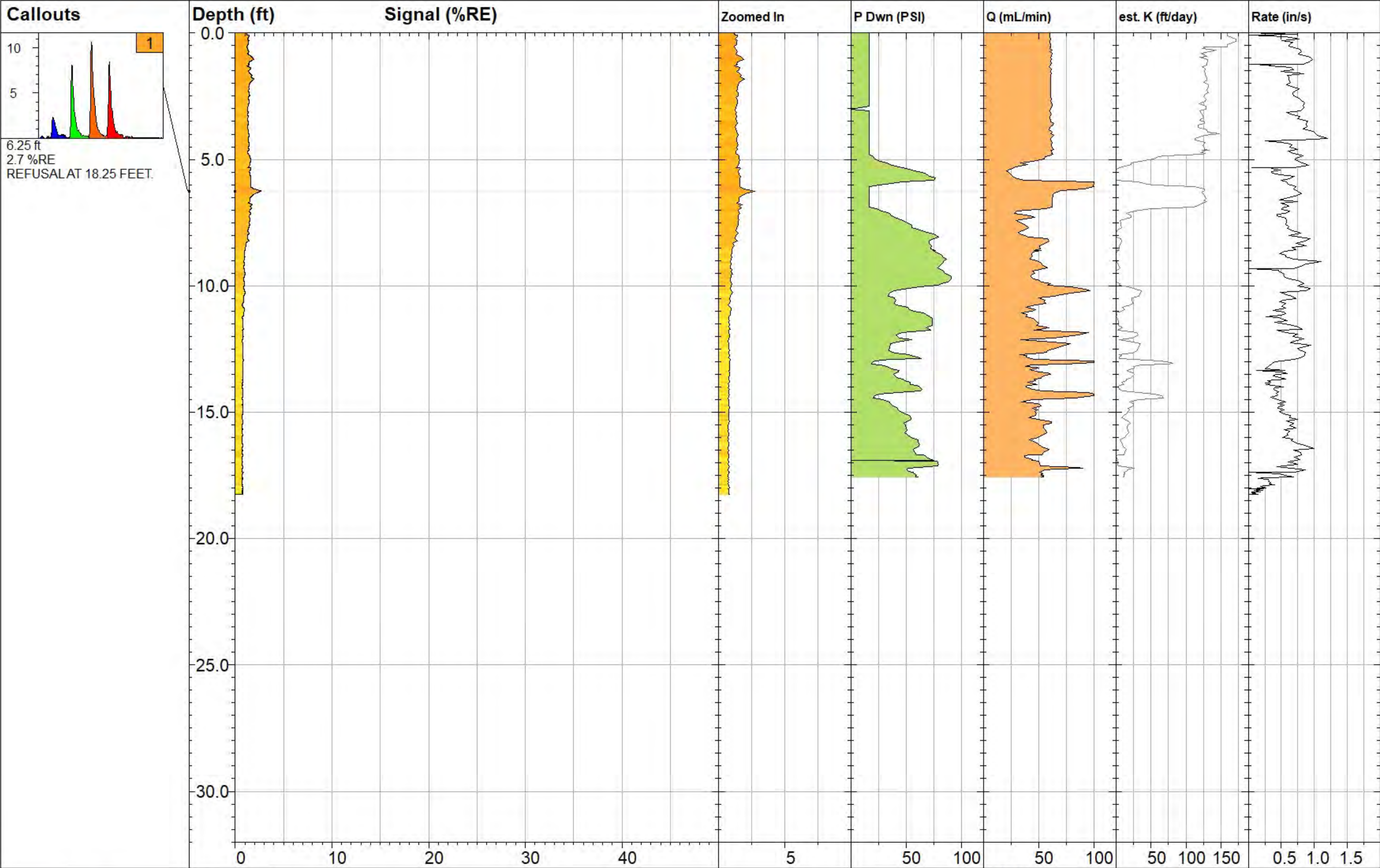
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	EB-LIF-108		UVOST® By Dakota www.DakotaTechnologies.com
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 30.08 ft
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 370.0 %RE @ 10.56 ft
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-13 10:25 MDT

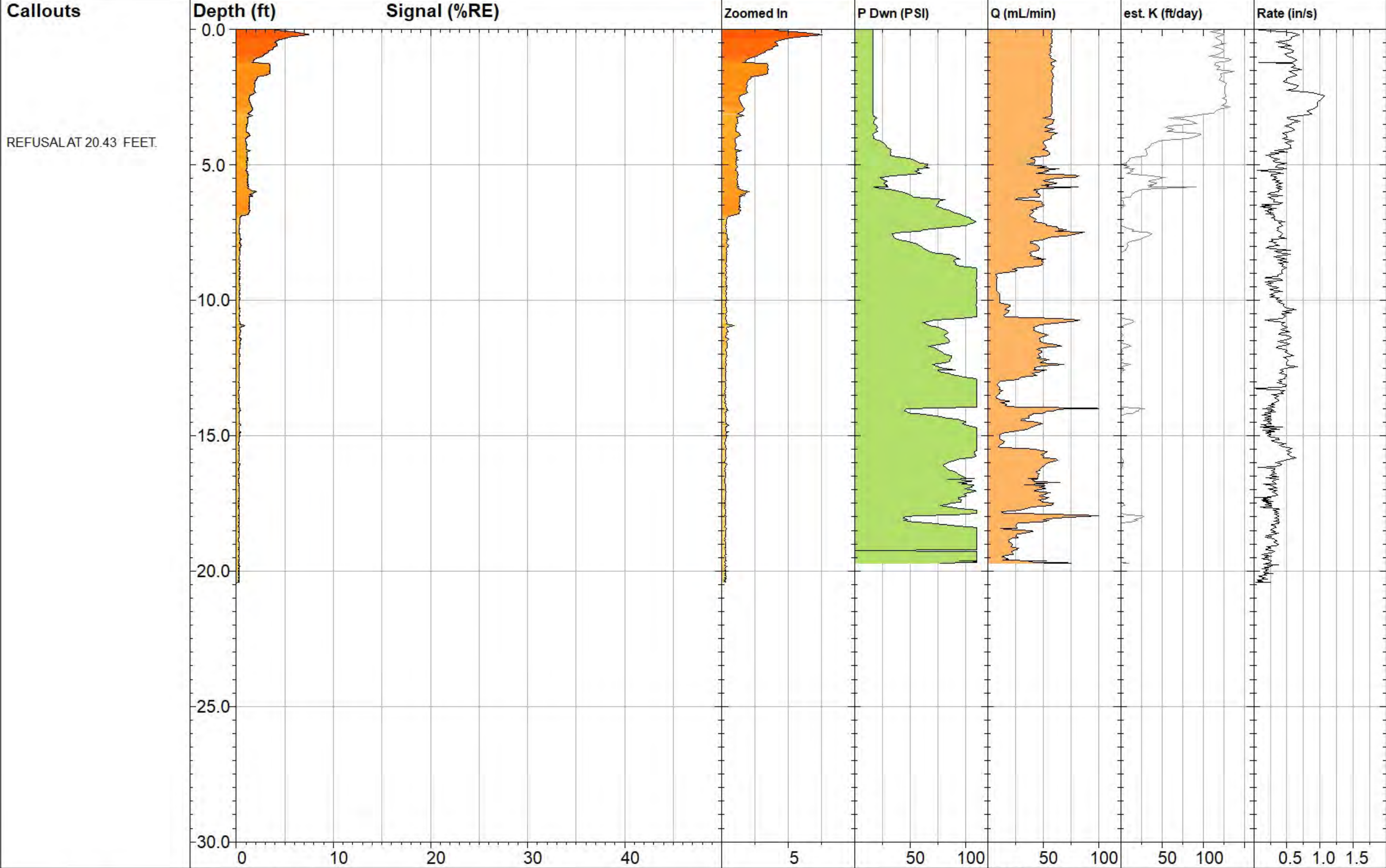


 www.DAKOTATECHNOLOGIES.COM		EB-LIF-109		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 21.29 ft	
		Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 703.6 %RE @ 11.91 ft	
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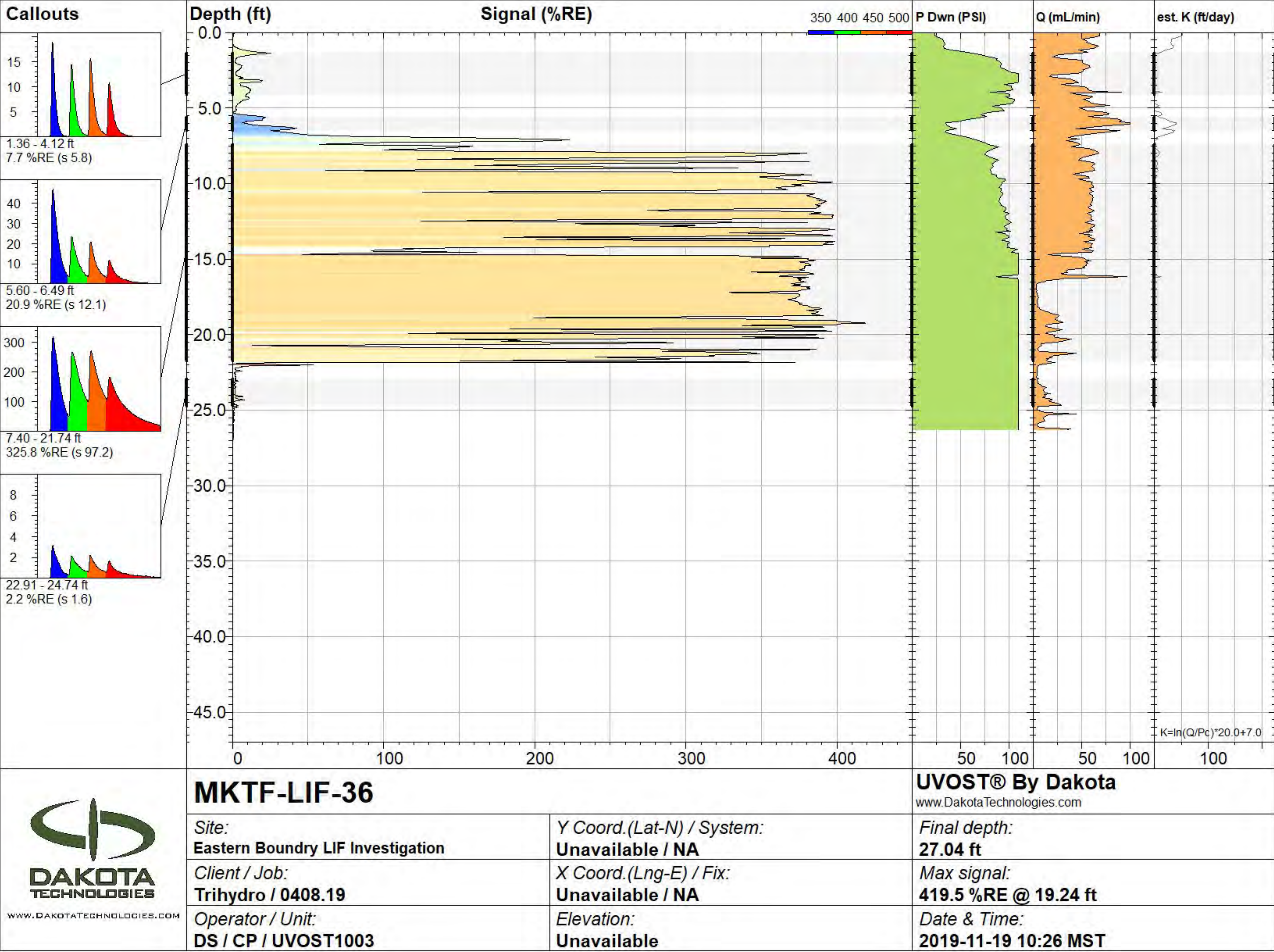


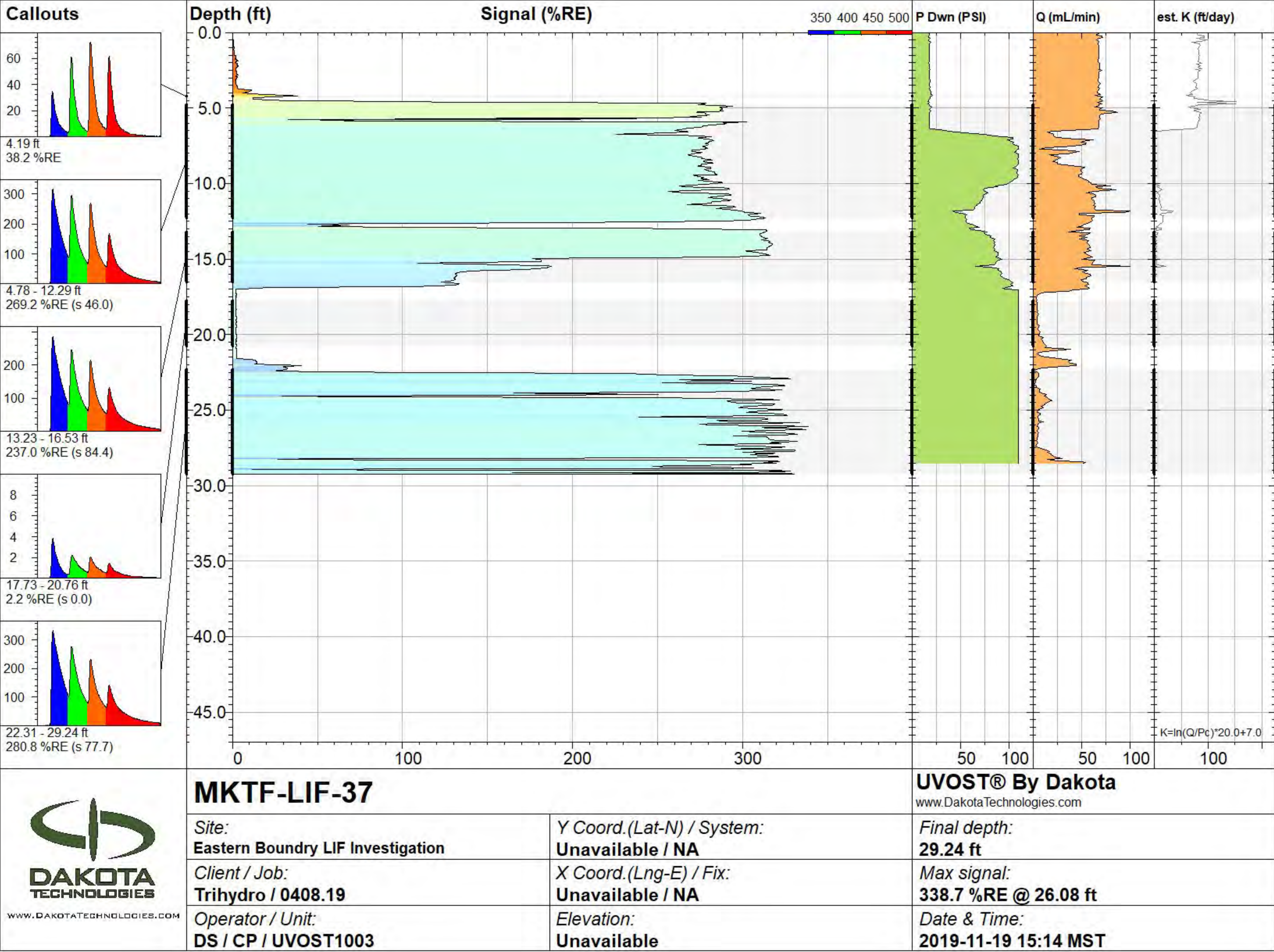
 www.DAKOTATECHNOLOGIES.COM	EB-LIF-121		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 35.72 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 55.8 %RE @ 17.62 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-14 08:36 MDT	

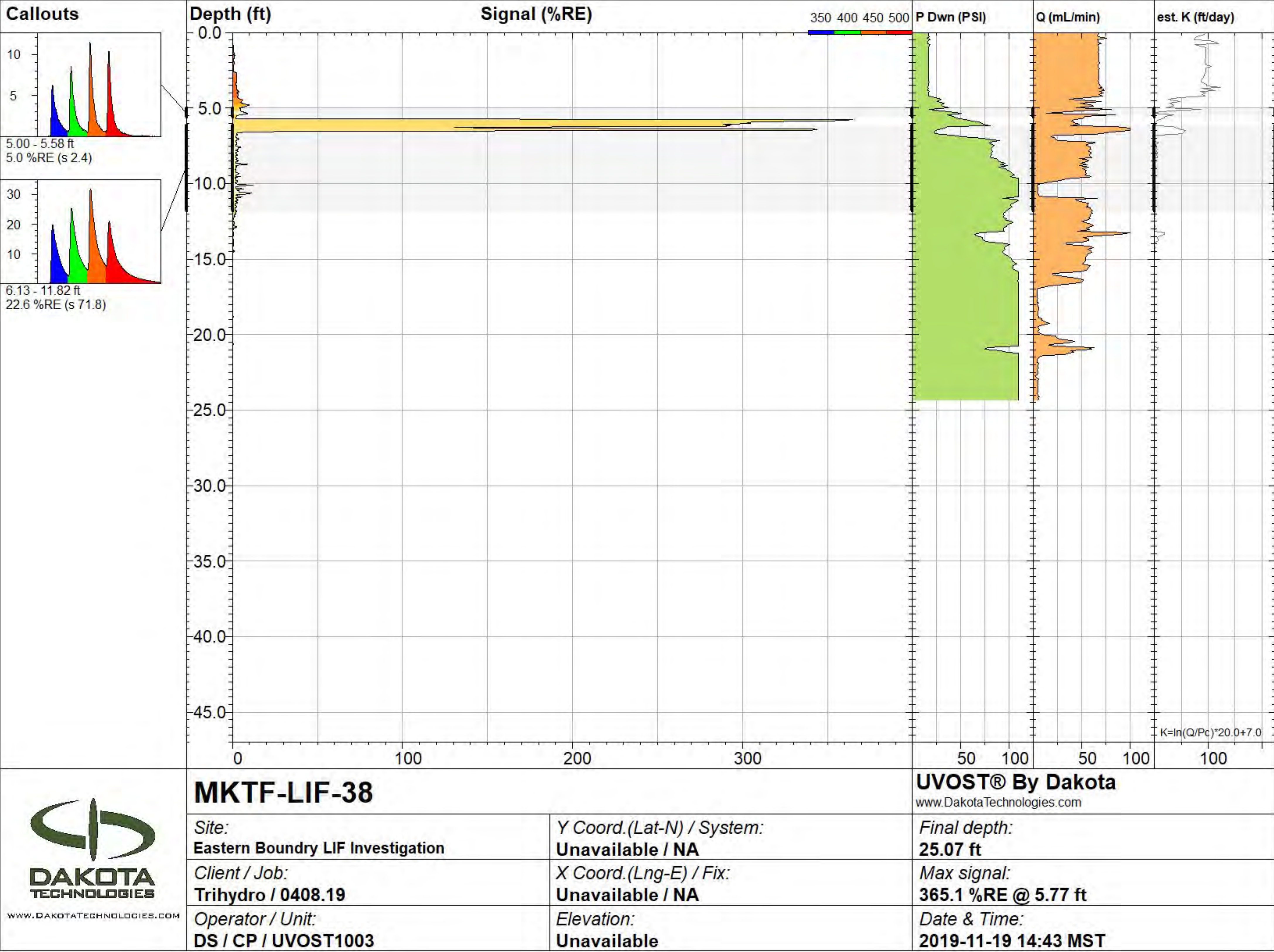




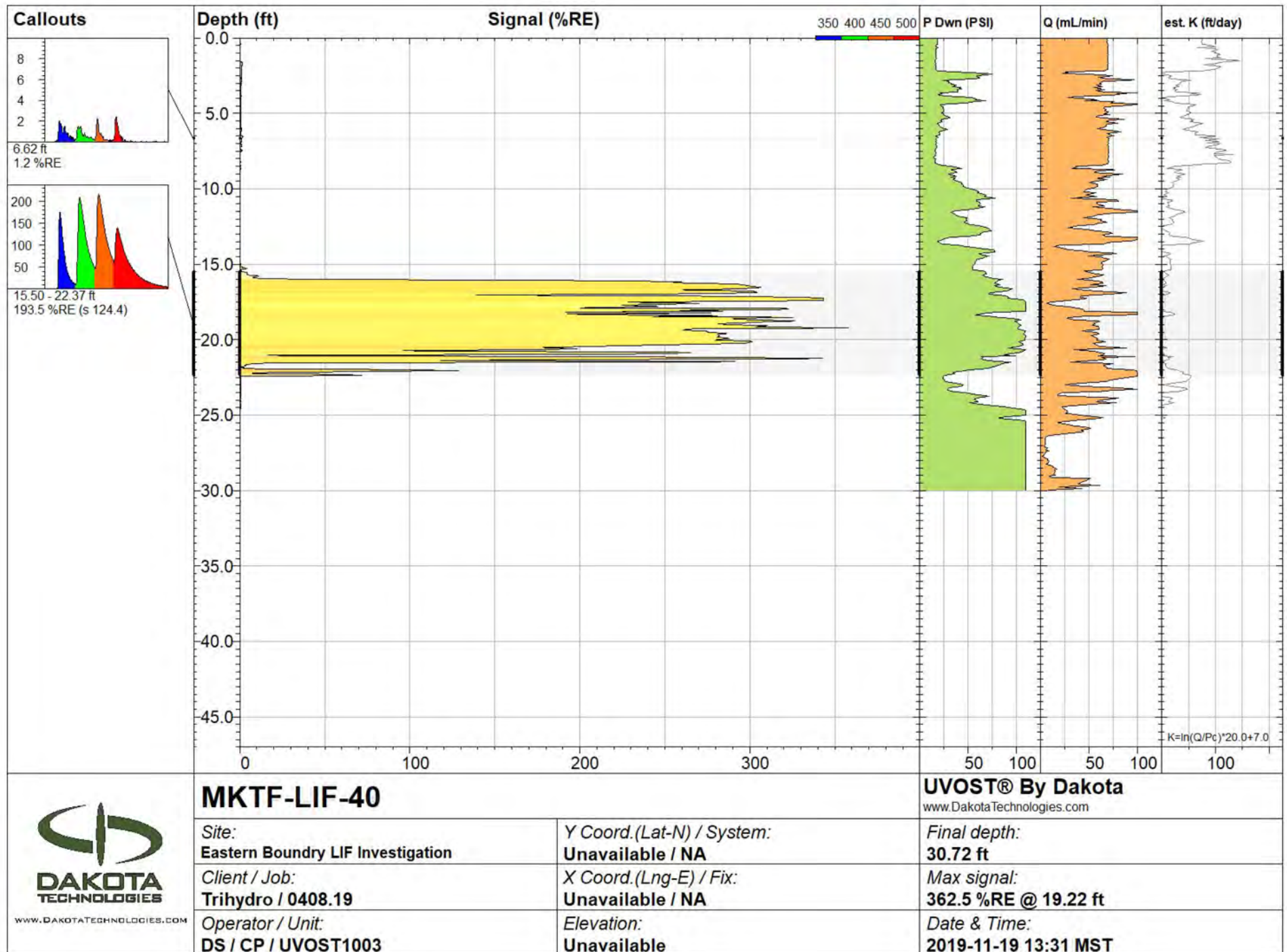
 www.dakotatechnologies.com	EB-LIF-138		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 20.43 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 7.5 %RE @ 0.19 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-10 14:52 MDT	



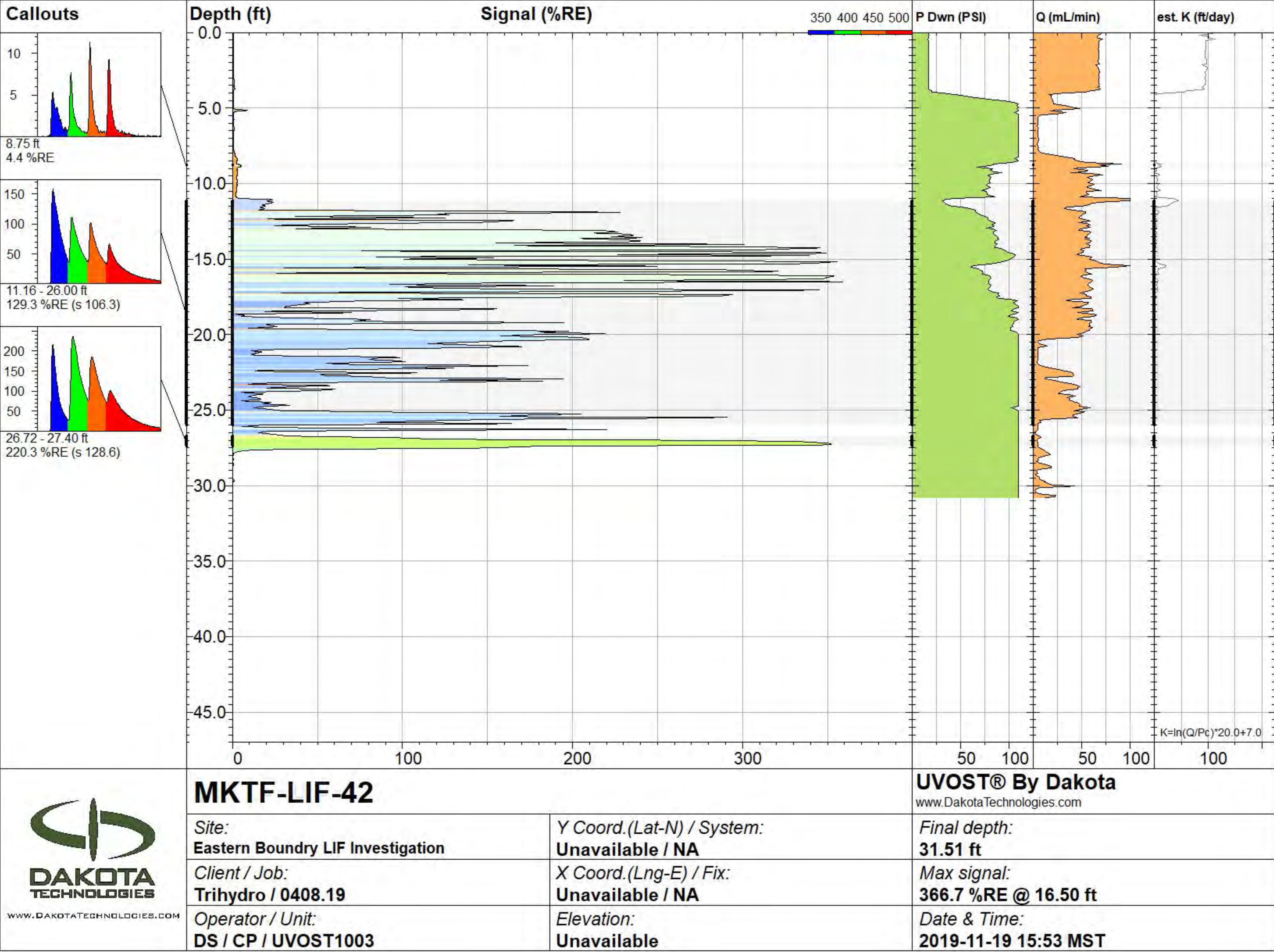




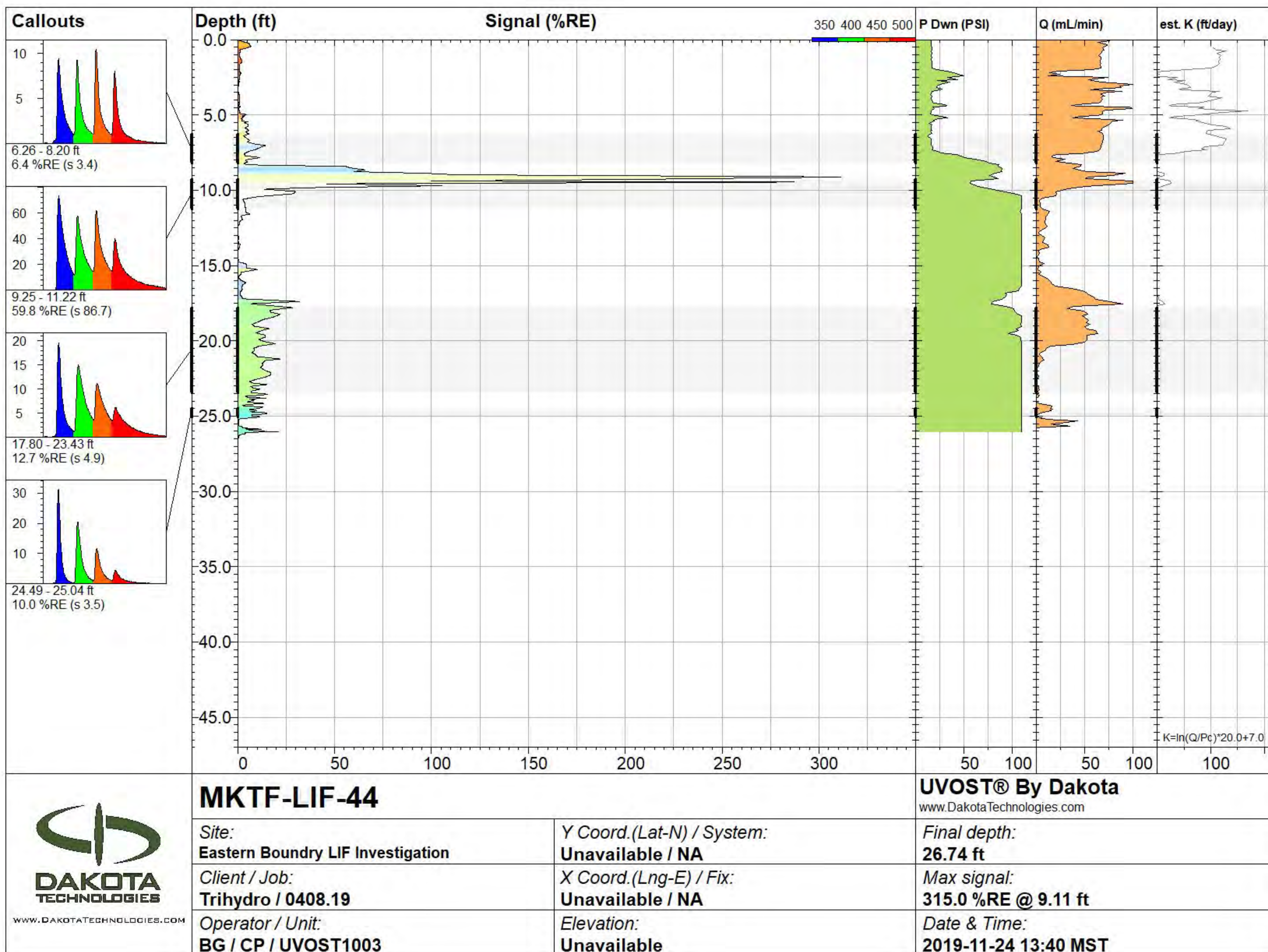


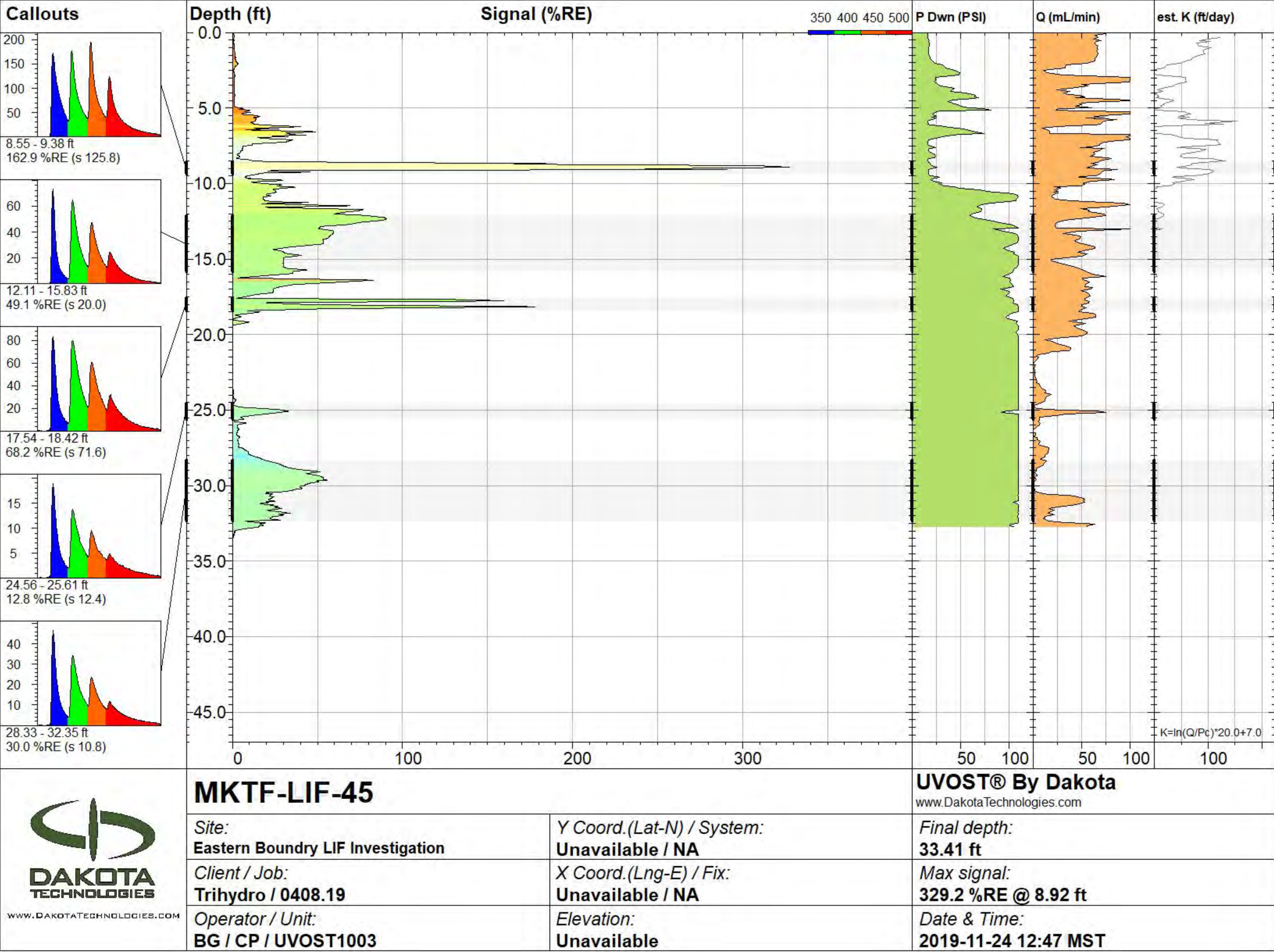


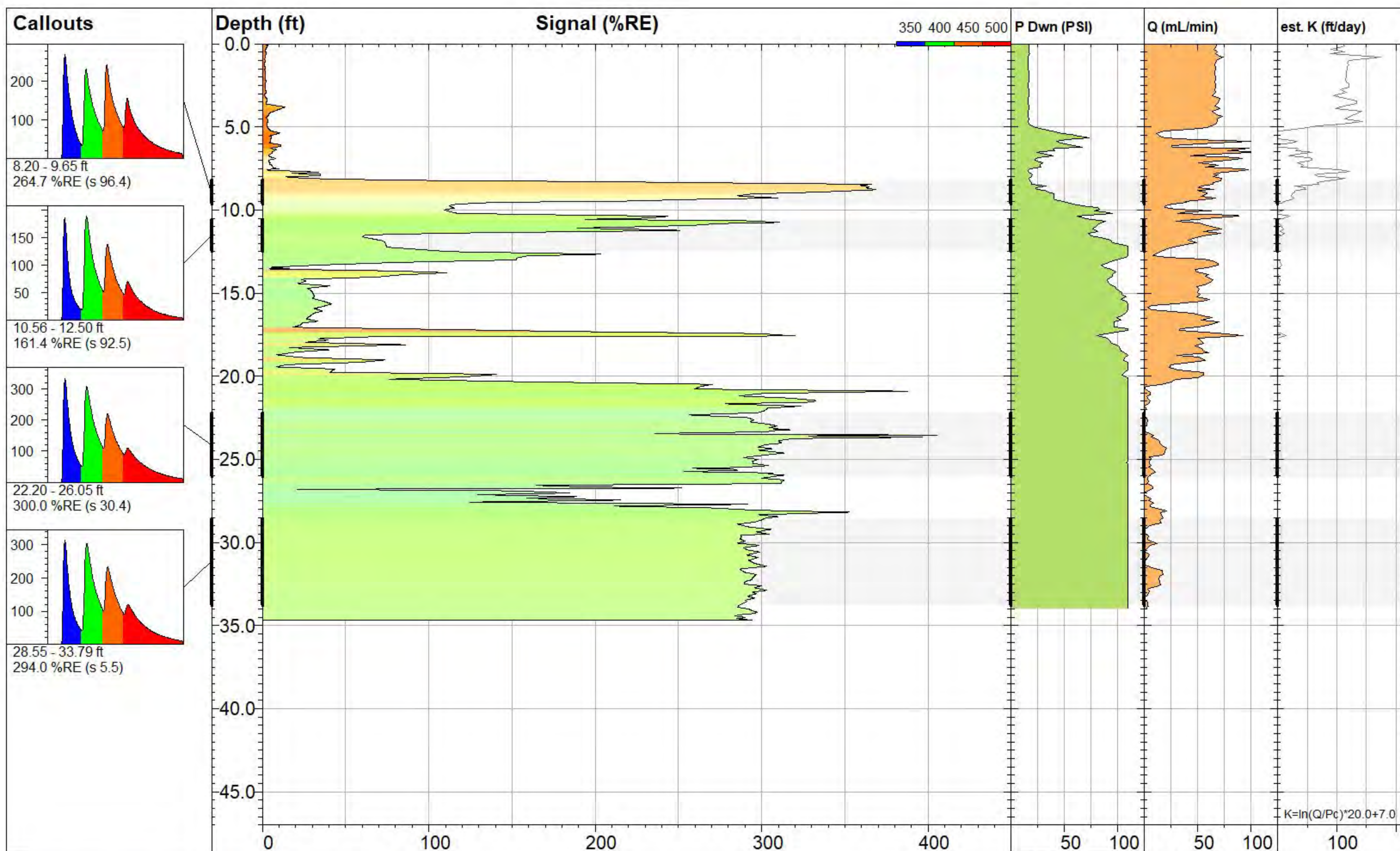




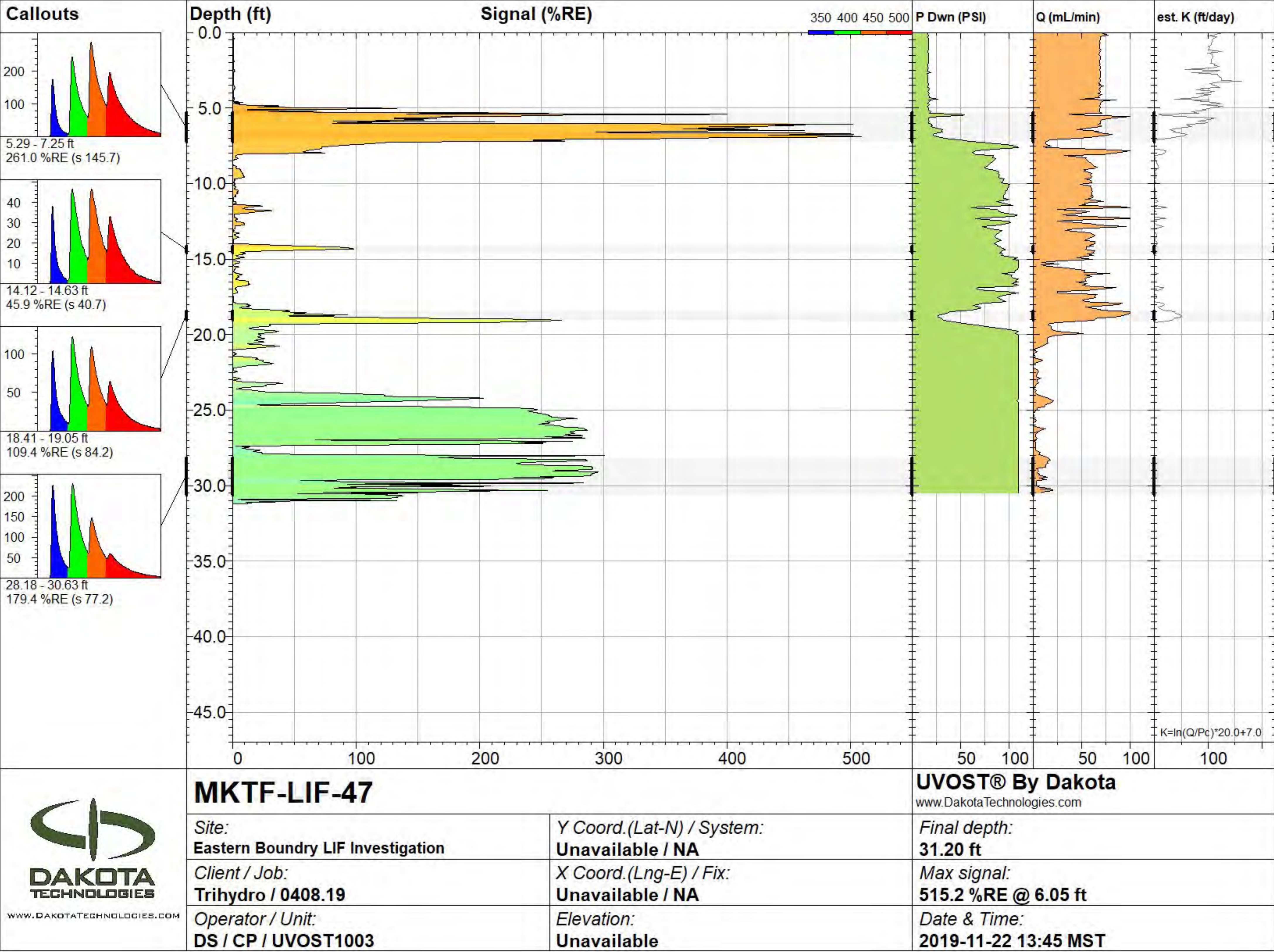


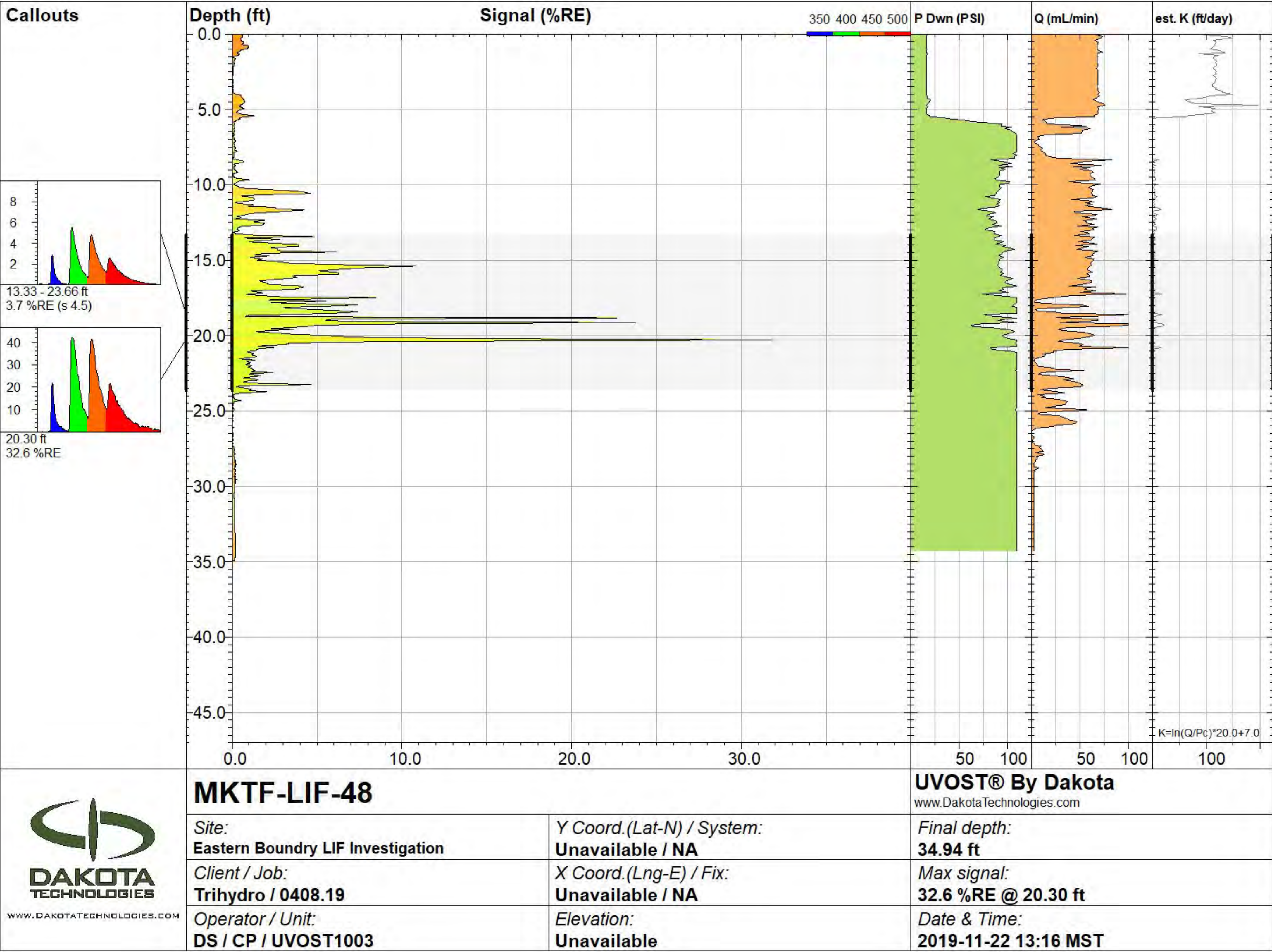


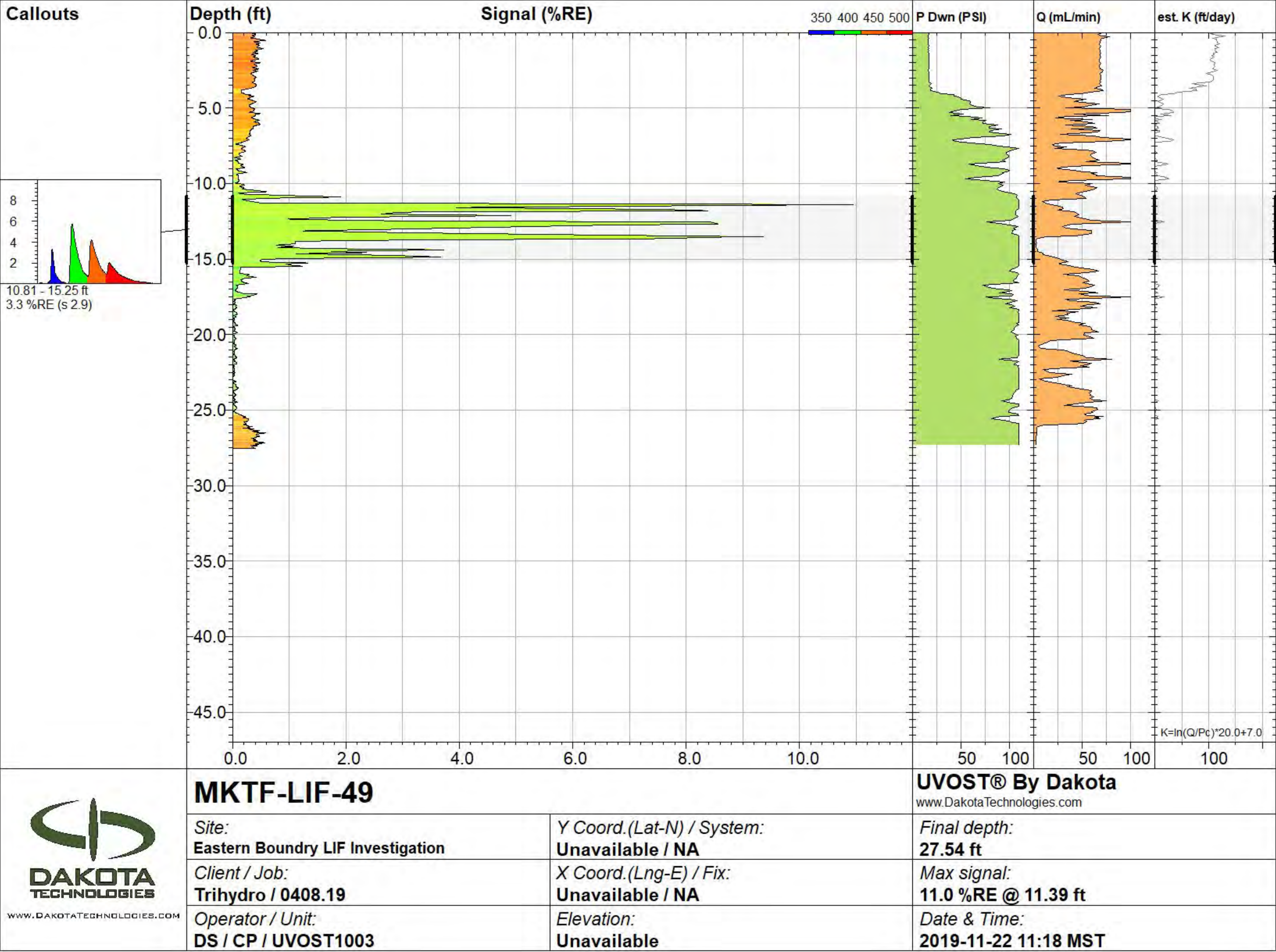


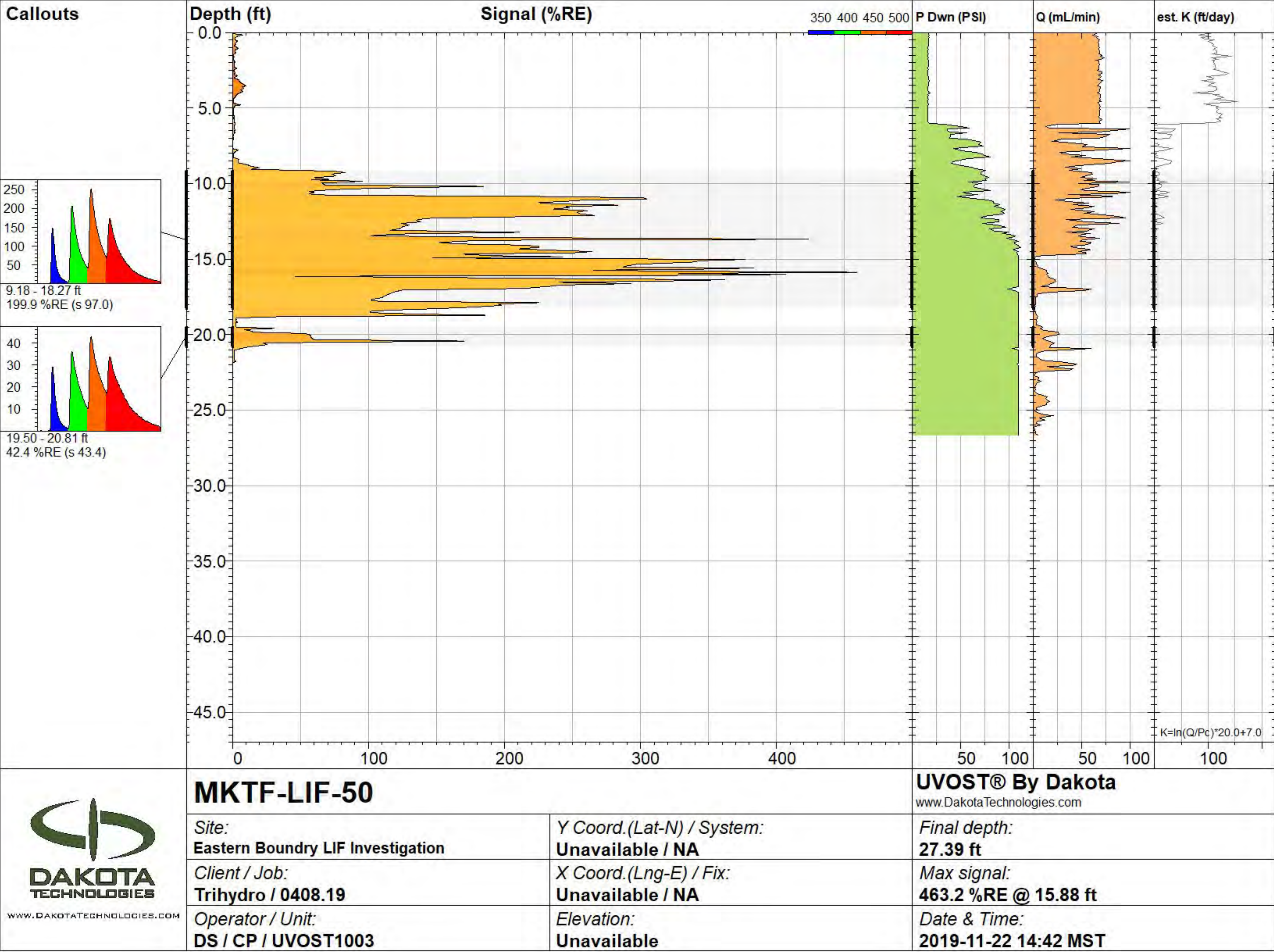


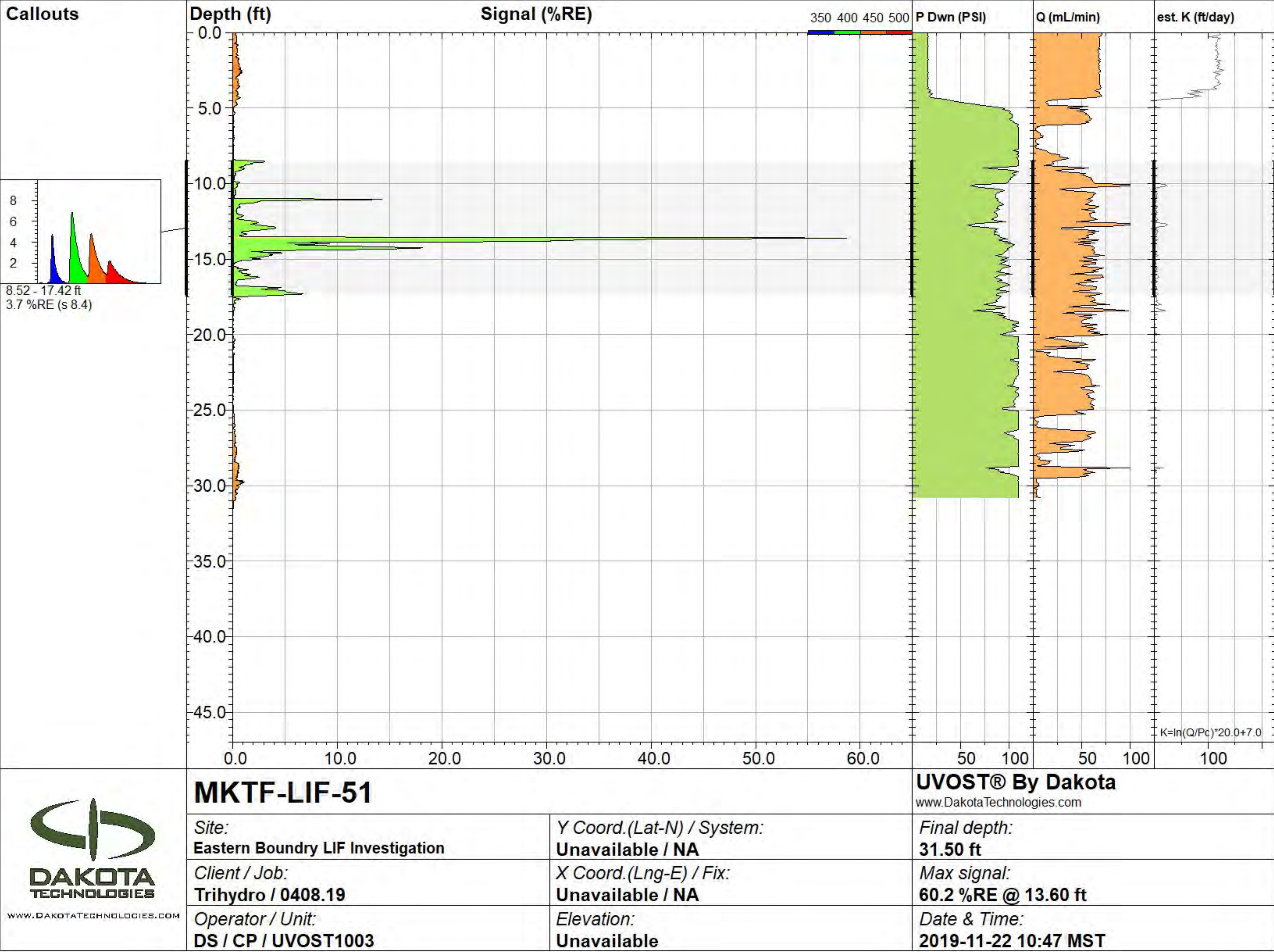
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	MKTF-LIF-46		UVOST® By Dakota www.DakotaTechnologies.com
	<i>Site:</i> Eastern Boundry LIF Investigation	<i>Y Coord.(Lat-N) / System:</i> Unavailable / NA	<i>Final depth:</i> 34.66 ft
	<i>Client / Job:</i> Trihydro / 0408.19	<i>X Coord.(Lng-E) / Fix:</i> Unavailable / NA	<i>Max signal:</i> 409.2 %RE @ 23.54 ft
	<i>Operator / Unit:</i> BG / CP / UVOST1003	<i>Elevation:</i> Unavailable	<i>Date & Time:</i> 2019-11-24 13:15 MST

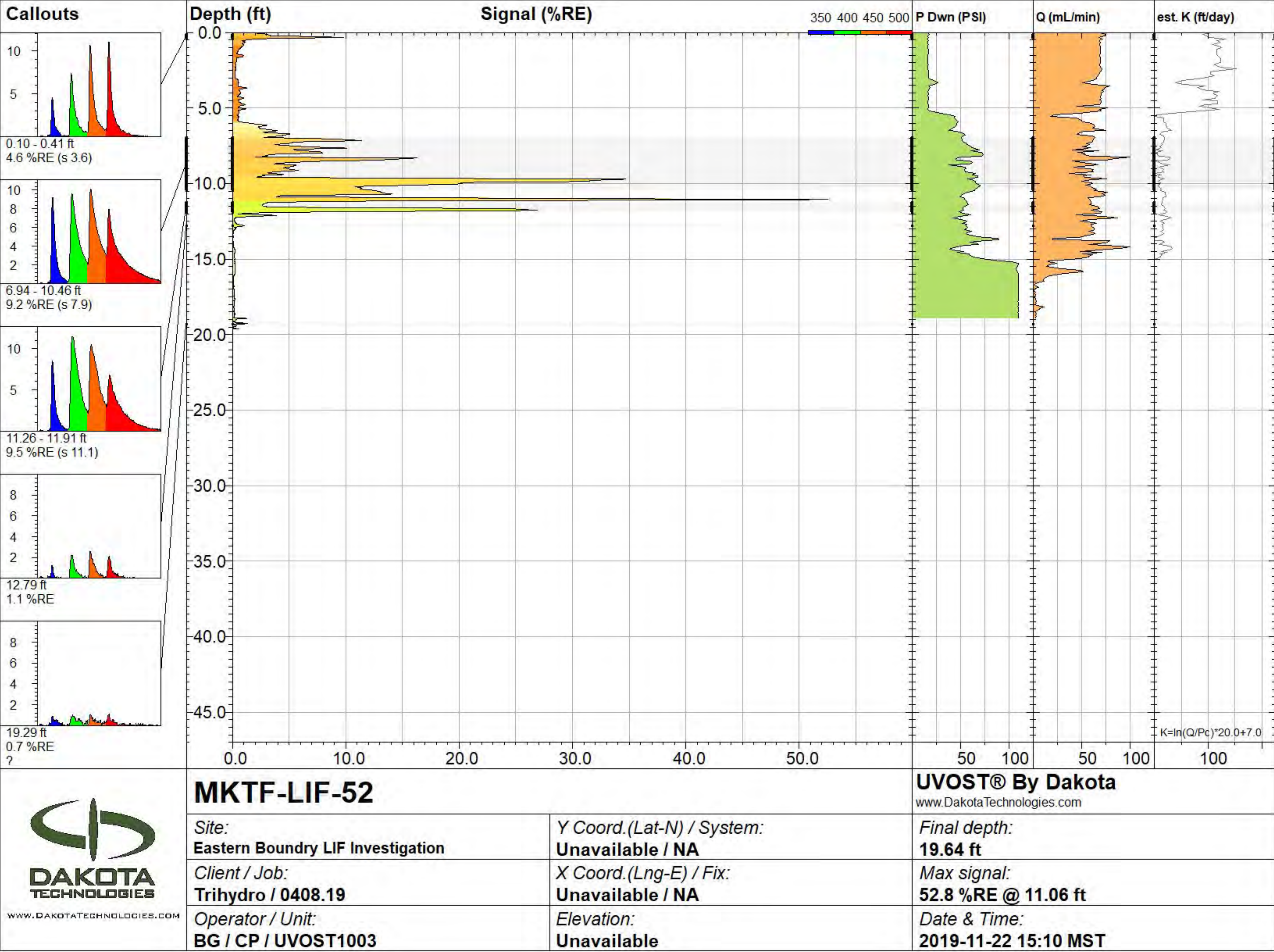


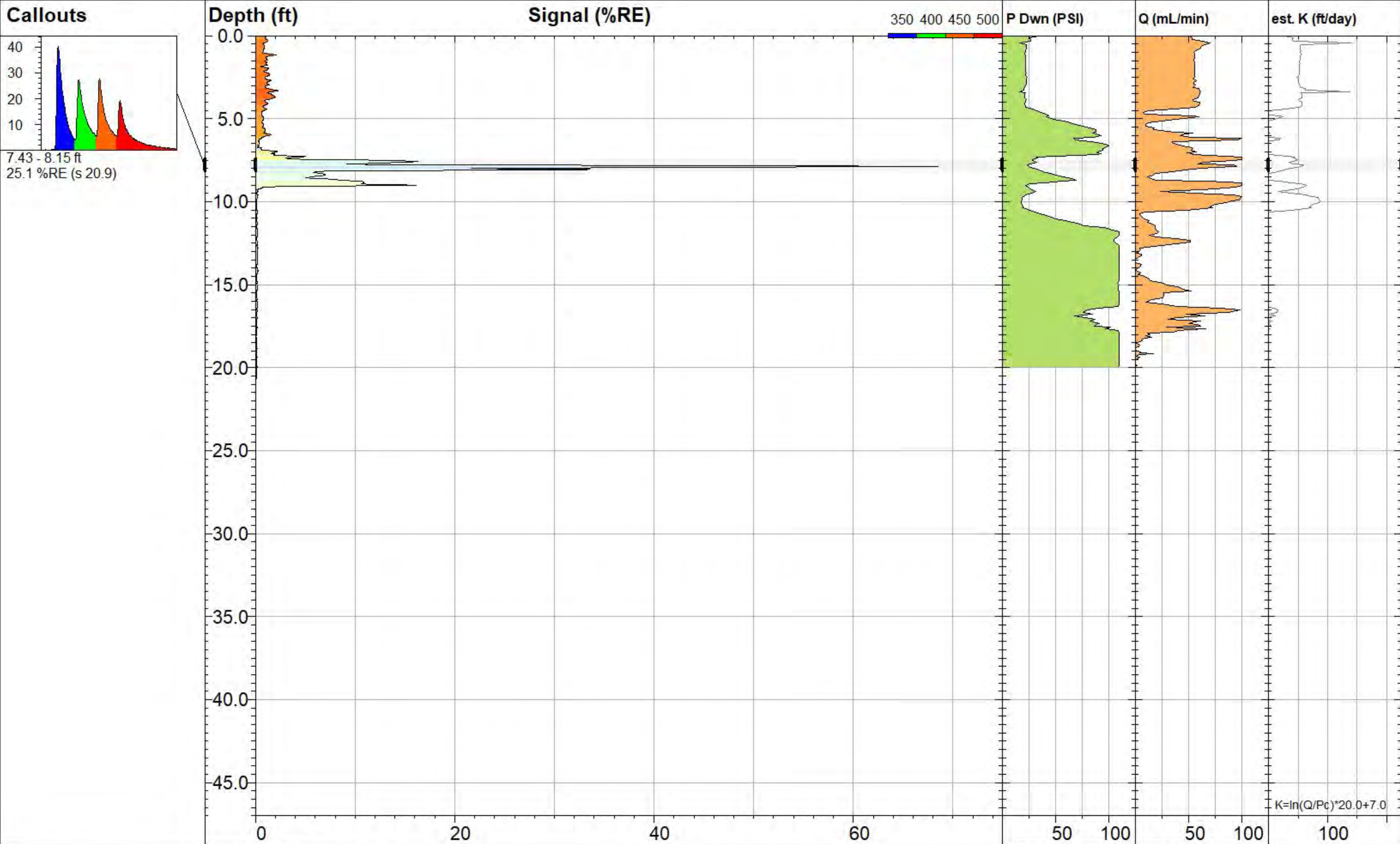




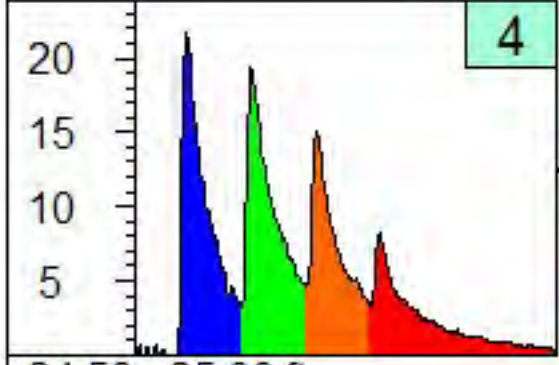
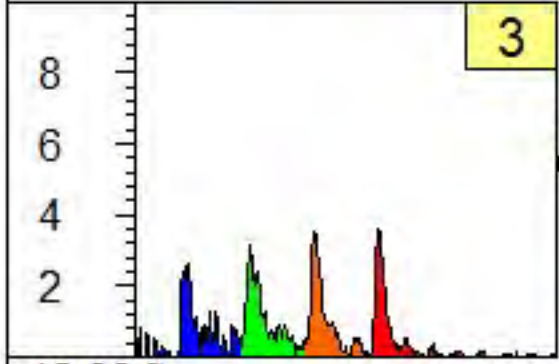
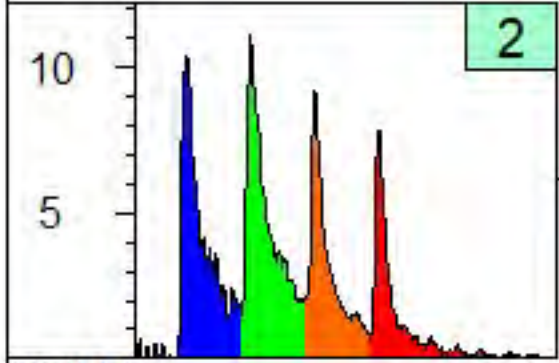
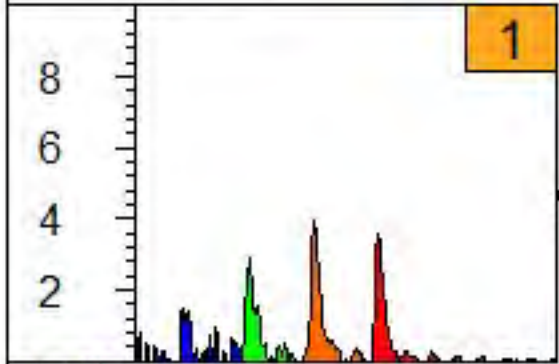
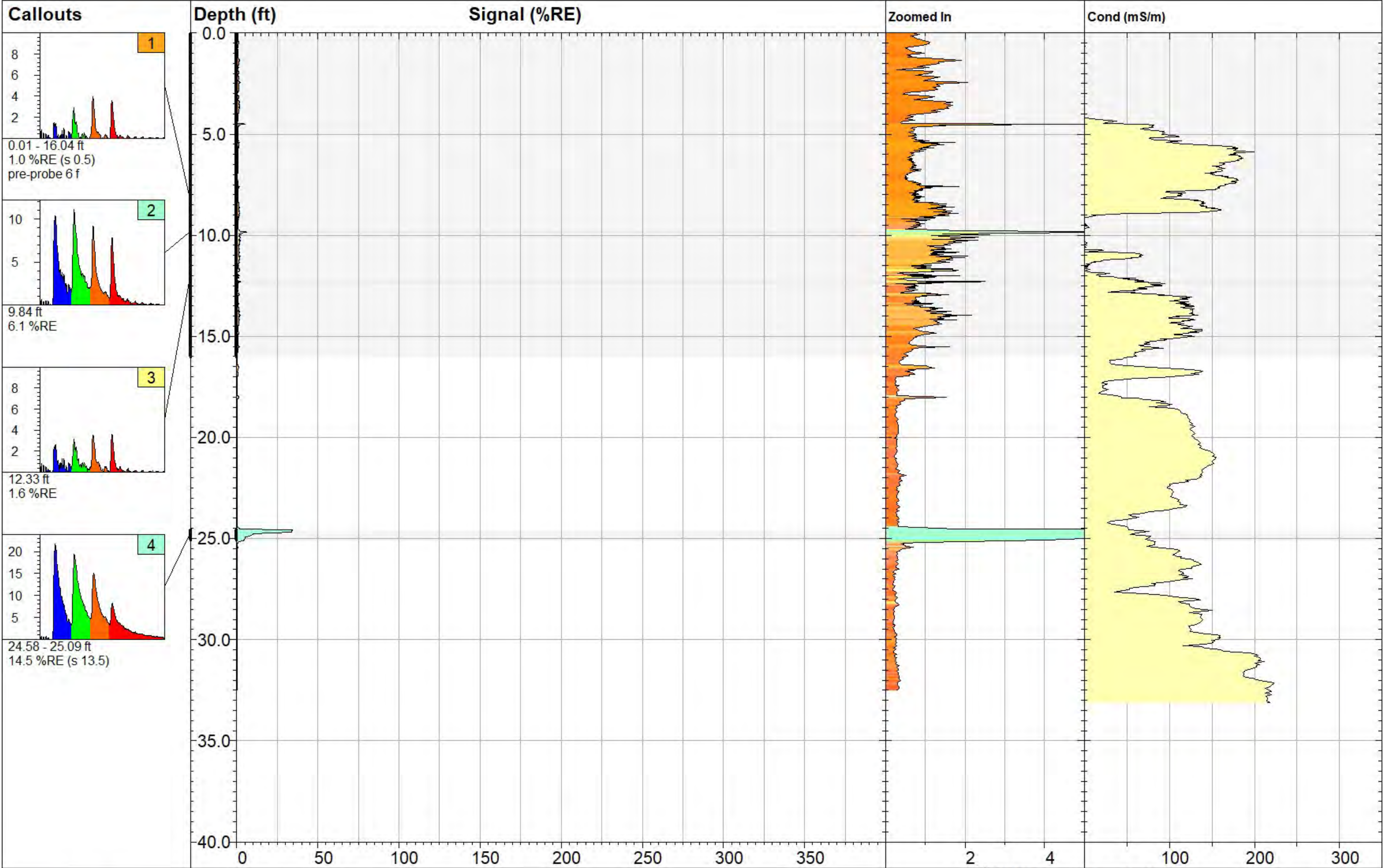




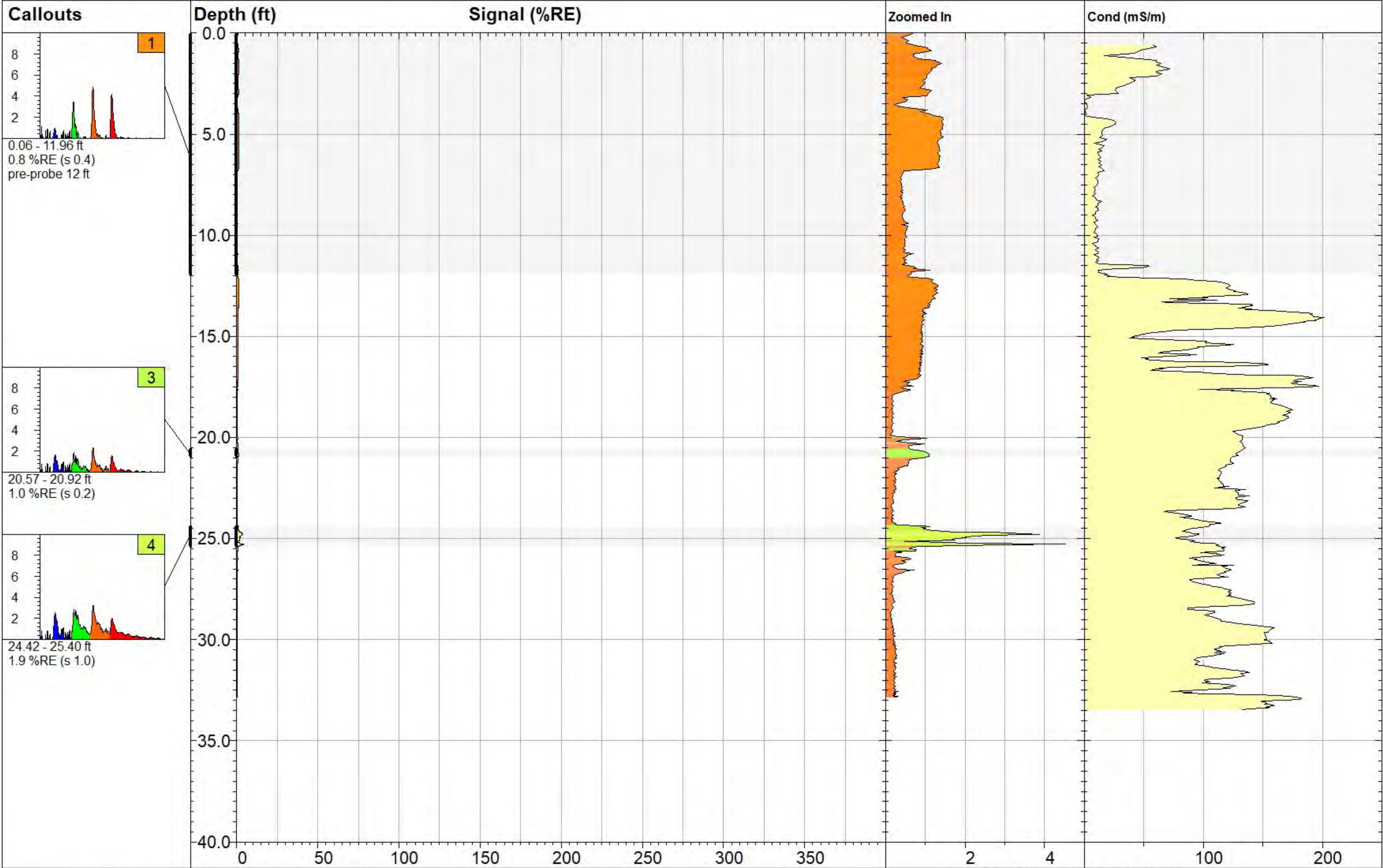




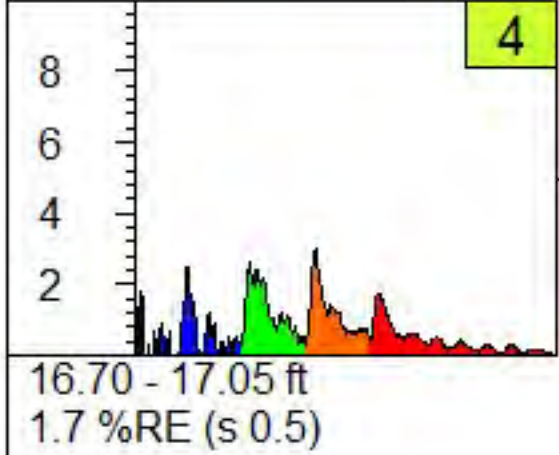
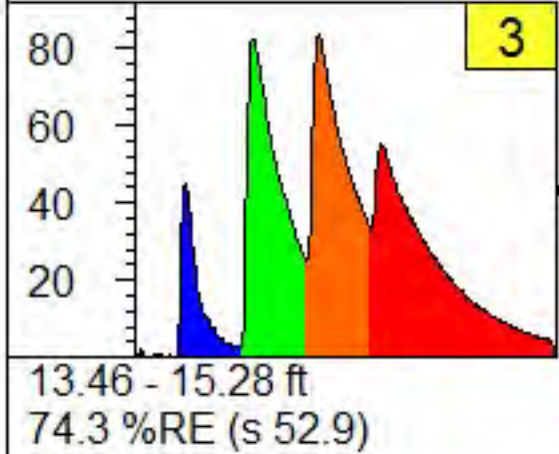
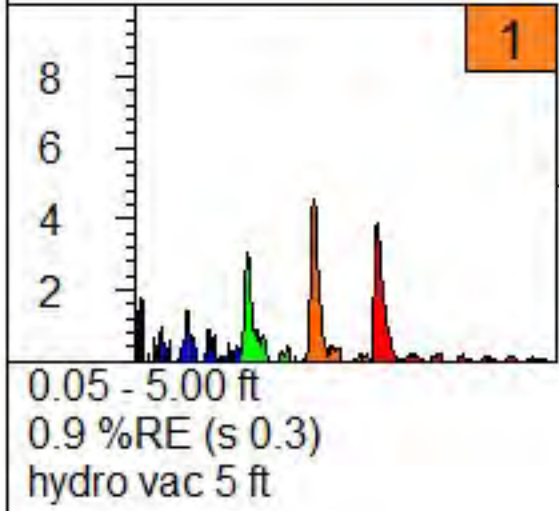
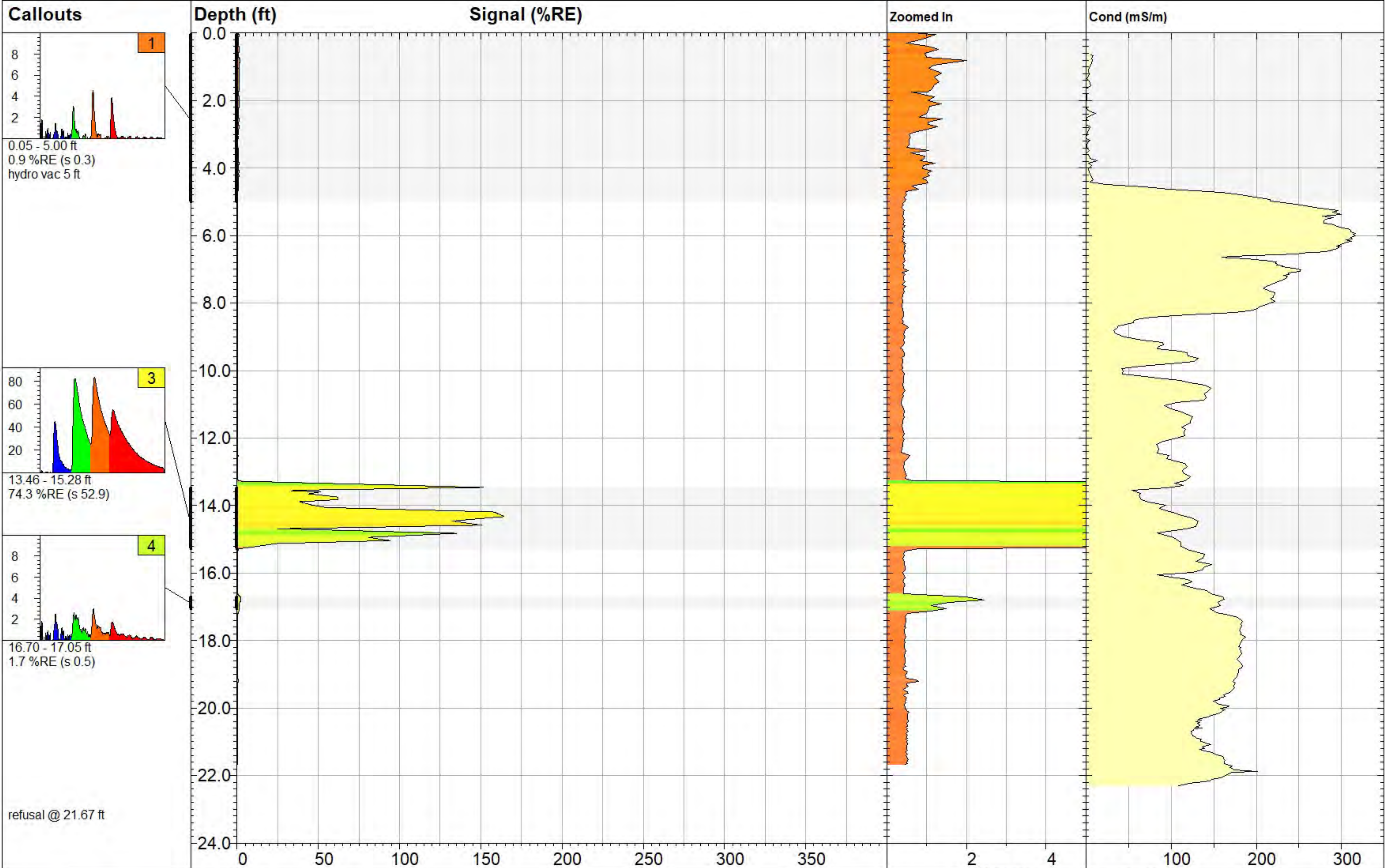
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-53		UVOST® By Dakota www.DakotaTechnologies.com
	Site: Eastern Boundry LIF Investigation	Y Coord.(Lat-N) / System: Unavailable / NA	Final depth: 20.65 ft
	Client / Job: Trihydro / 0408.19	X Coord.(Lng-E) / Fix: Unavailable / NA	Max signal: 70.6 %RE @ 7.87 ft
	Operator / Unit: BG / CP / UVOST1003	Elevation: Unavailable	Date & Time: 2019-11-24 09:59 MST



 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-54		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 32.48 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 34.4 %RE @ 24.58 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-03 12:37 MST	

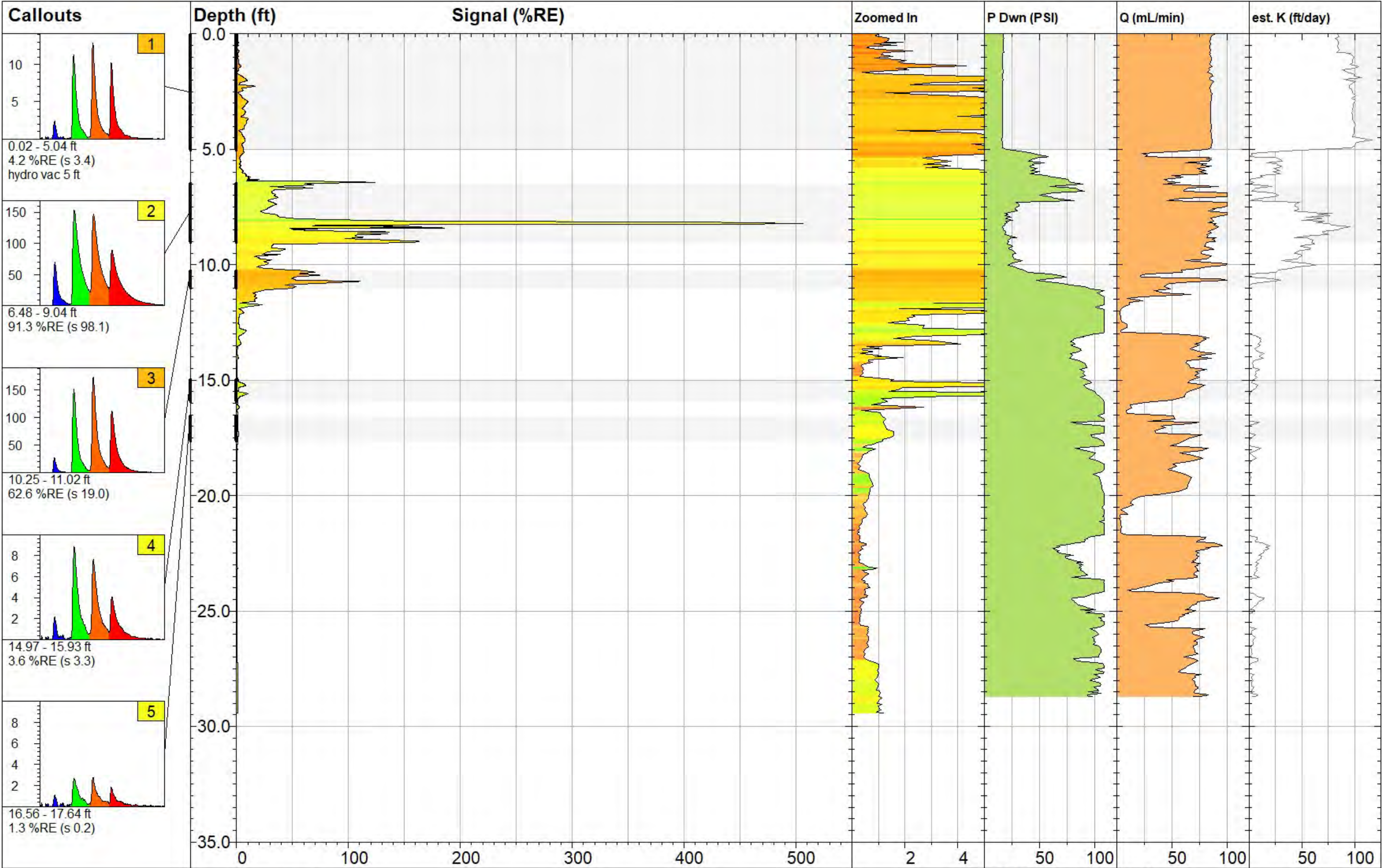


 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-55			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 32.84 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 4.5 %RE @ 25.28 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-02 15:49 MST	

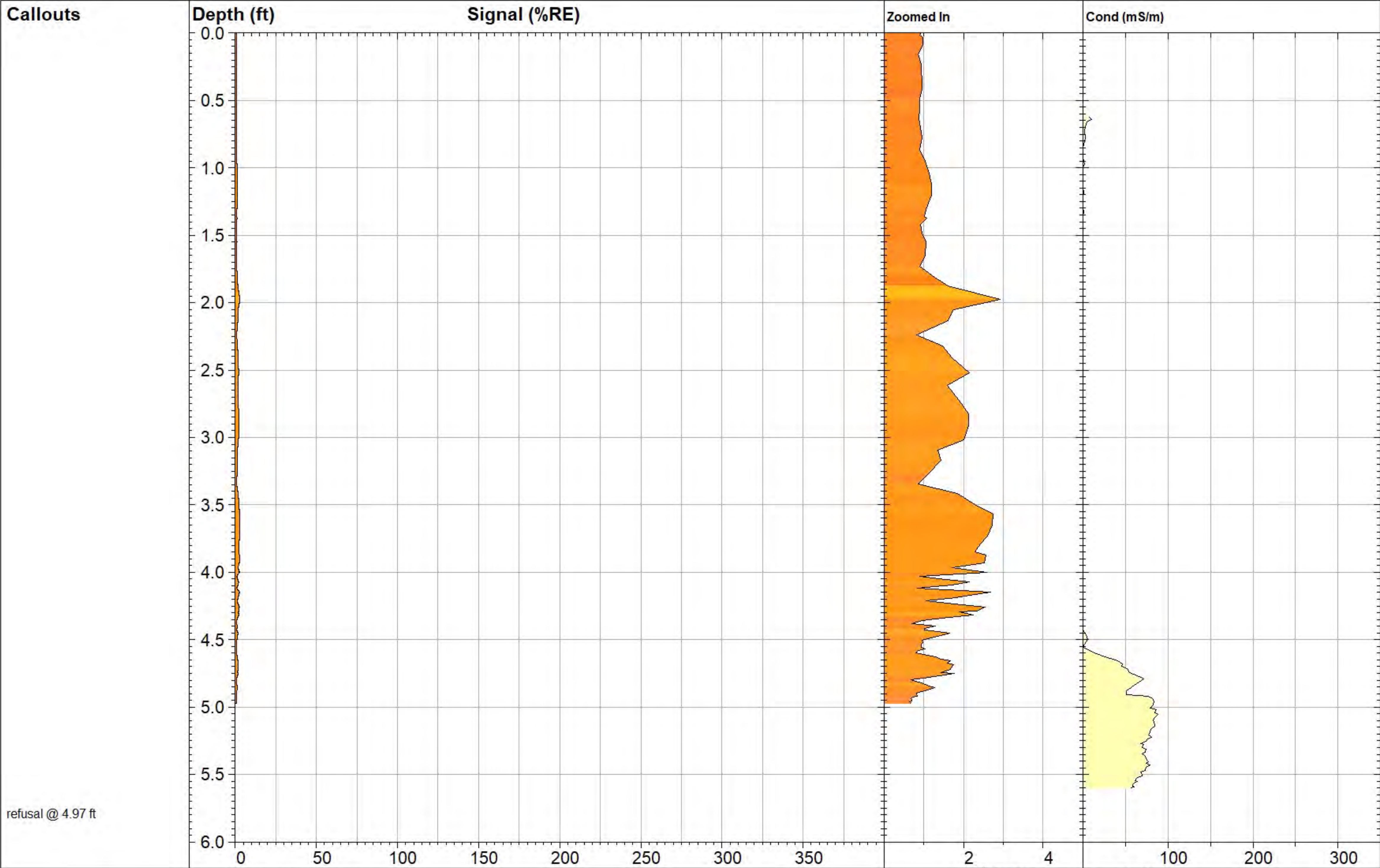


refusal @ 21.67 ft

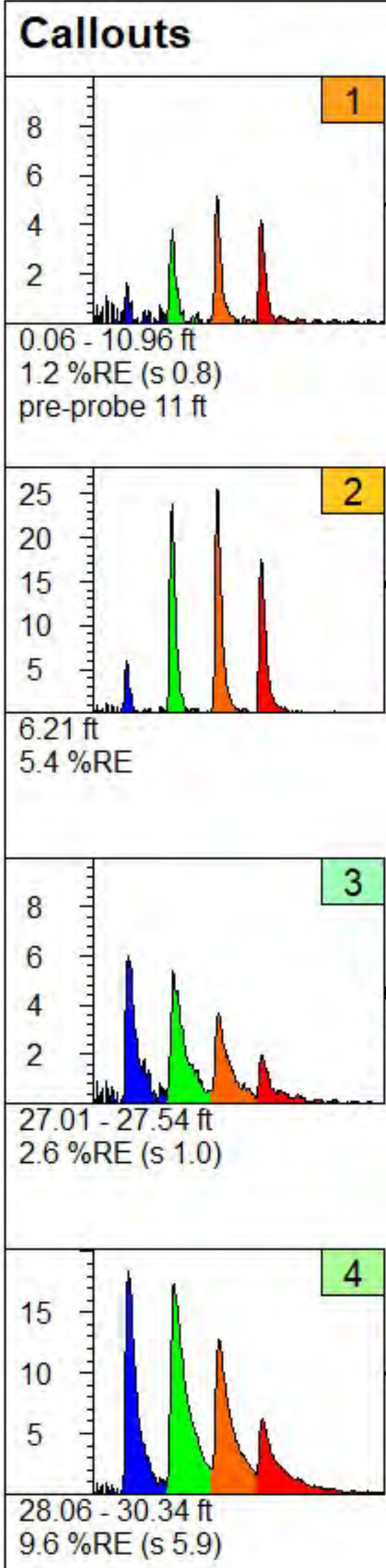
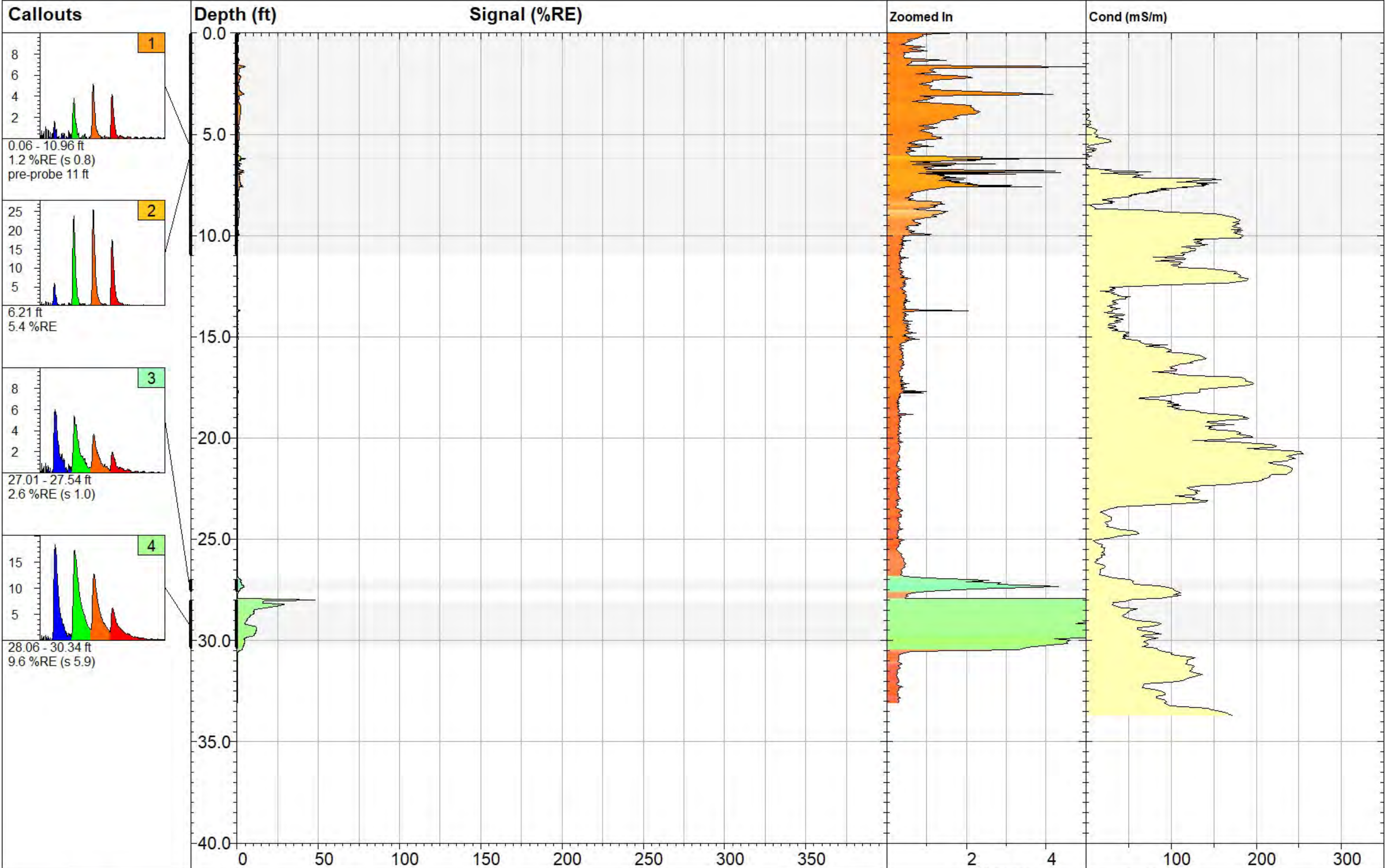
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-56		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 21.67 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 164.5 %RE @ 14.33 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-02 16:49 MST	



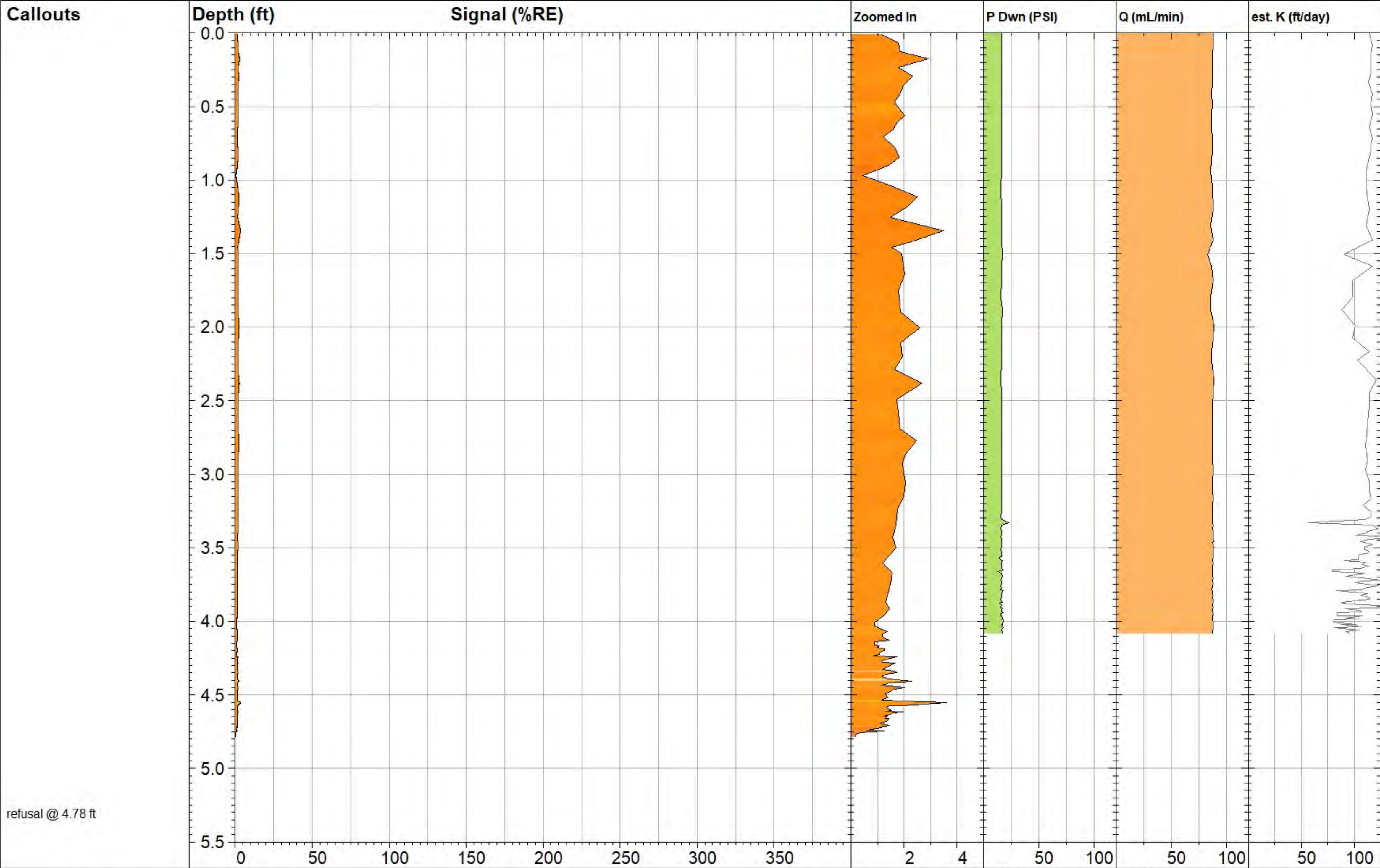
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-57		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 29.42 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 510.7 %RE @ 8.23 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-02 08:28 MST	



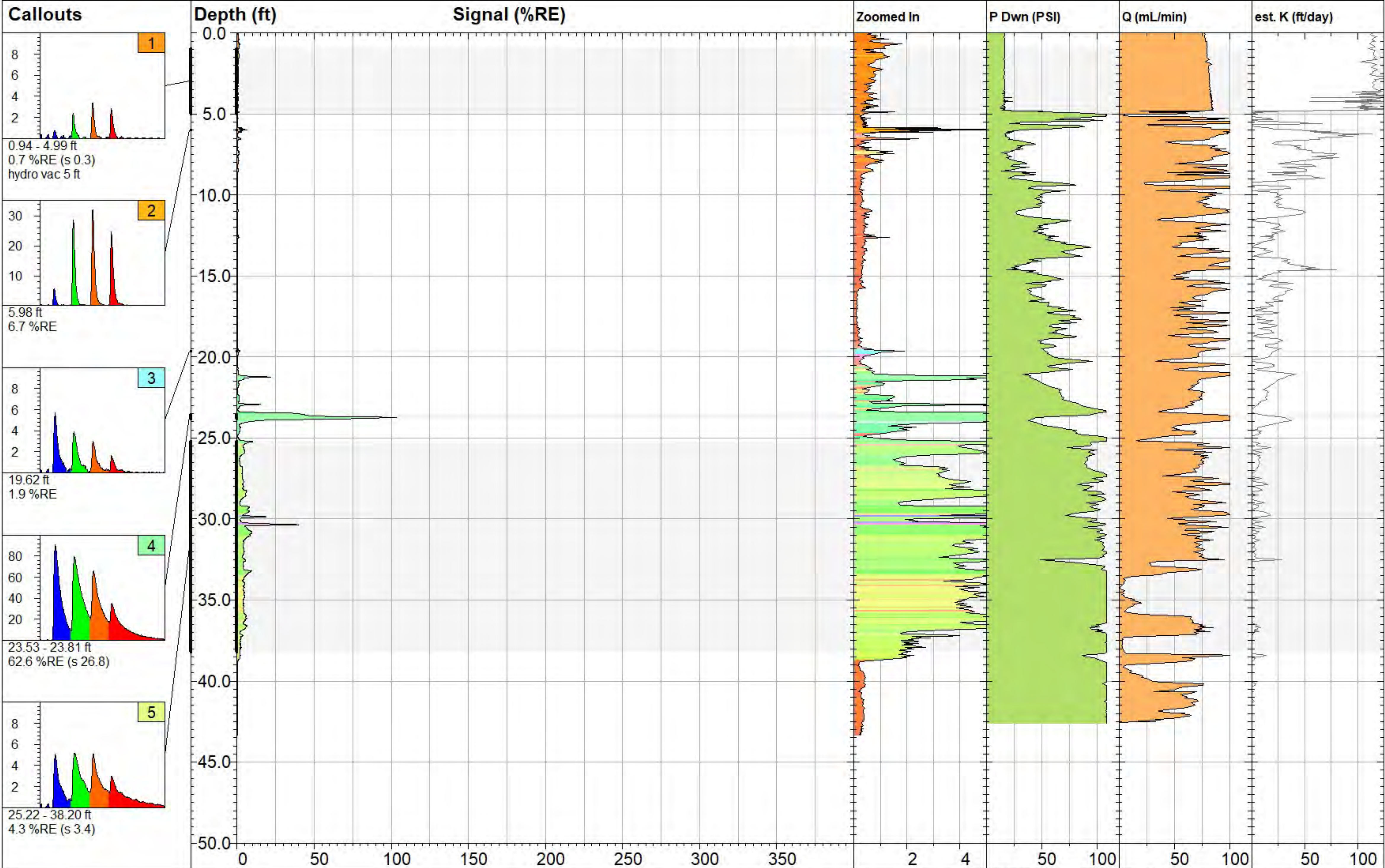
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-58			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 4.97 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 2.9 %RE @ 1.98 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-03 07:53 MST	



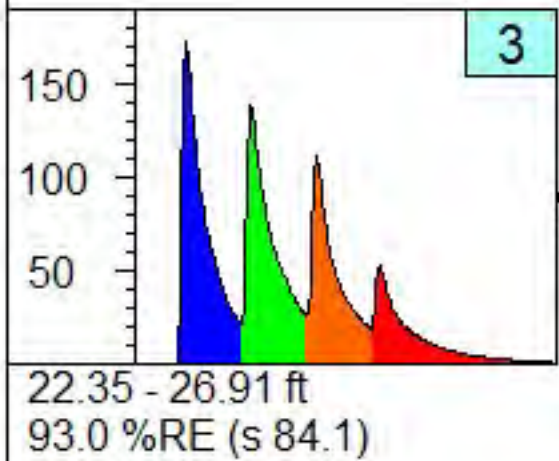
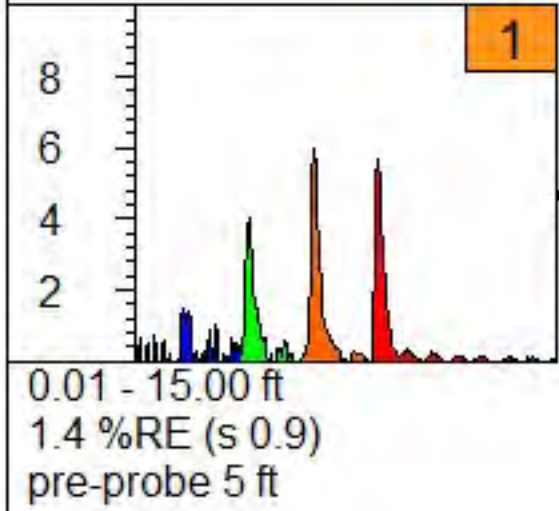
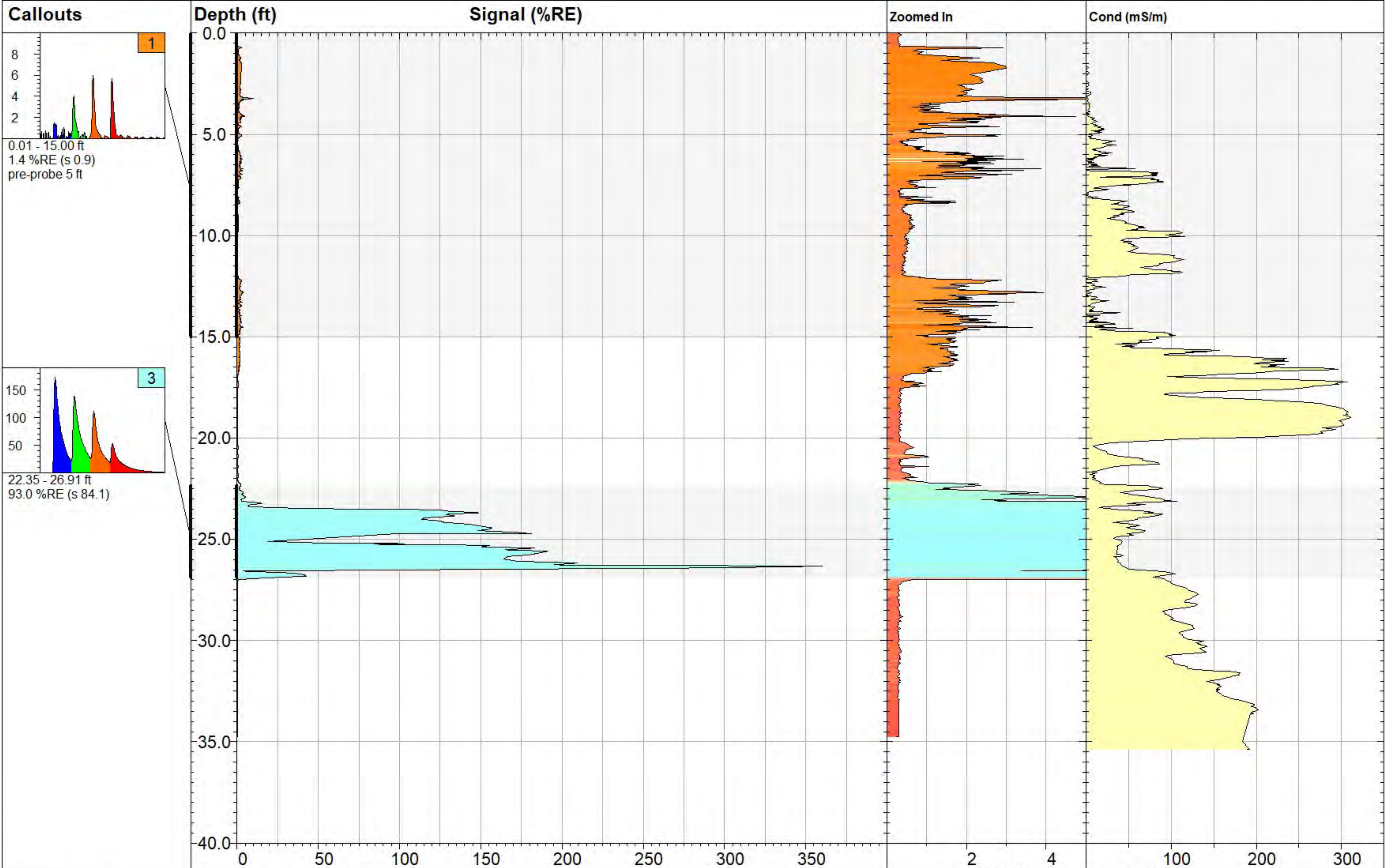
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-59		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 33.07 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 48.1 %RE @ 27.99 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-03 09:27 MST	



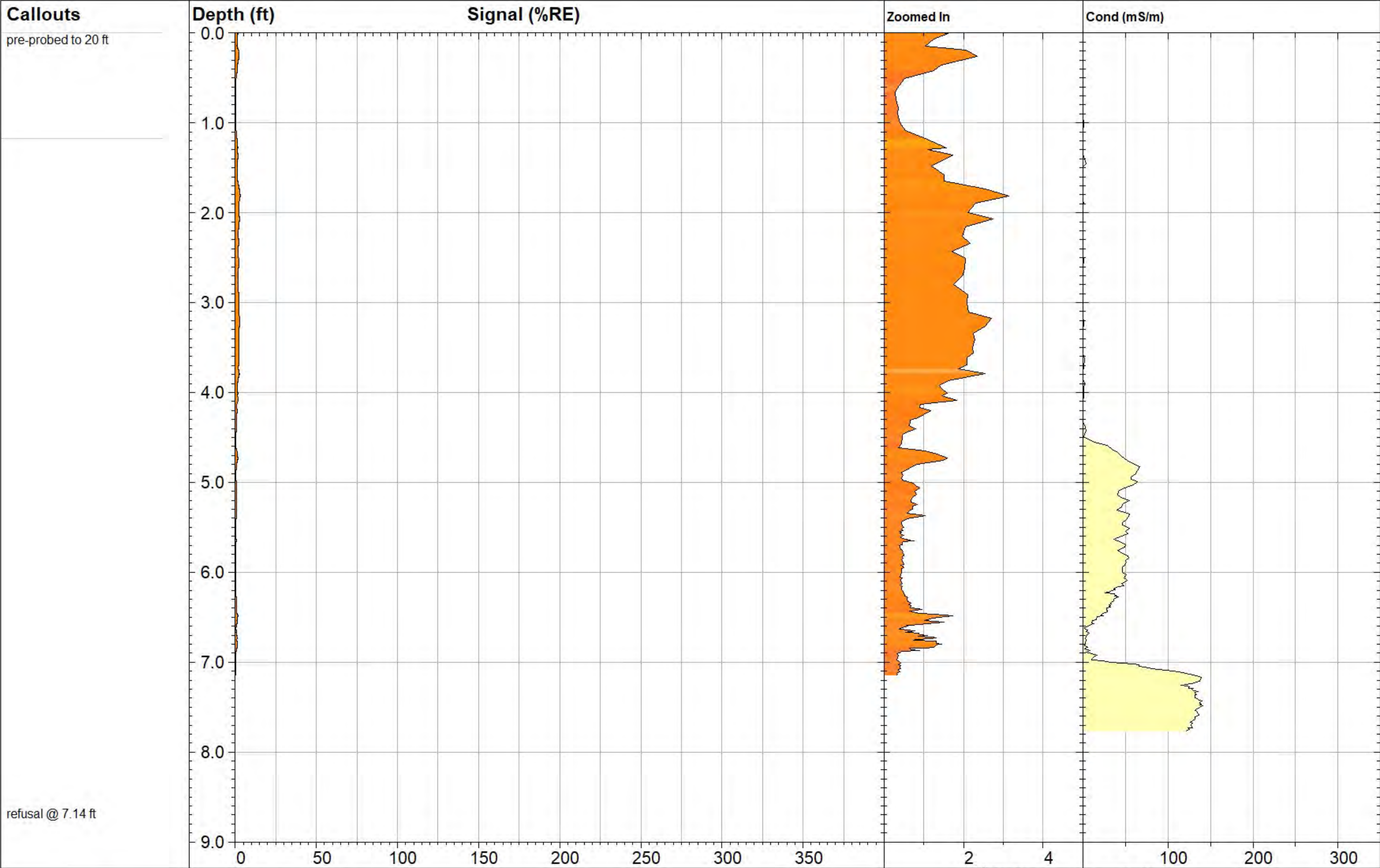
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-60			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 4.78 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 3.6 %RE @ 4.55 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-02 12:12 MST	



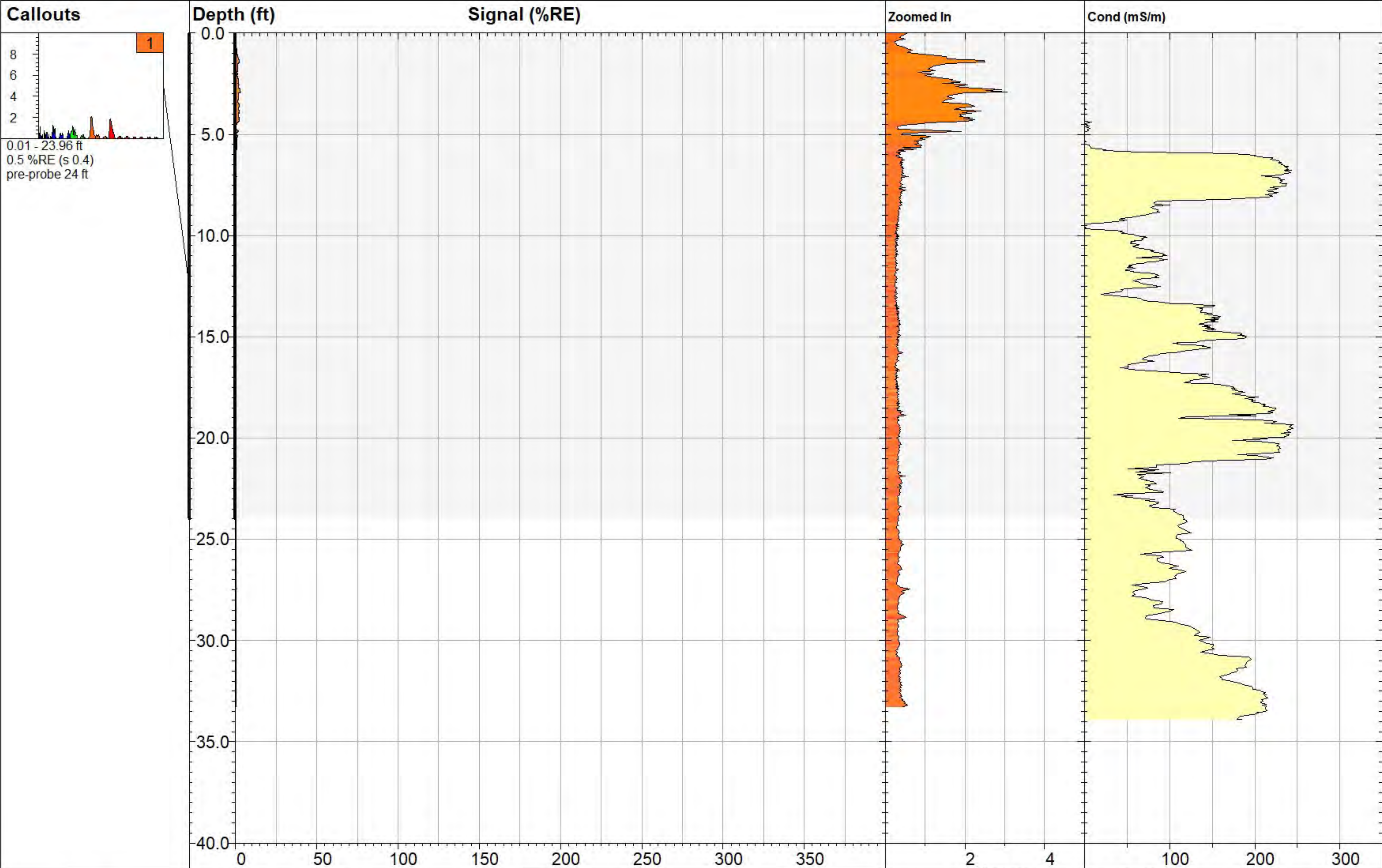
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-61		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 43.33 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 105.2 %RE @ 23.73 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-02 10:44 MST	



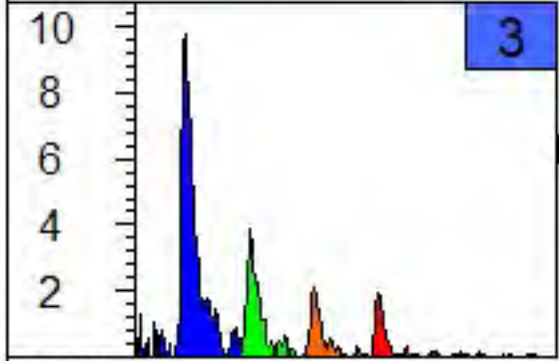
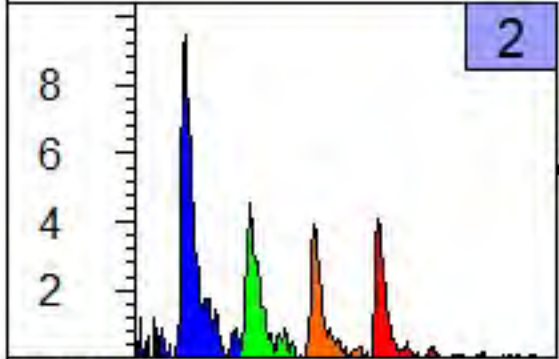
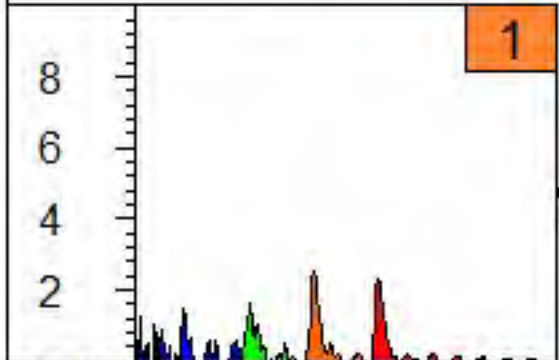
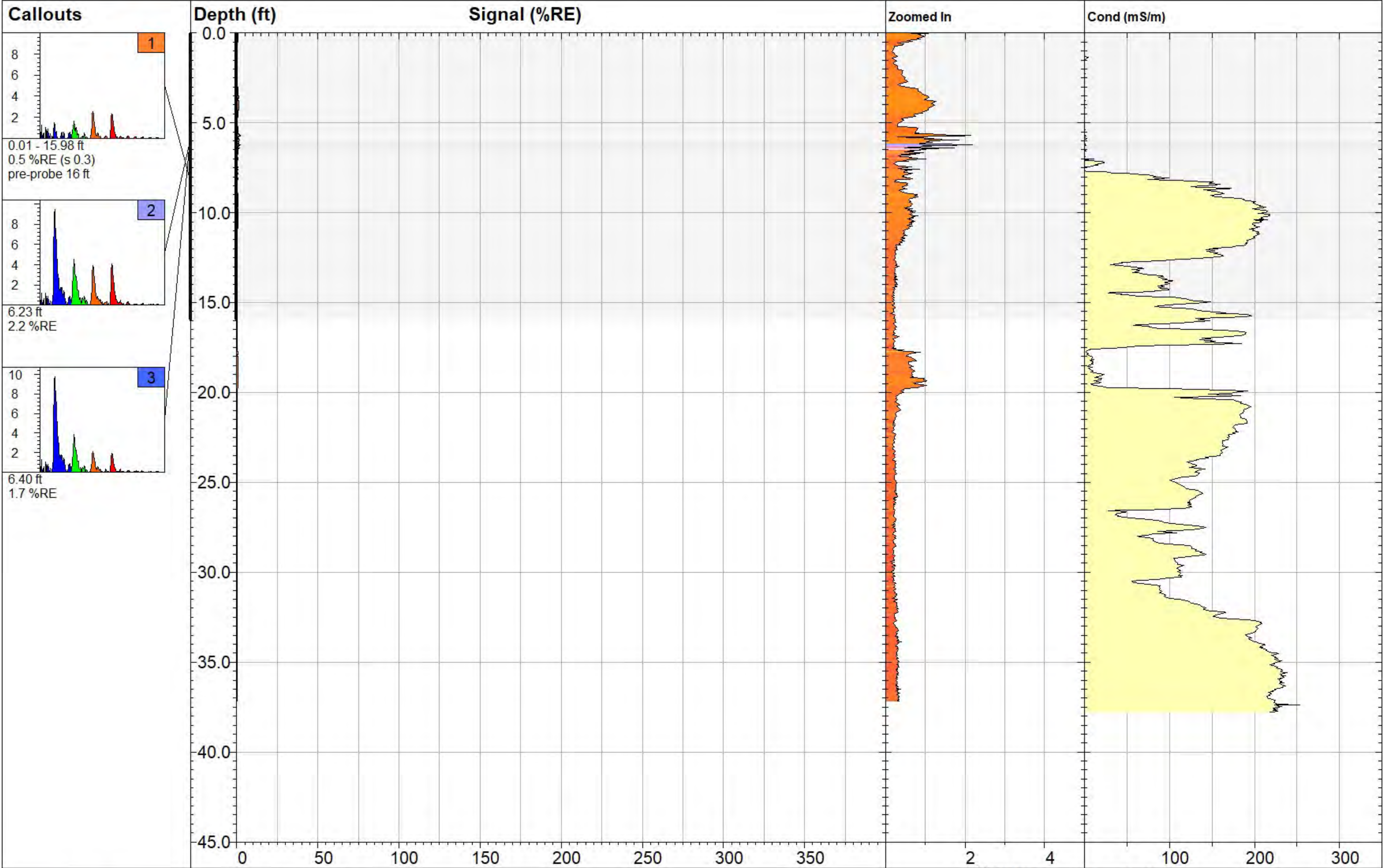
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-62		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 34.76 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 361.3 %RE @ 26.32 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-03 11:18 MST	



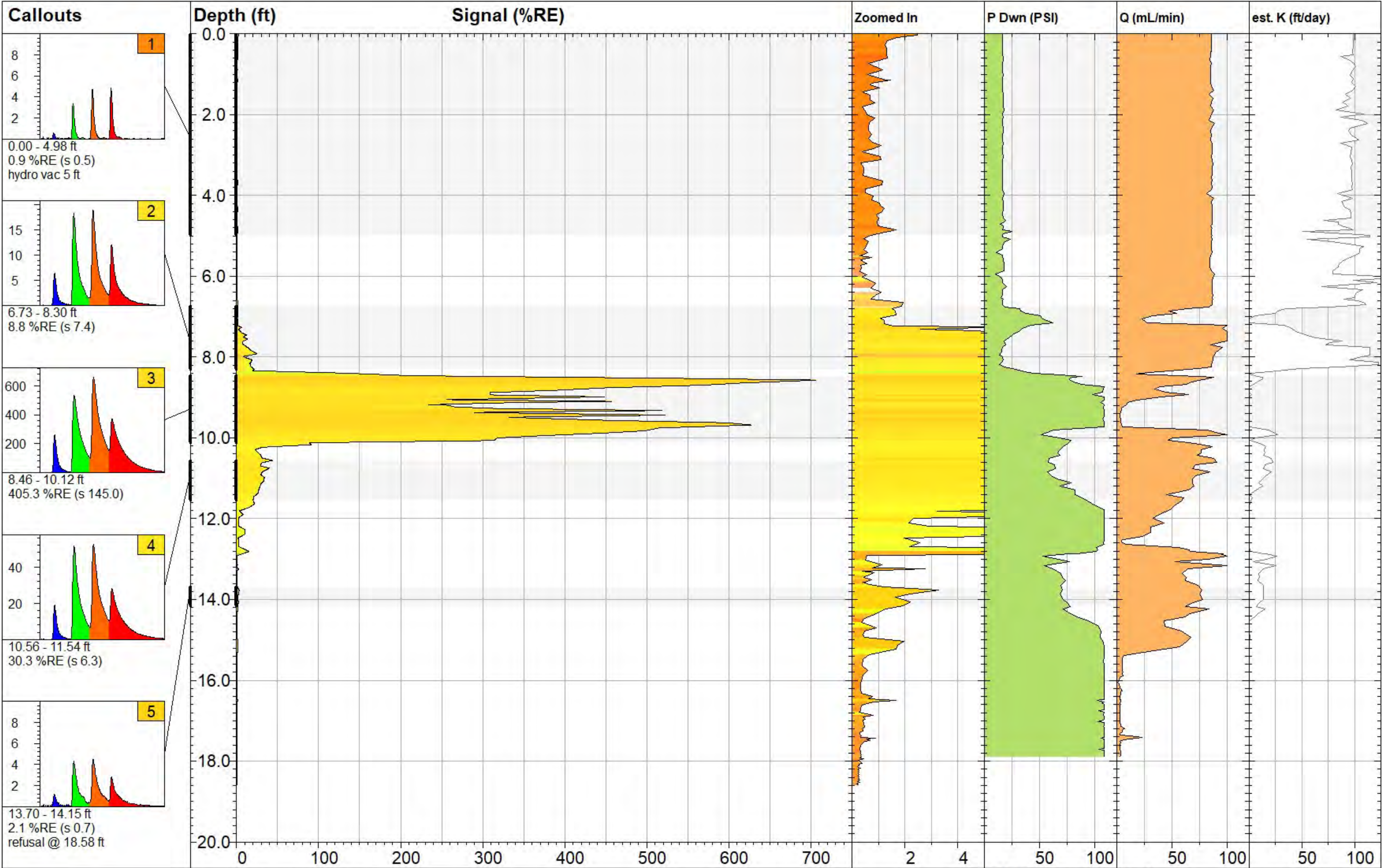
DAKOTA TECHNOLOGIES www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-63			UVOST® By Dakota	
	www.DakotaTechnologies.com				
	Site:	Y Coord.(Lat/North):		Final Depth:	
	Marathon Marketing Tank Farm	Unavailable		7.14 ft	
	Client / Job:	X Coord.(Long/East):		Max Signal:	
	TriHydro / 0049.21	Unavailable		3.1 %RE @ 1.81 ft	
	Operator / Unit:	Elevation:		Date & Time:	
	A. Nagle / UVOST1613	Unavailable		2021-02-03 10:45 MST	



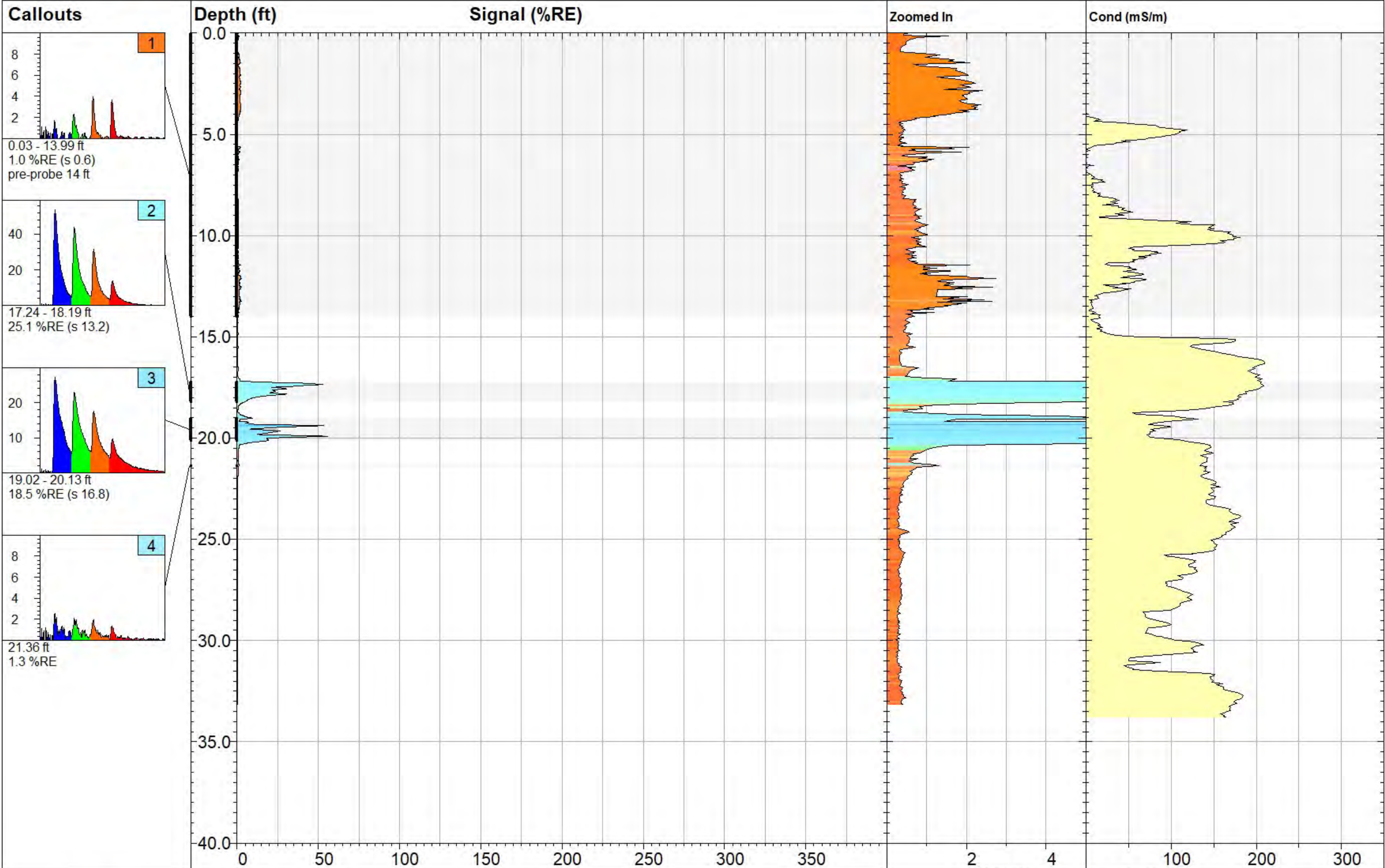
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-64		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 33.28 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 3.1 %RE @ 2.90 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-03 13:57 MST	



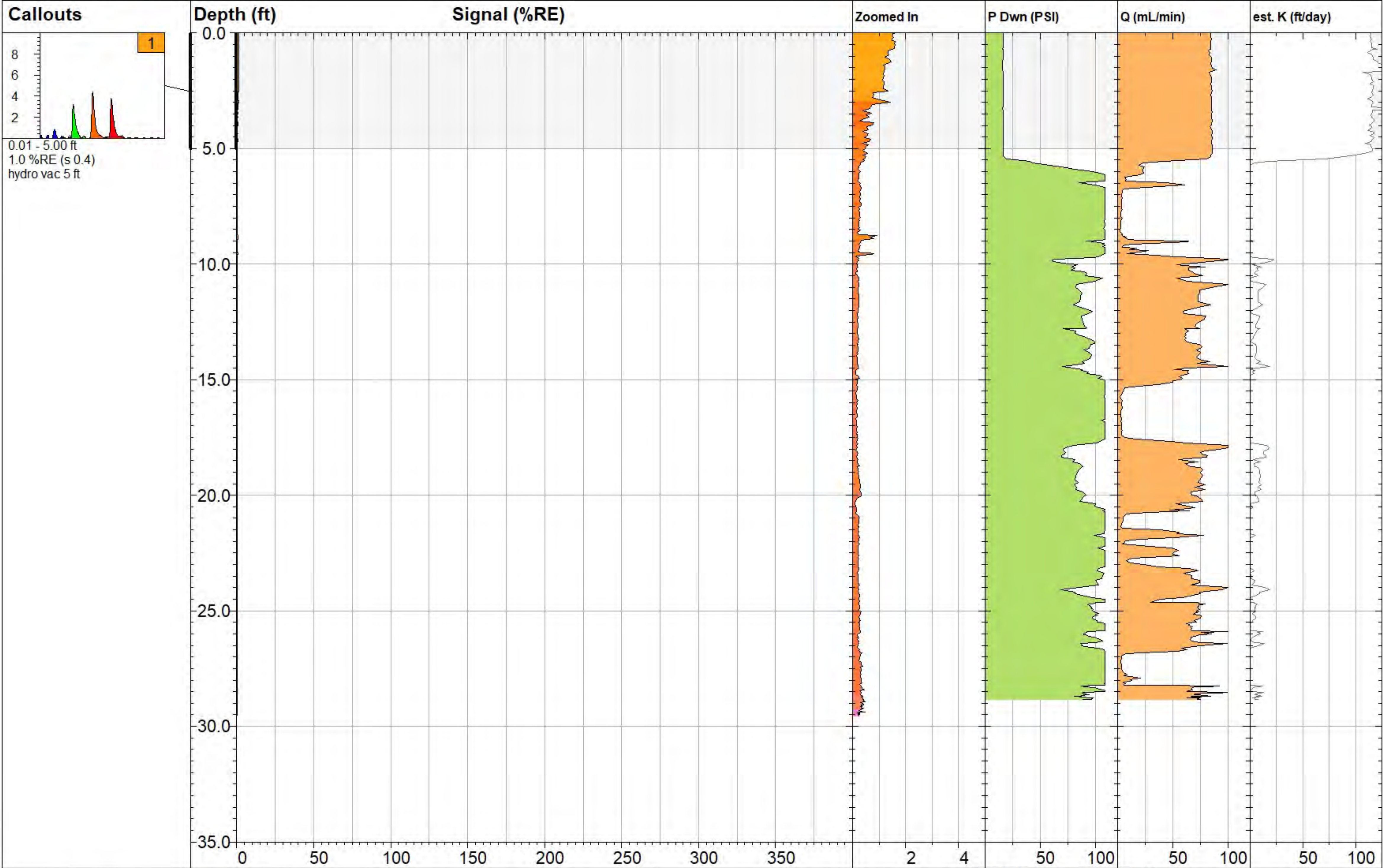
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-65			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 37.15 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 2.2 %RE @ 6.23 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-03 14:59 MST	



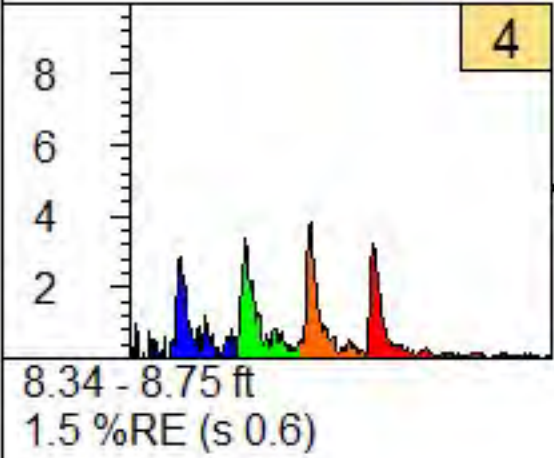
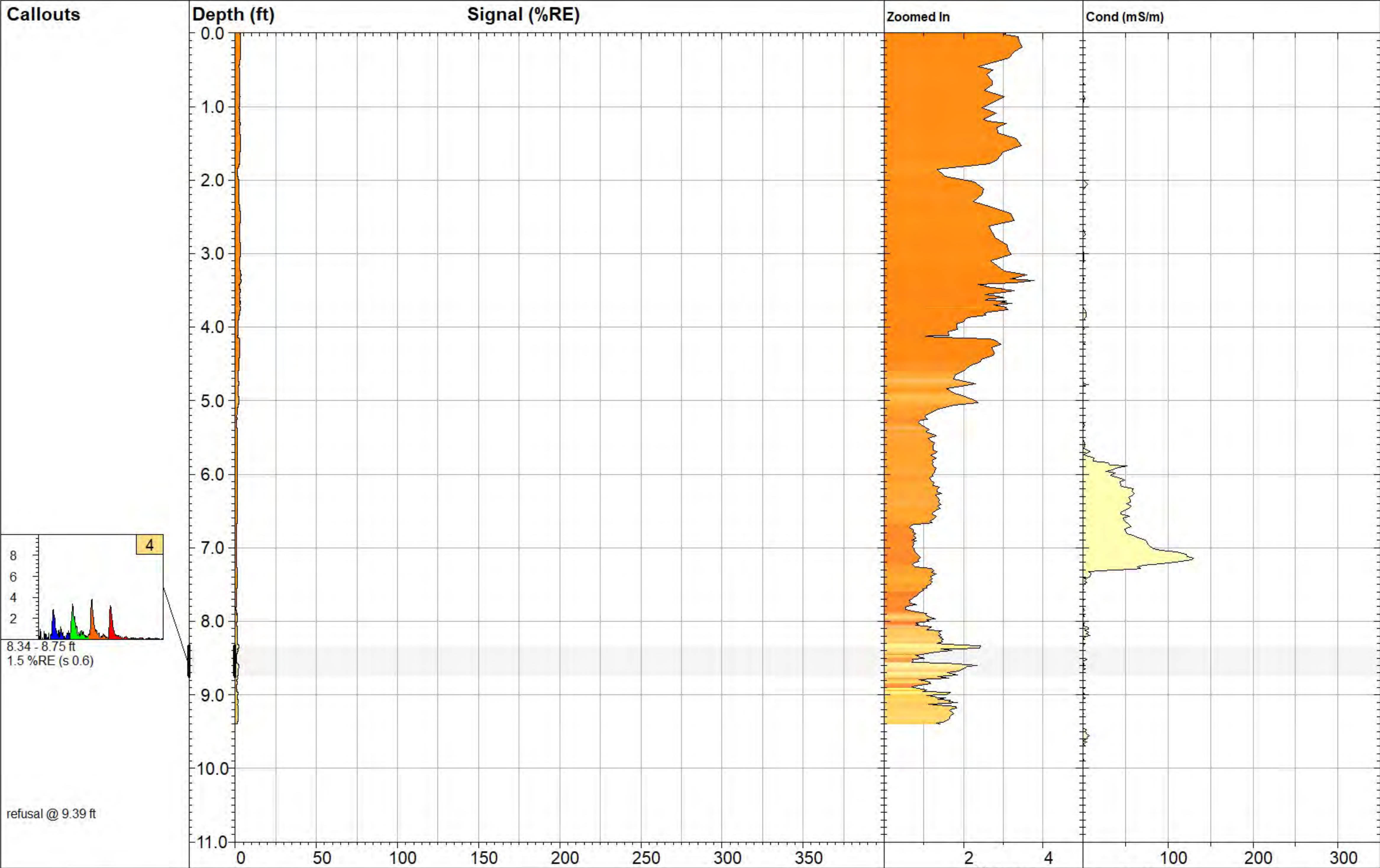
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-66		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 18.58 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 708.9 %RE @ 8.57 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-01 14:28 MST	



 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-67			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 33.16 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 56.4 %RE @ 19.91 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-03 16:38 MST	

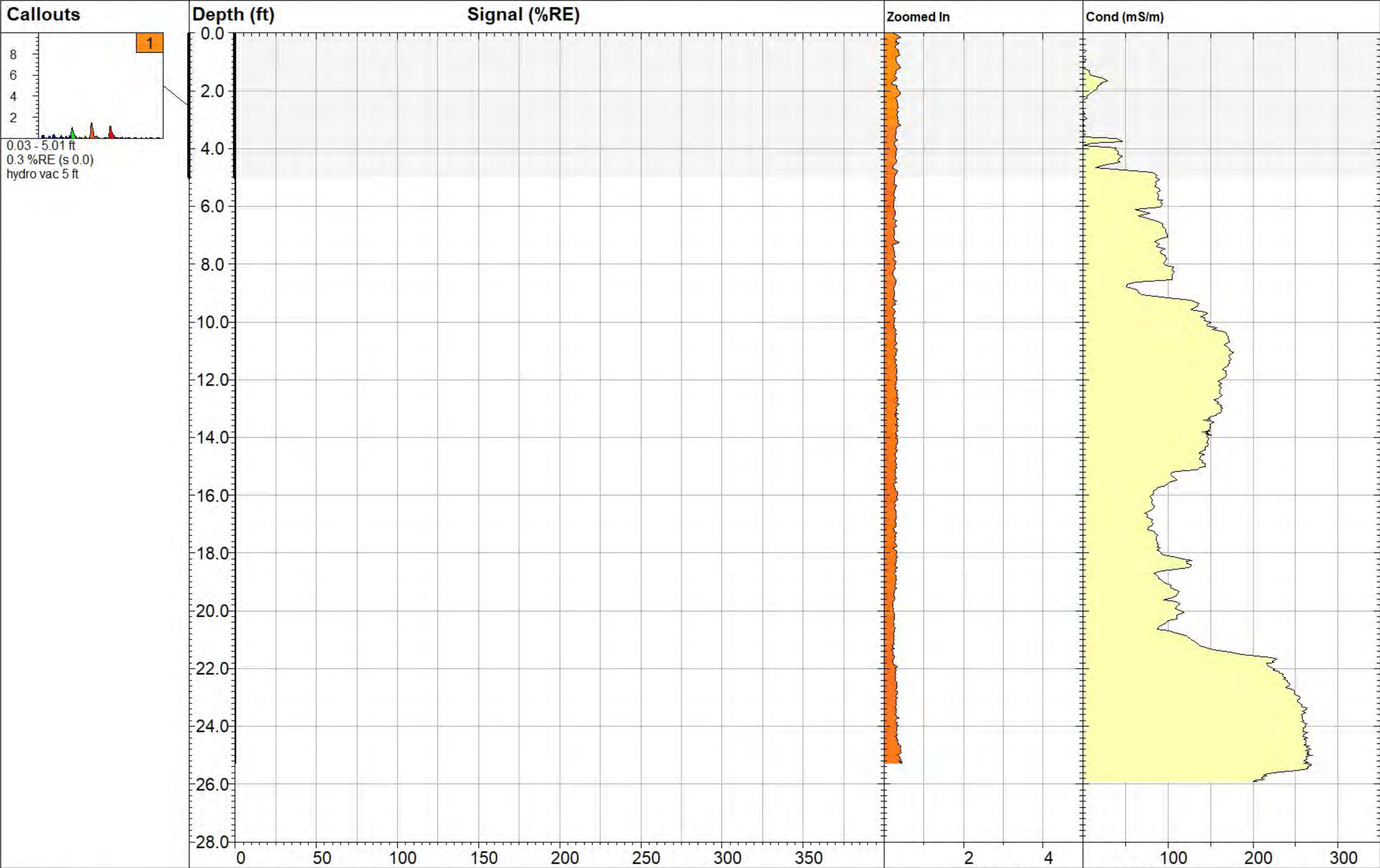


 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-68		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 29.54 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 1.6 %RE @ 0.51 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-02 10:02 MST	

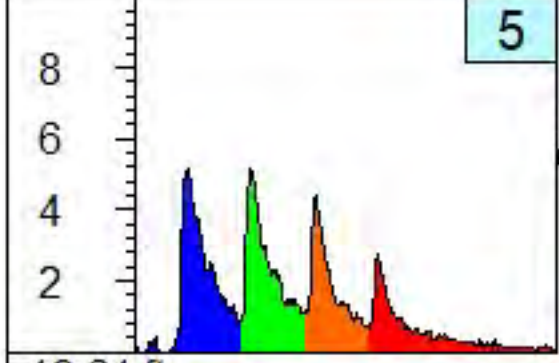
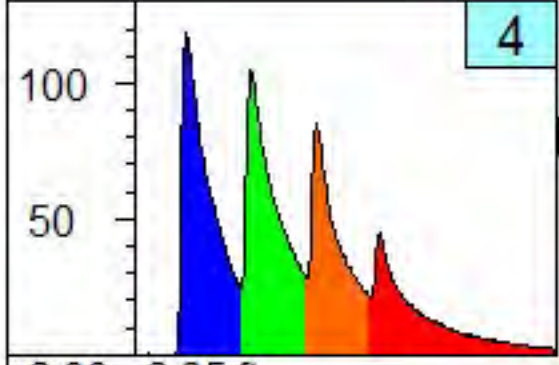
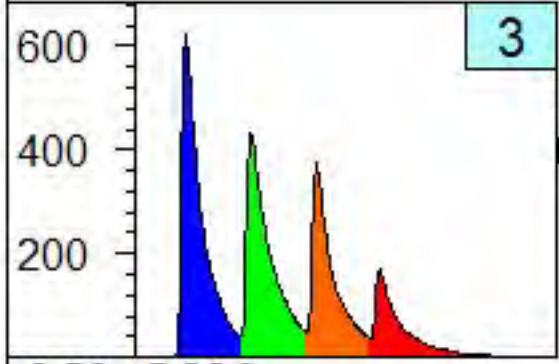
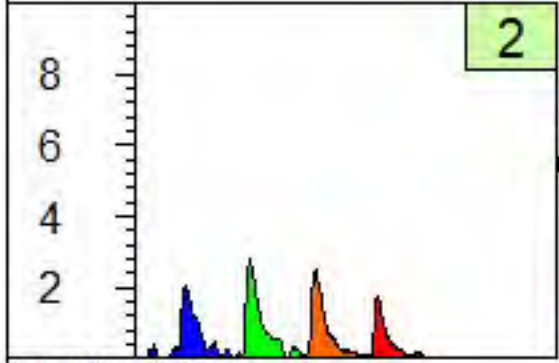
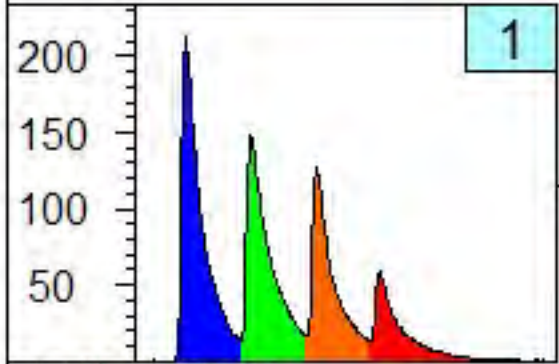
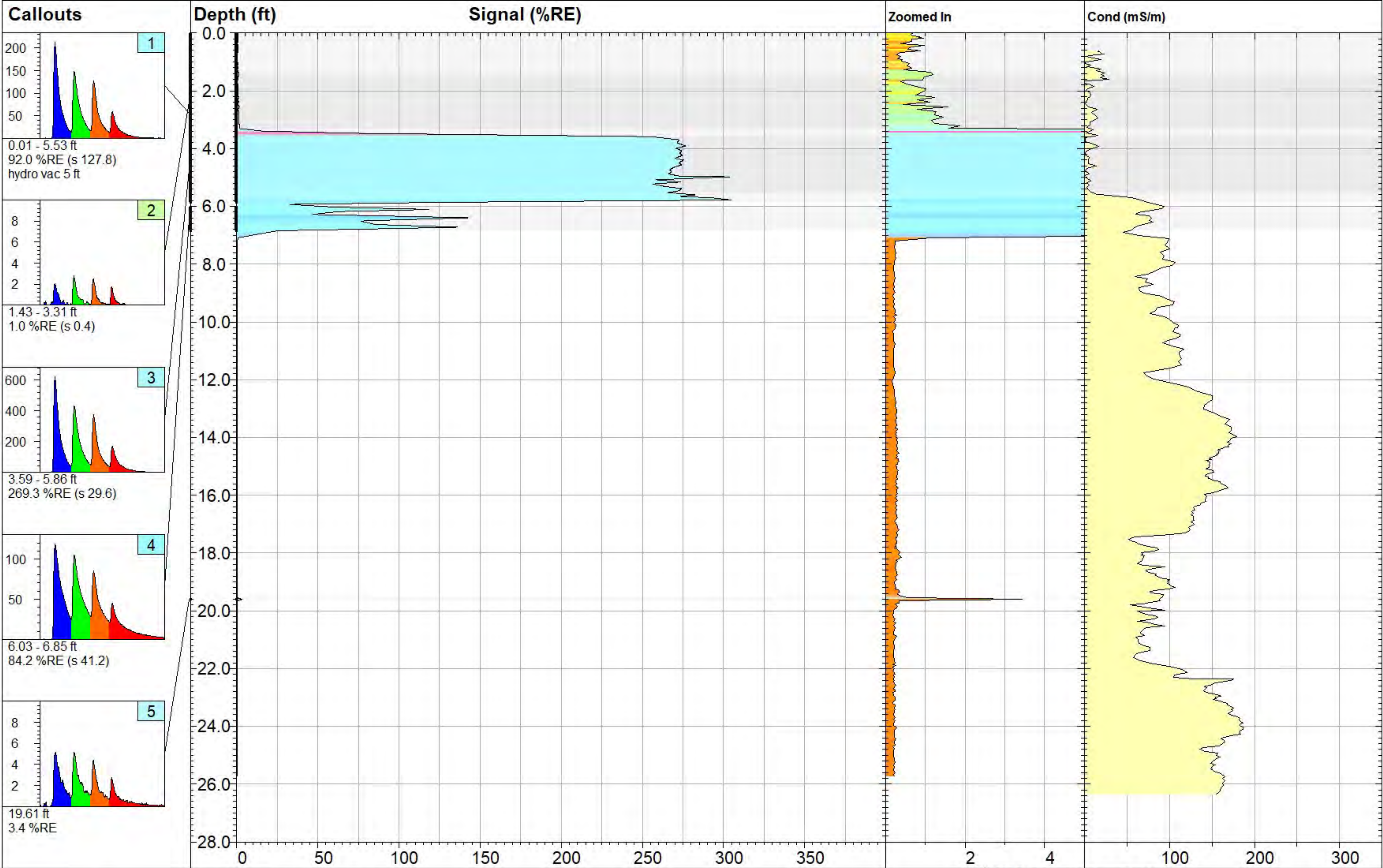


refusal @ 9.39 ft

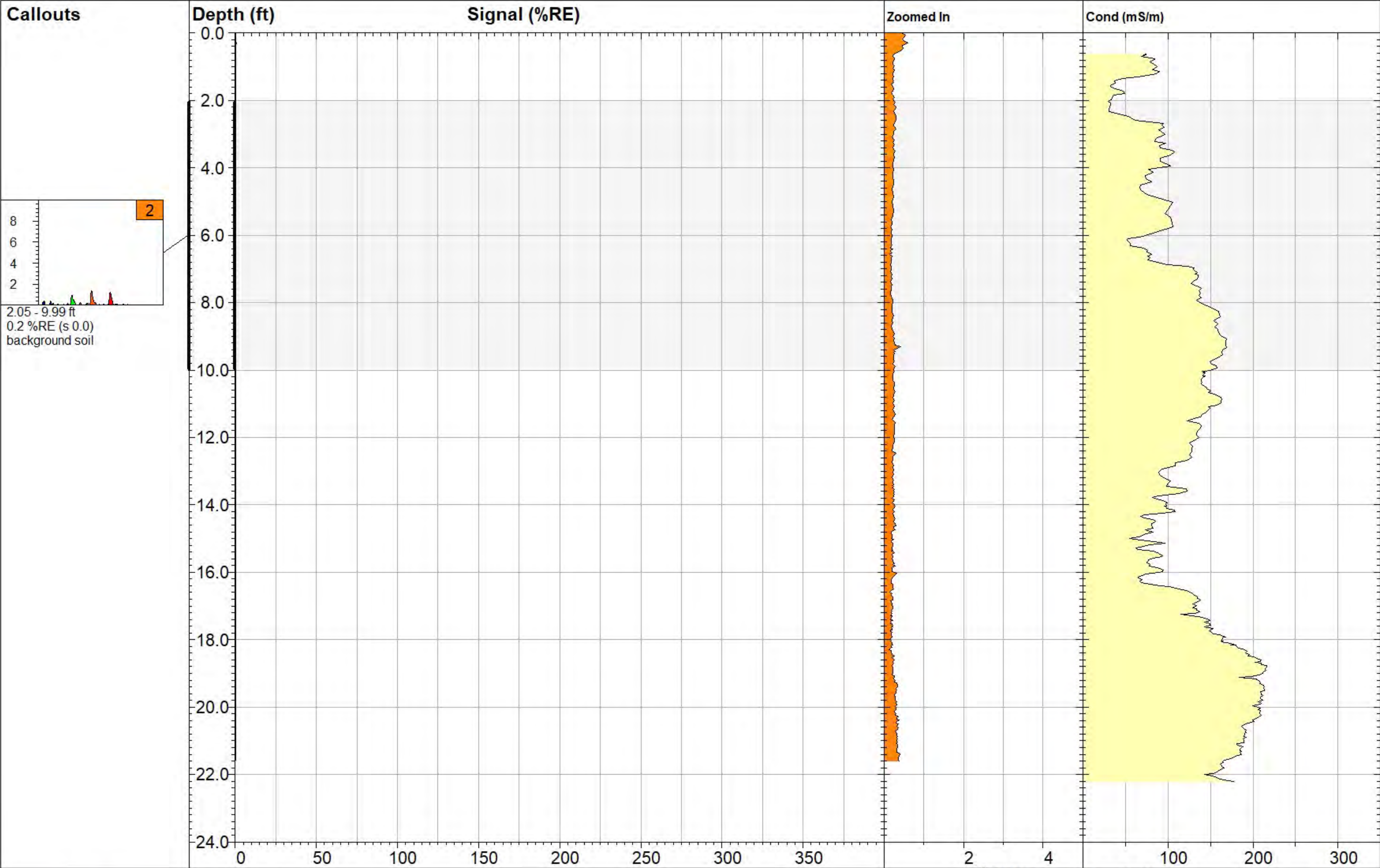
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-70			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 9.39 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 3.8 %RE @ 3.36 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-03 08:33 MST	



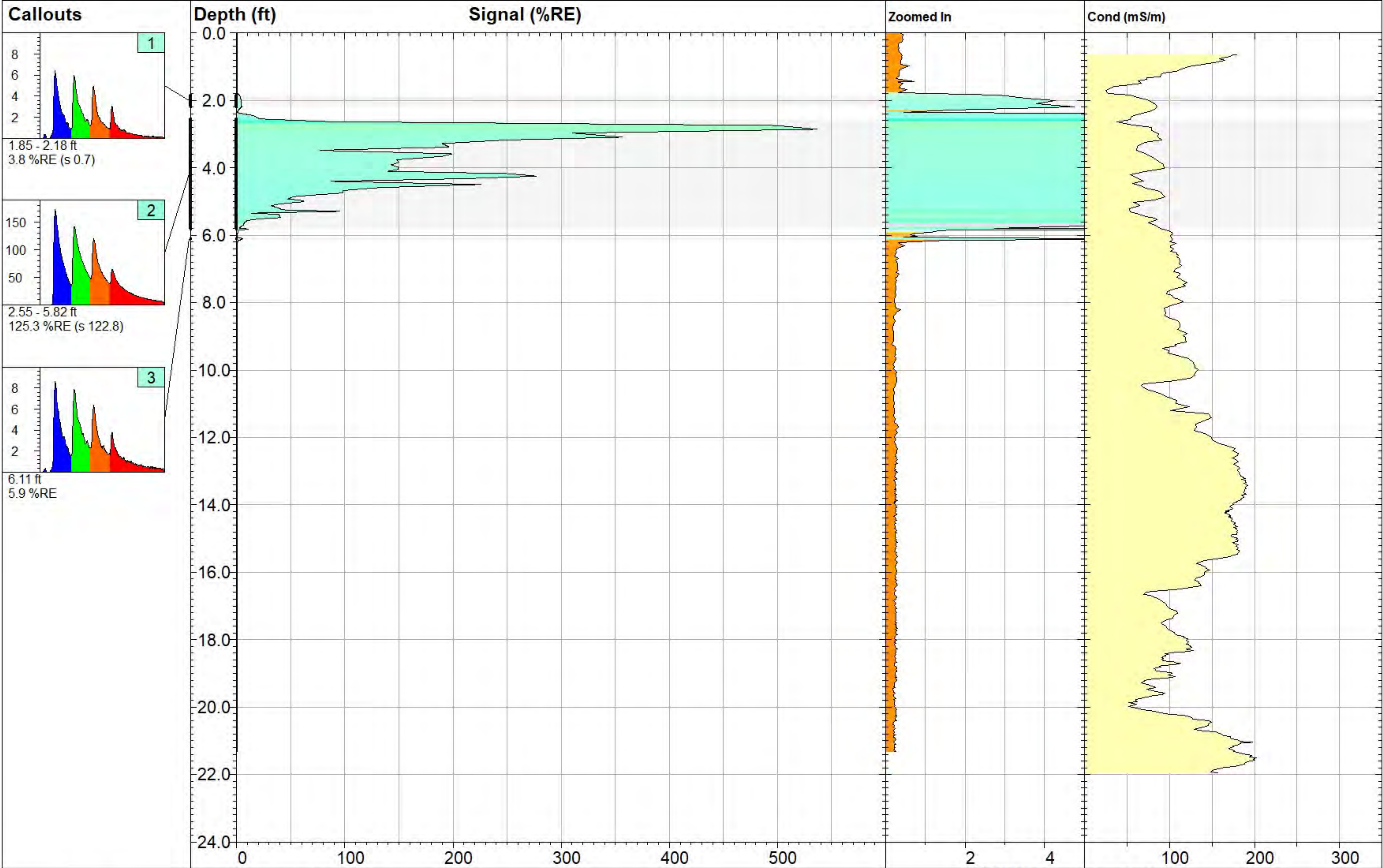
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-71			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 25.29 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 0.5 %RE @ 25.24 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 07:54 MST	



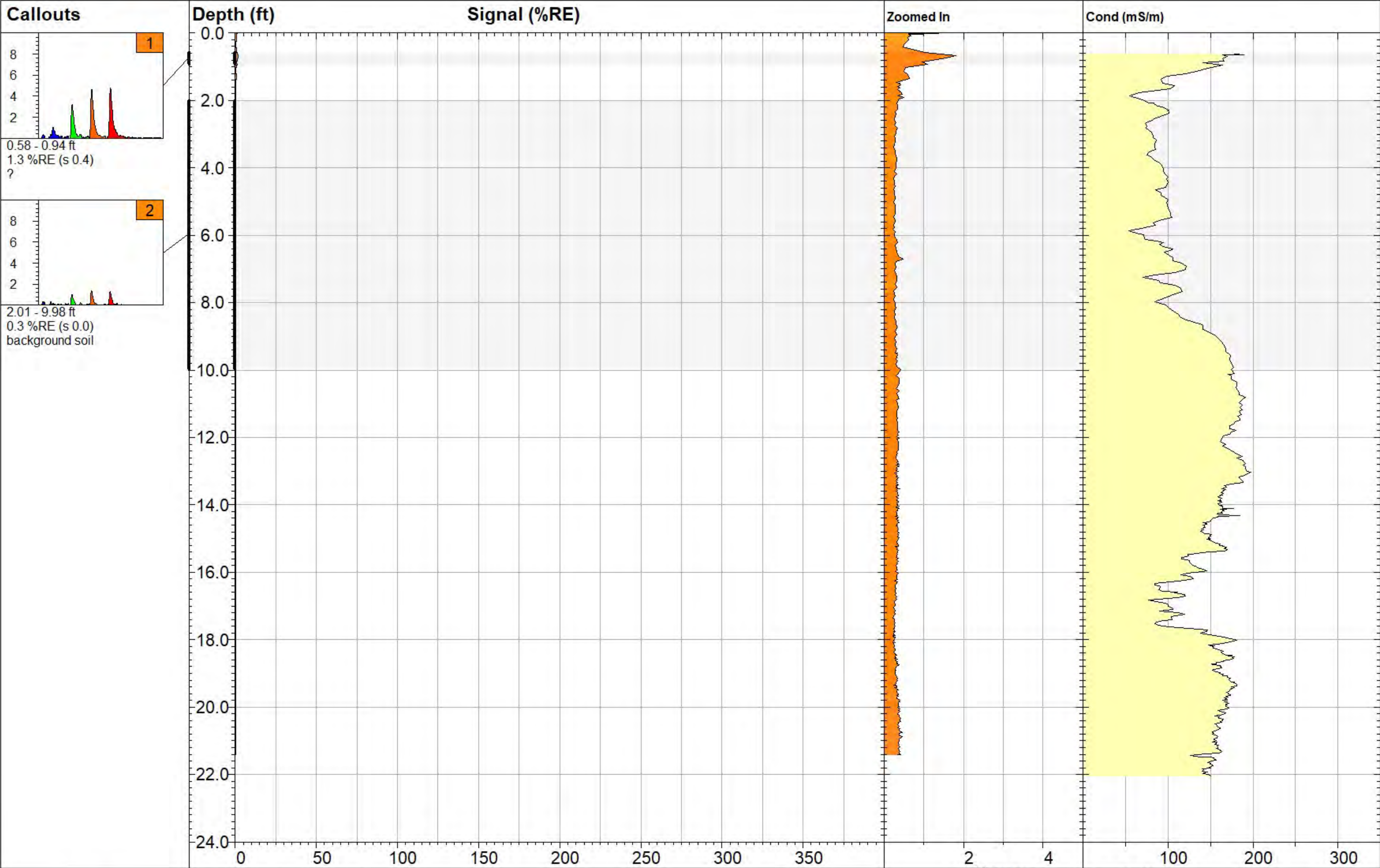
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-72		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 25.72 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 305.1 %RE @ 5.78 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-04 08:37 MST	



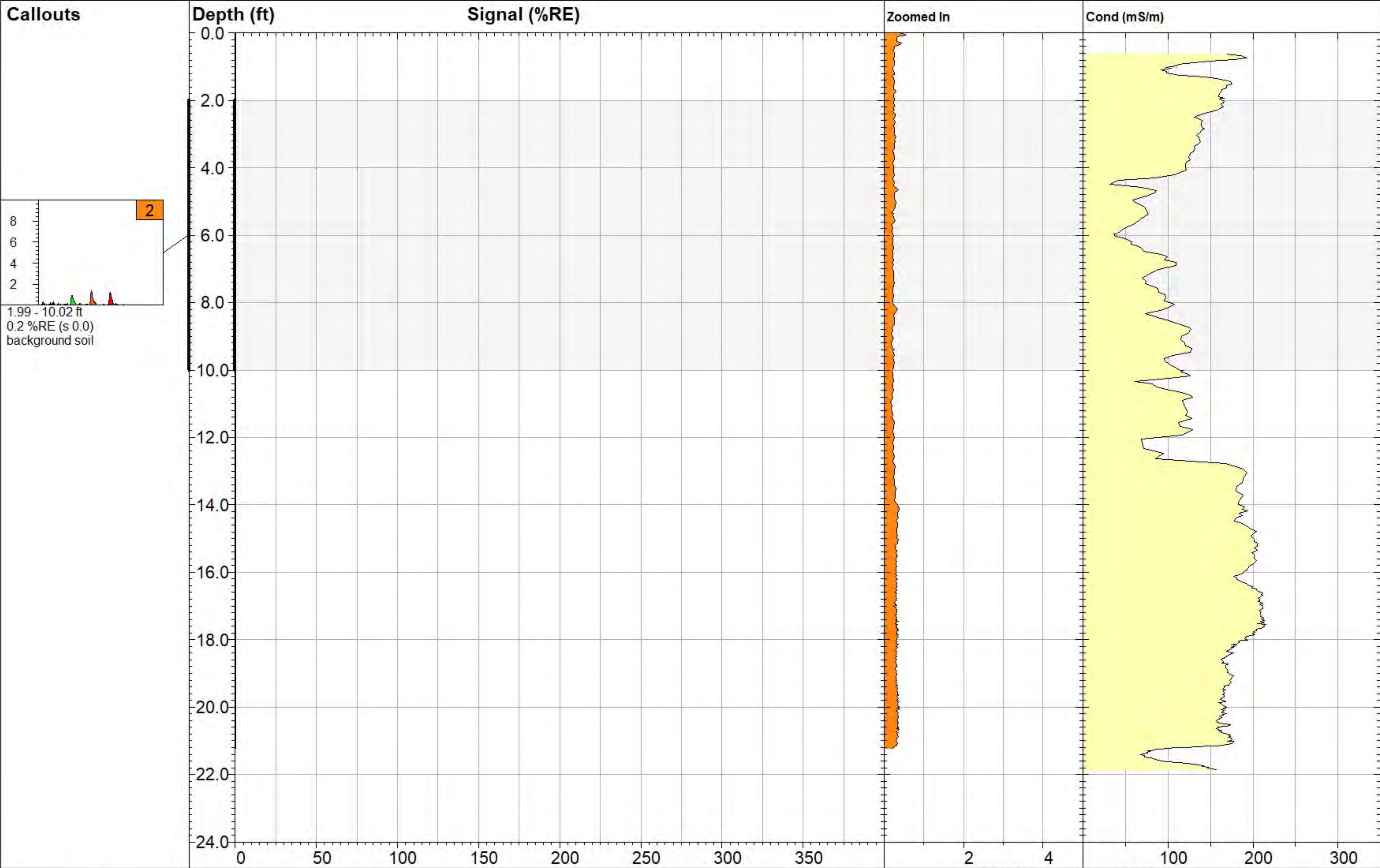
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-73			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 21.59 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 0.6 %RE @ 0.30 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 11:26 MST	



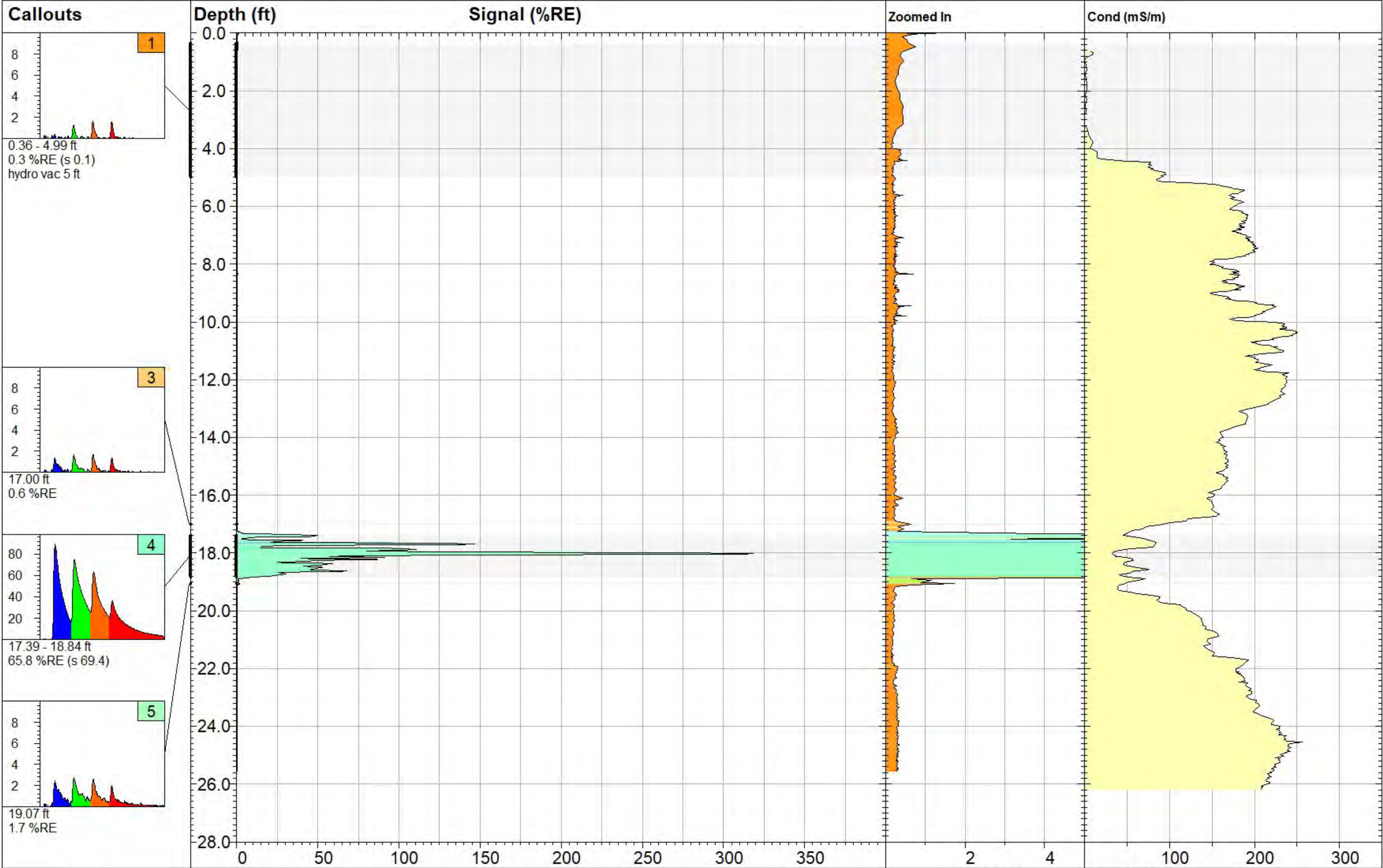
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-74		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 21.33 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 537.6 %RE @ 2.86 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-04 09:16 MST	



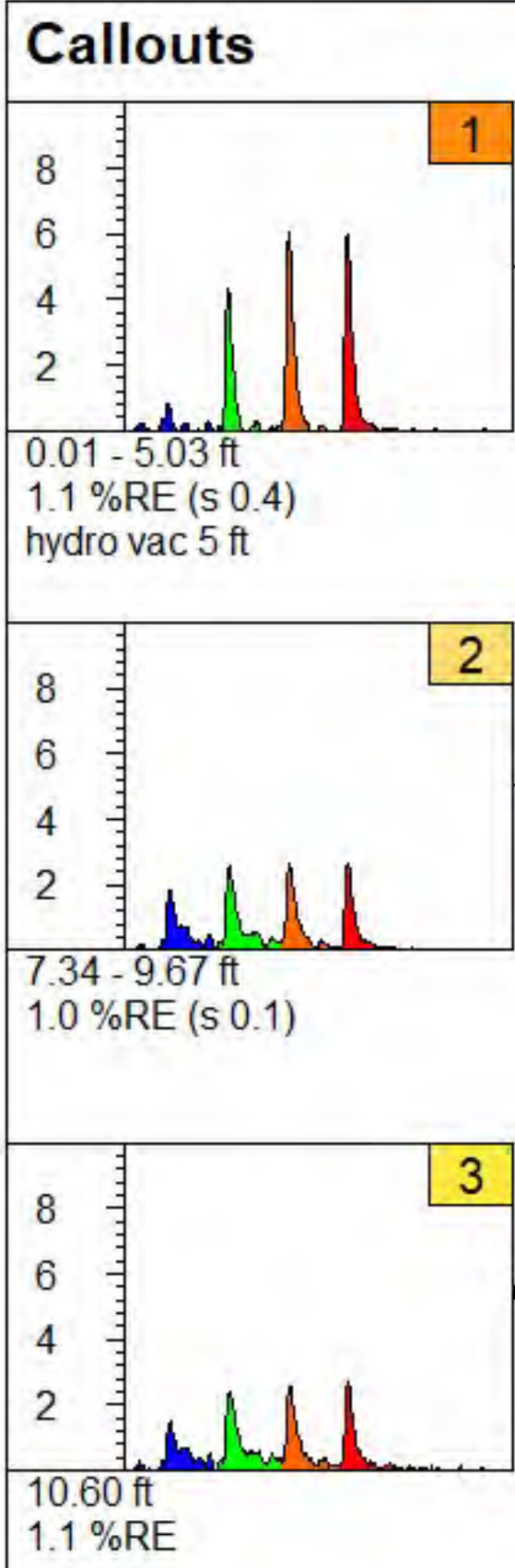
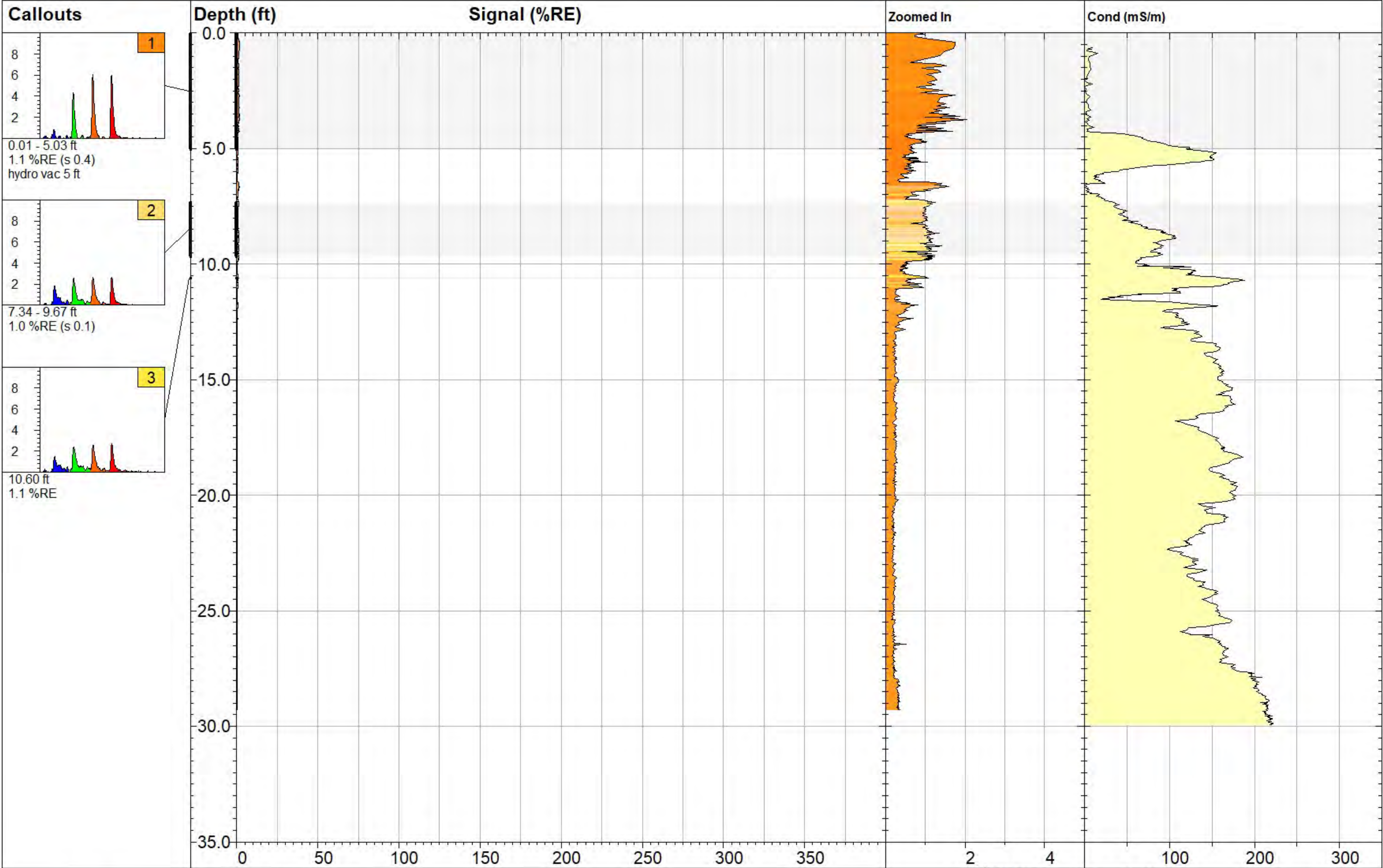
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-75			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 21.41 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 1.8 %RE @ 0.66 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 11:56 MST	



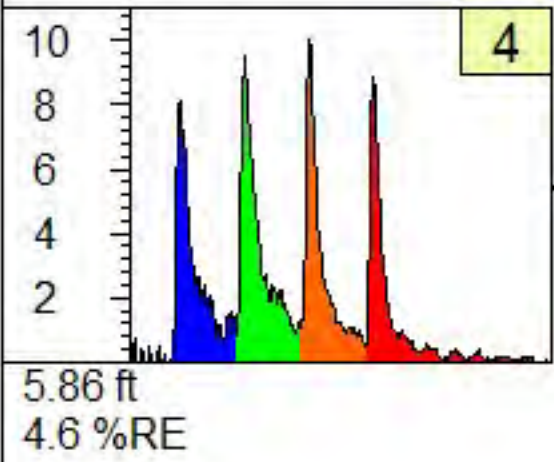
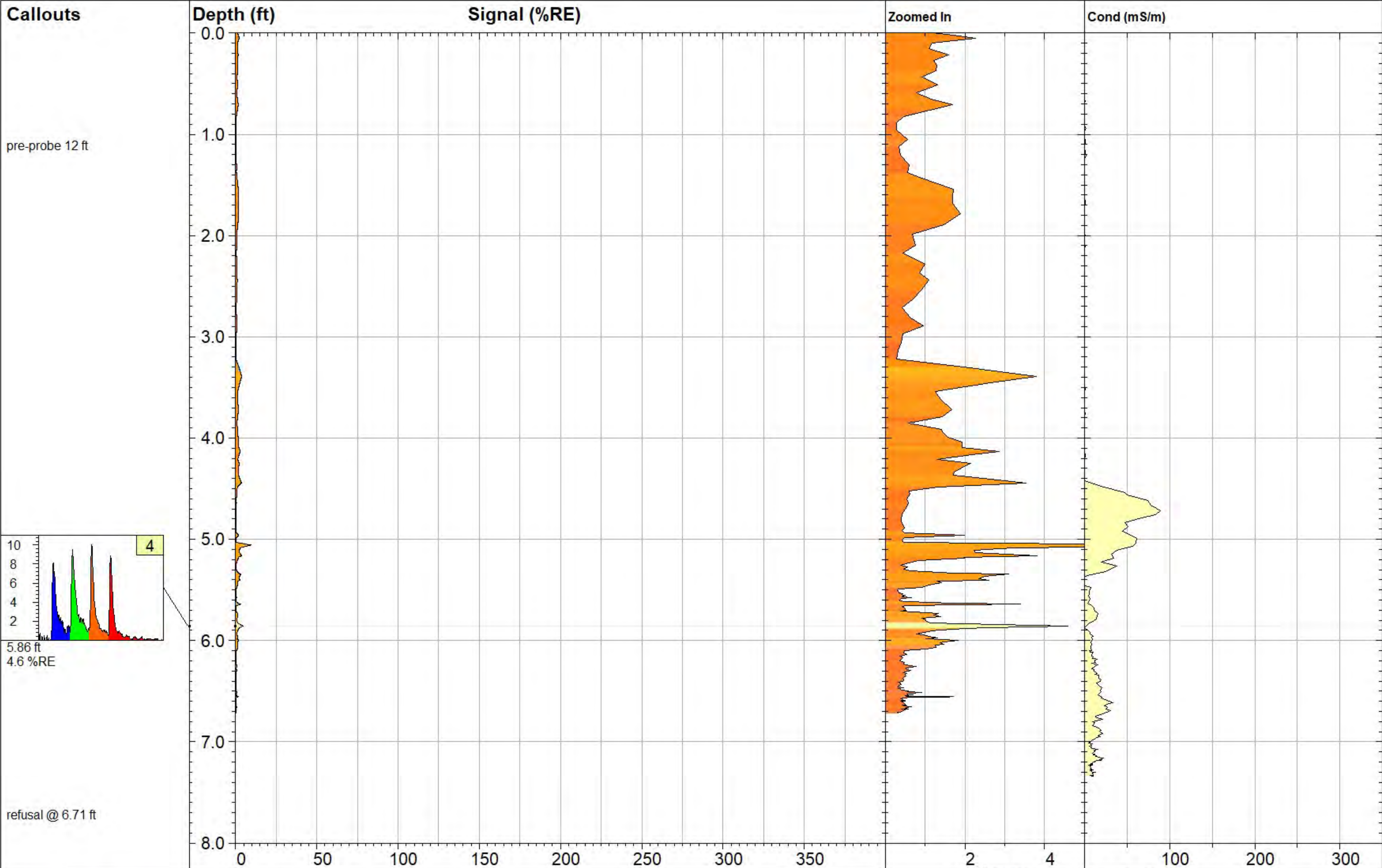
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-76			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 21.23 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 0.5 %RE @ 0.05 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 12:34 MST	



 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-77		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 25.55 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 320.9 %RE @ 18.03 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-04 13:05 MST	

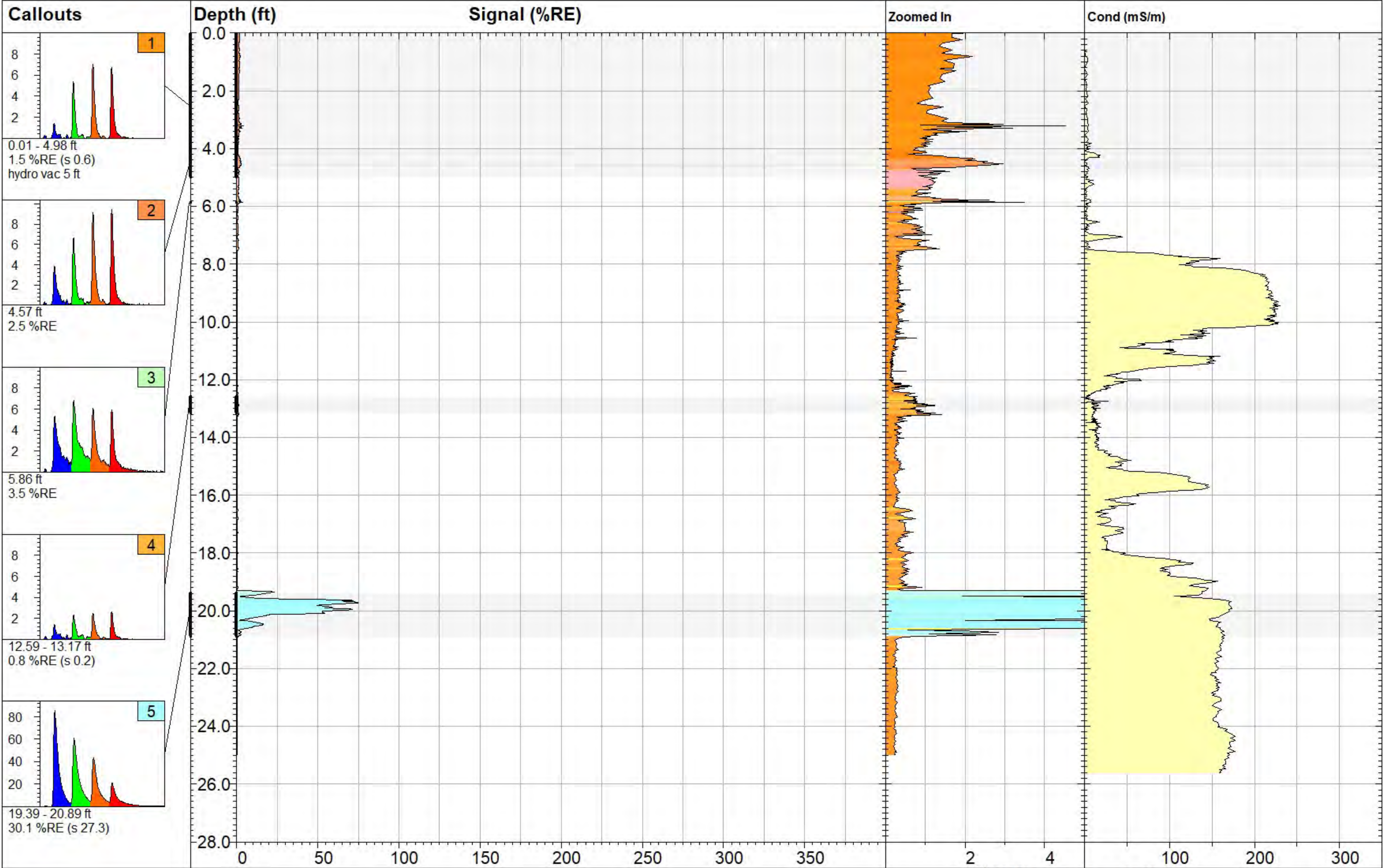


 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-78			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 29.29 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 2.0 %RE @ 3.74 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 13:47 MST	

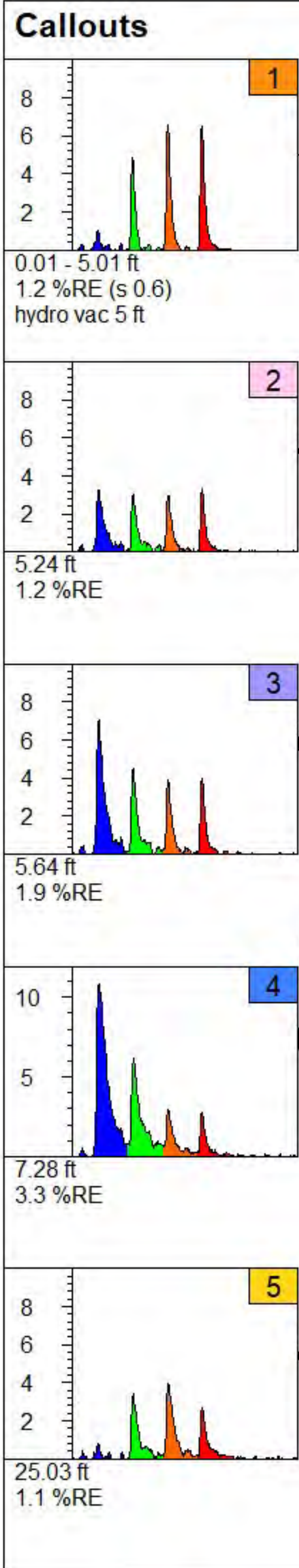
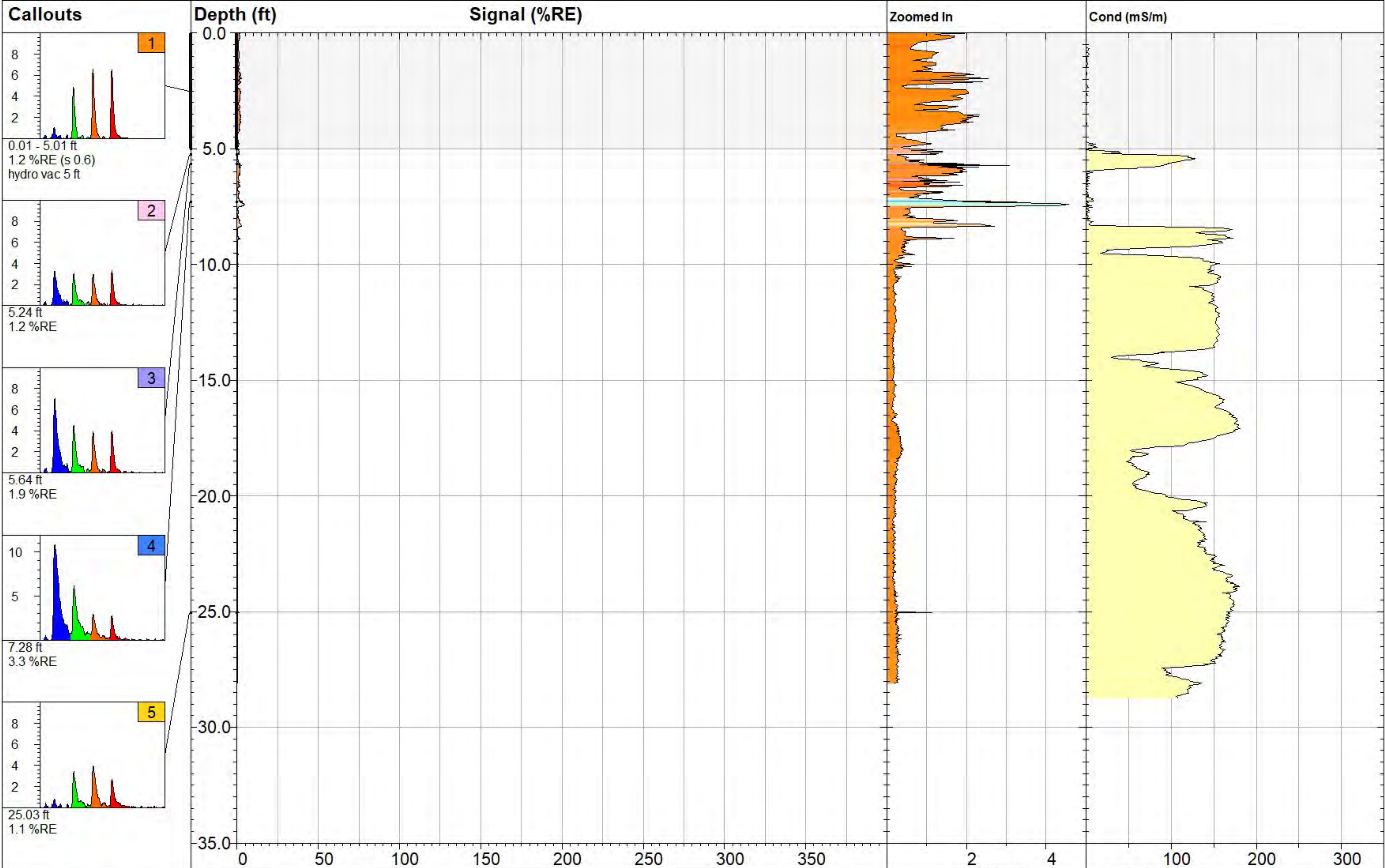


refusal @ 6.71 ft

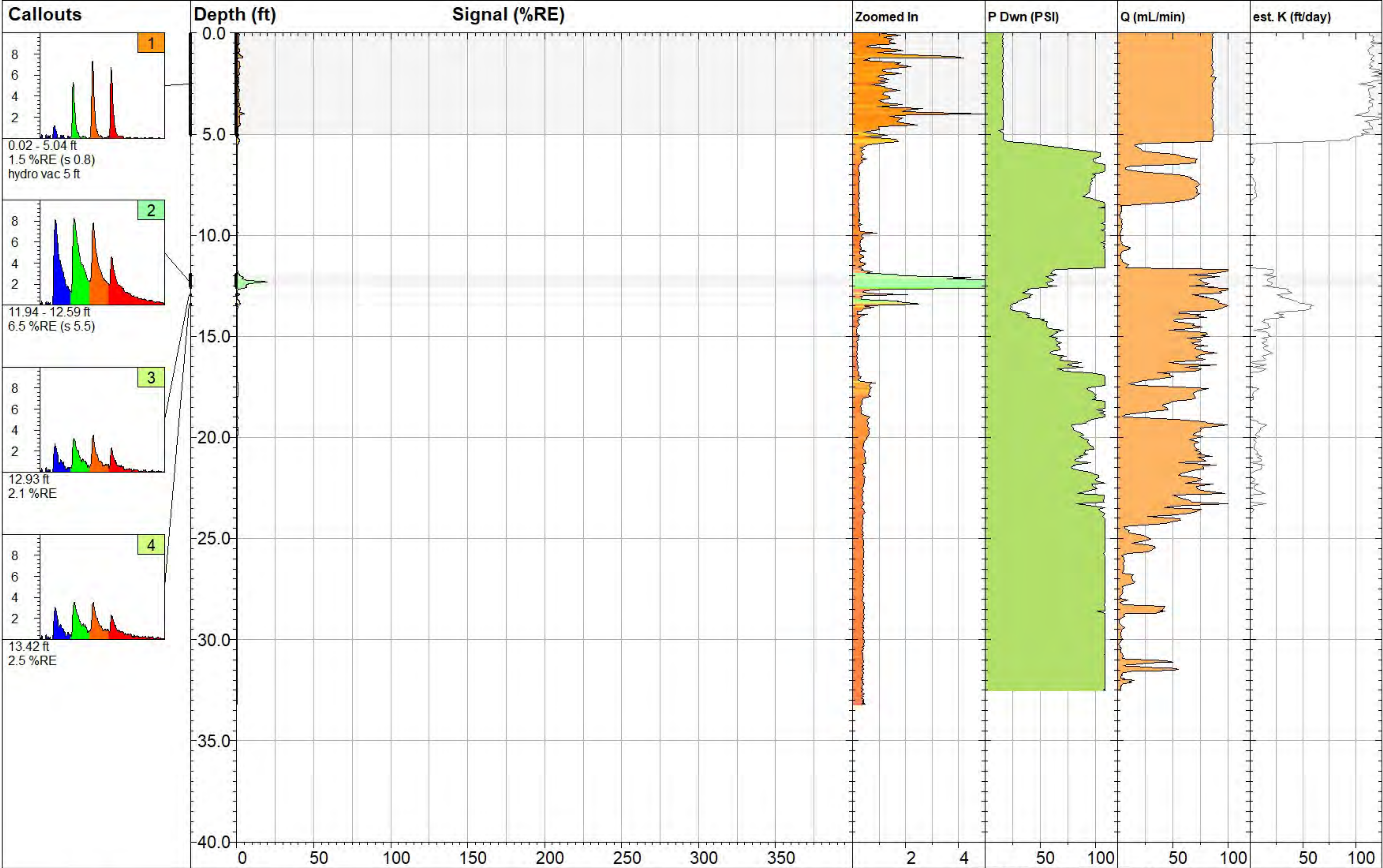
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-79			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 6.71 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 9.5 %RE @ 5.06 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-03 16:07 MST	



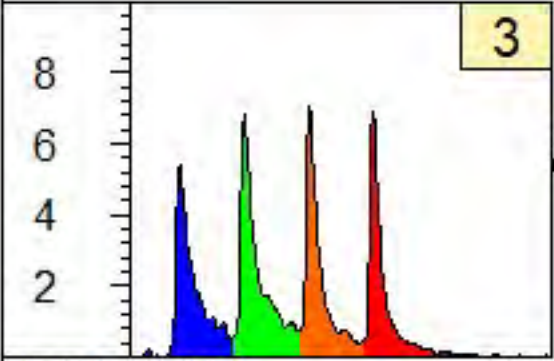
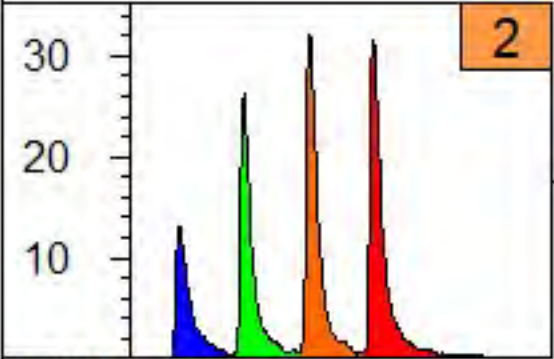
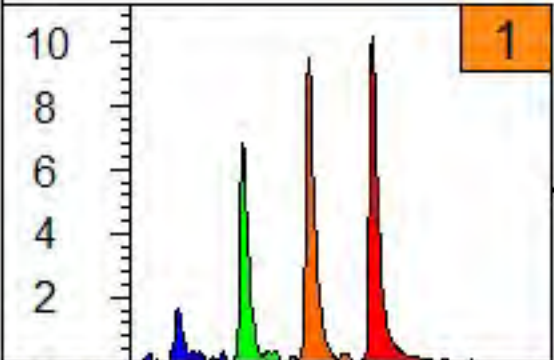
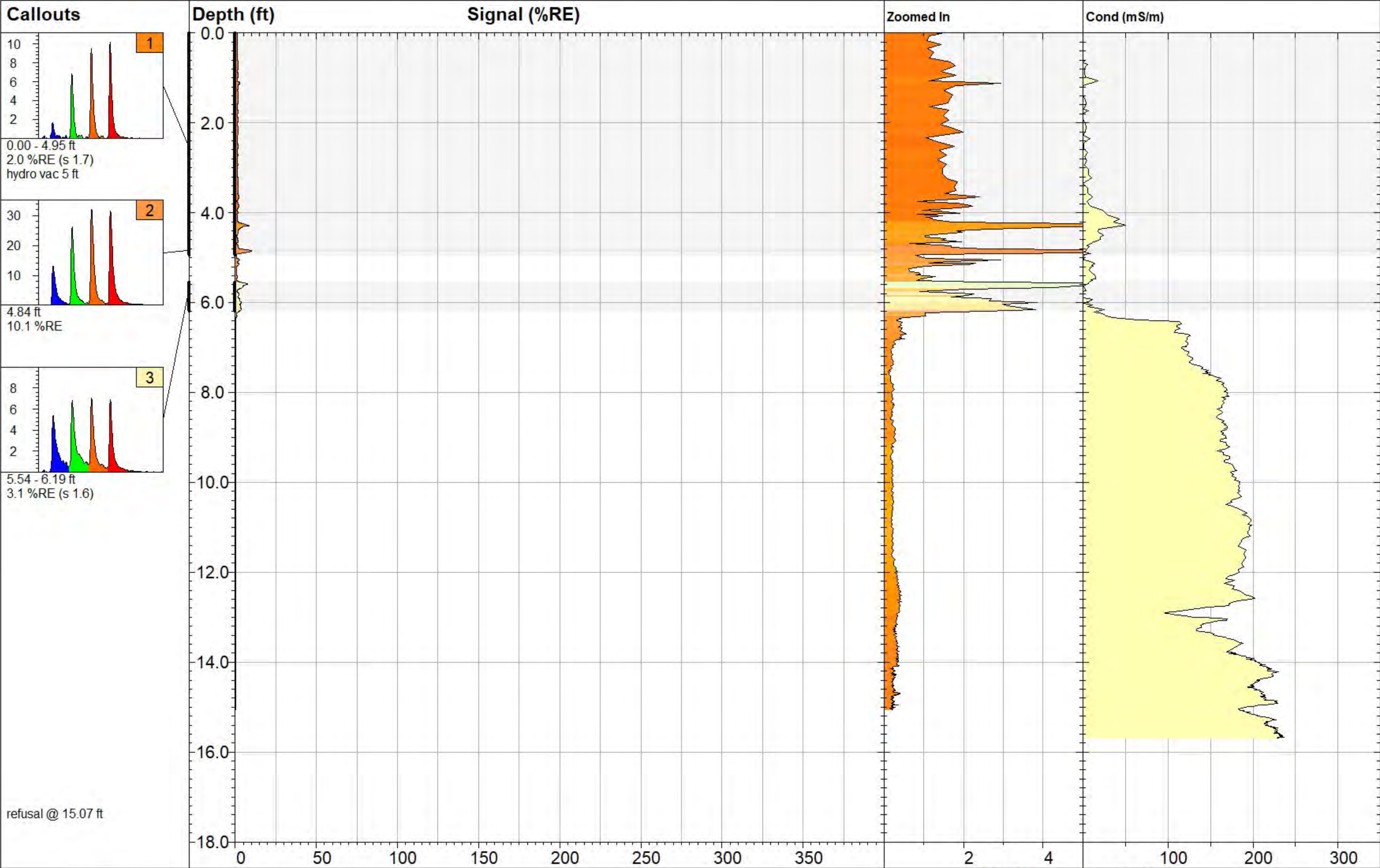
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-79A			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 24.99 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 75.0 %RE @ 19.73 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 14:33 MST	



 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-80			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 28.10 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 4.6 %RE @ 7.39 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 15:20 MST	

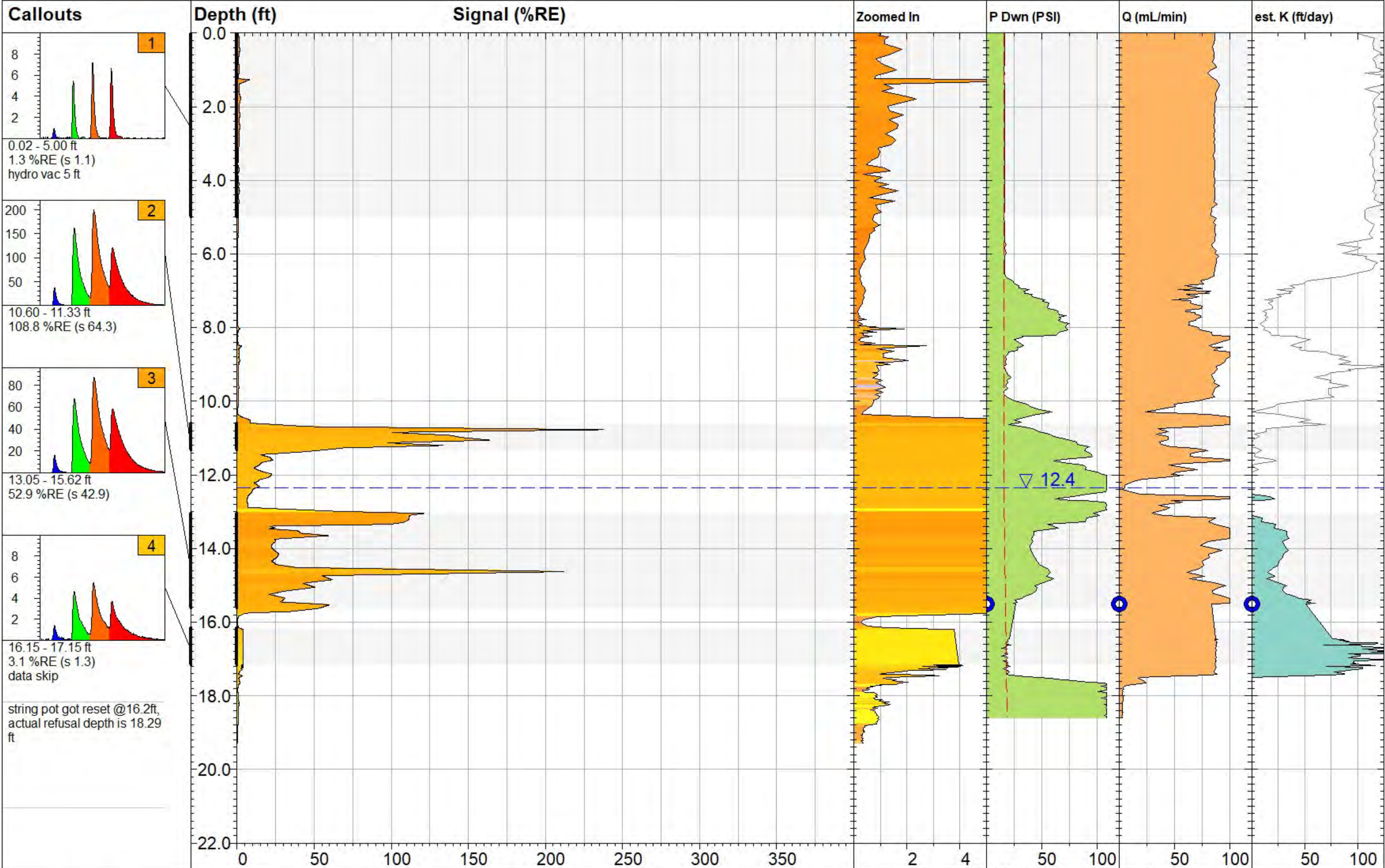


 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-81		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 33.21 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 20.0 %RE @ 12.31 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-02 09:21 MST	

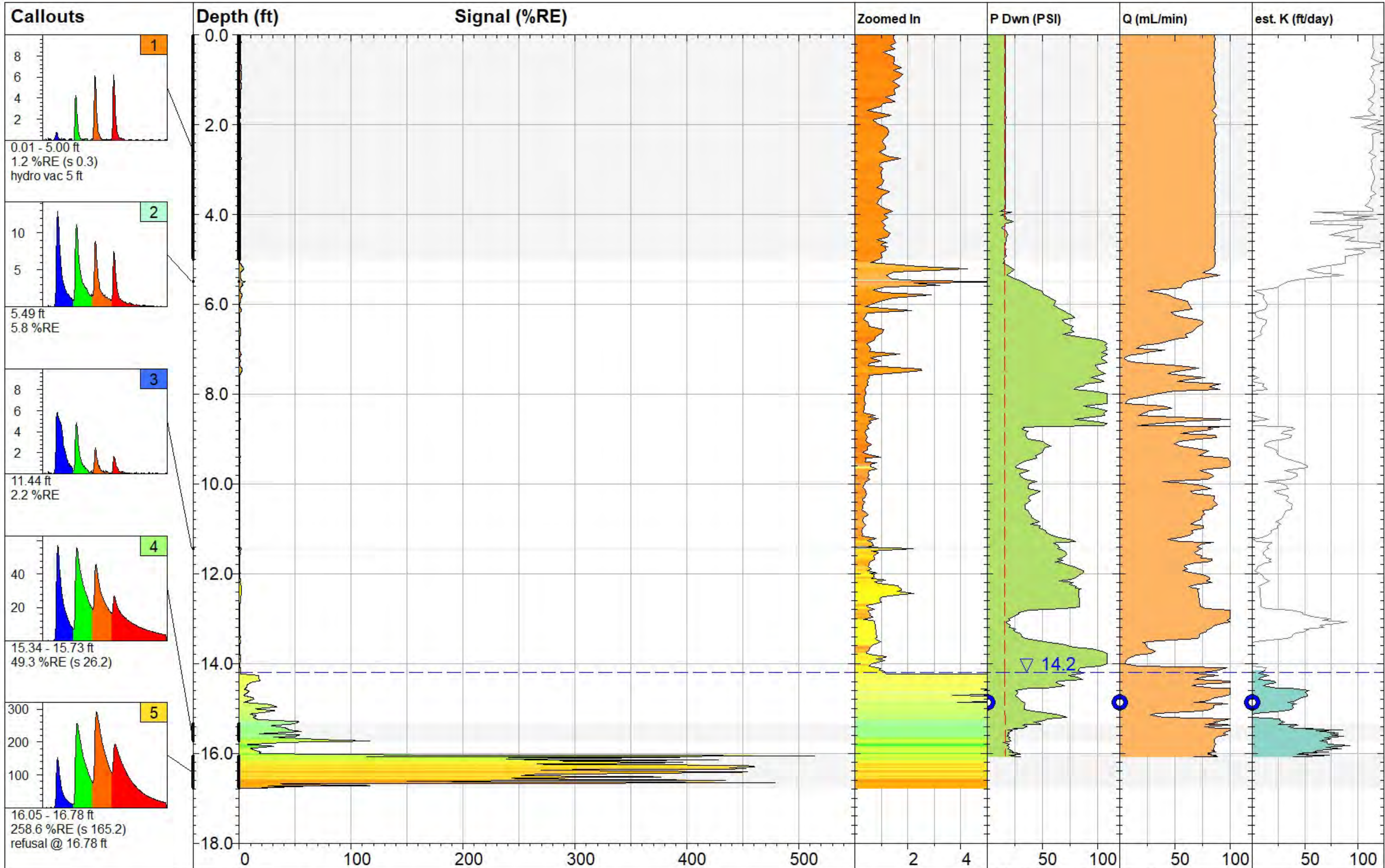


refusal @ 15.07 ft

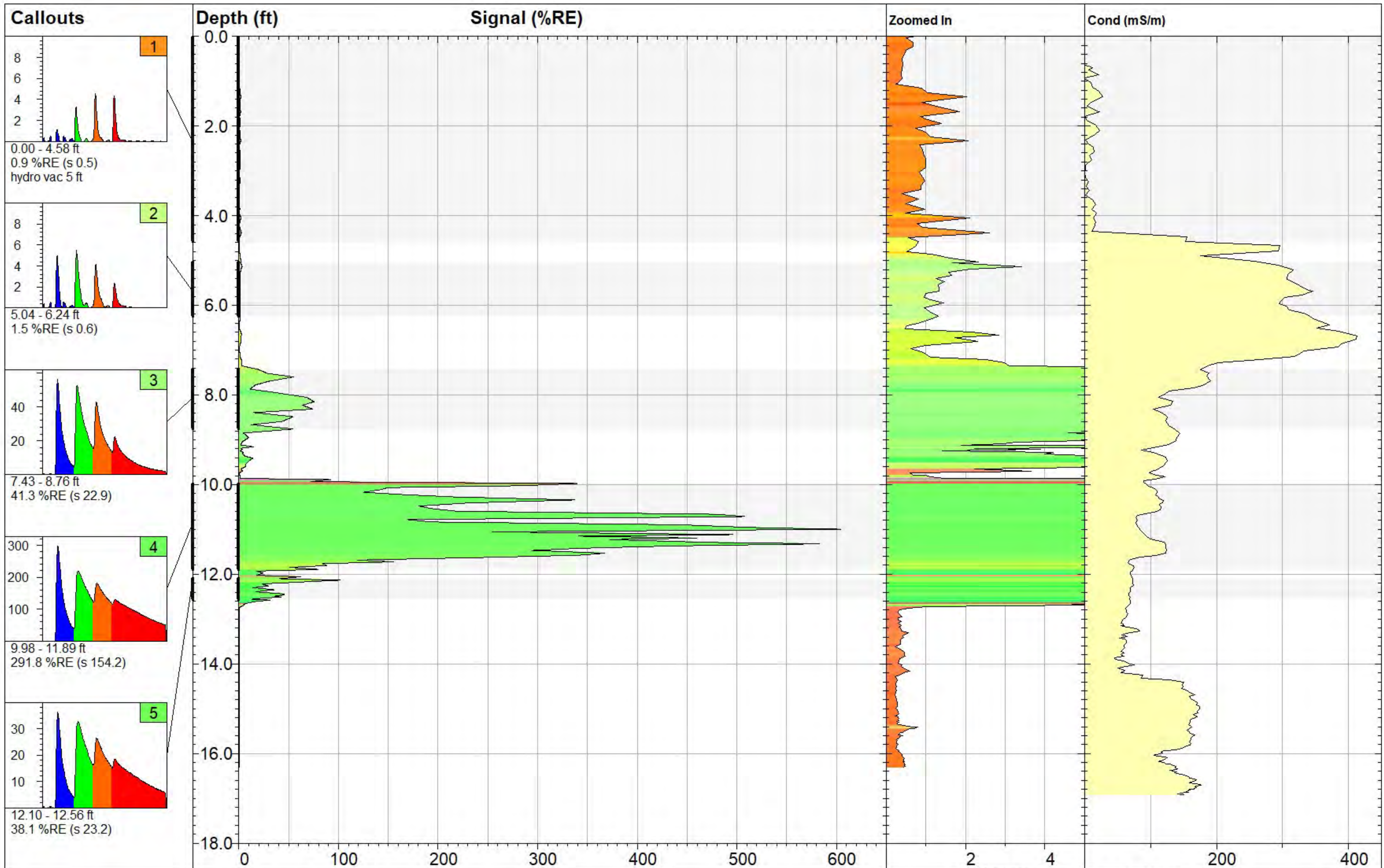
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-82		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 15.07 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 10.1 %RE @ 4.84 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-04 16:13 MST	



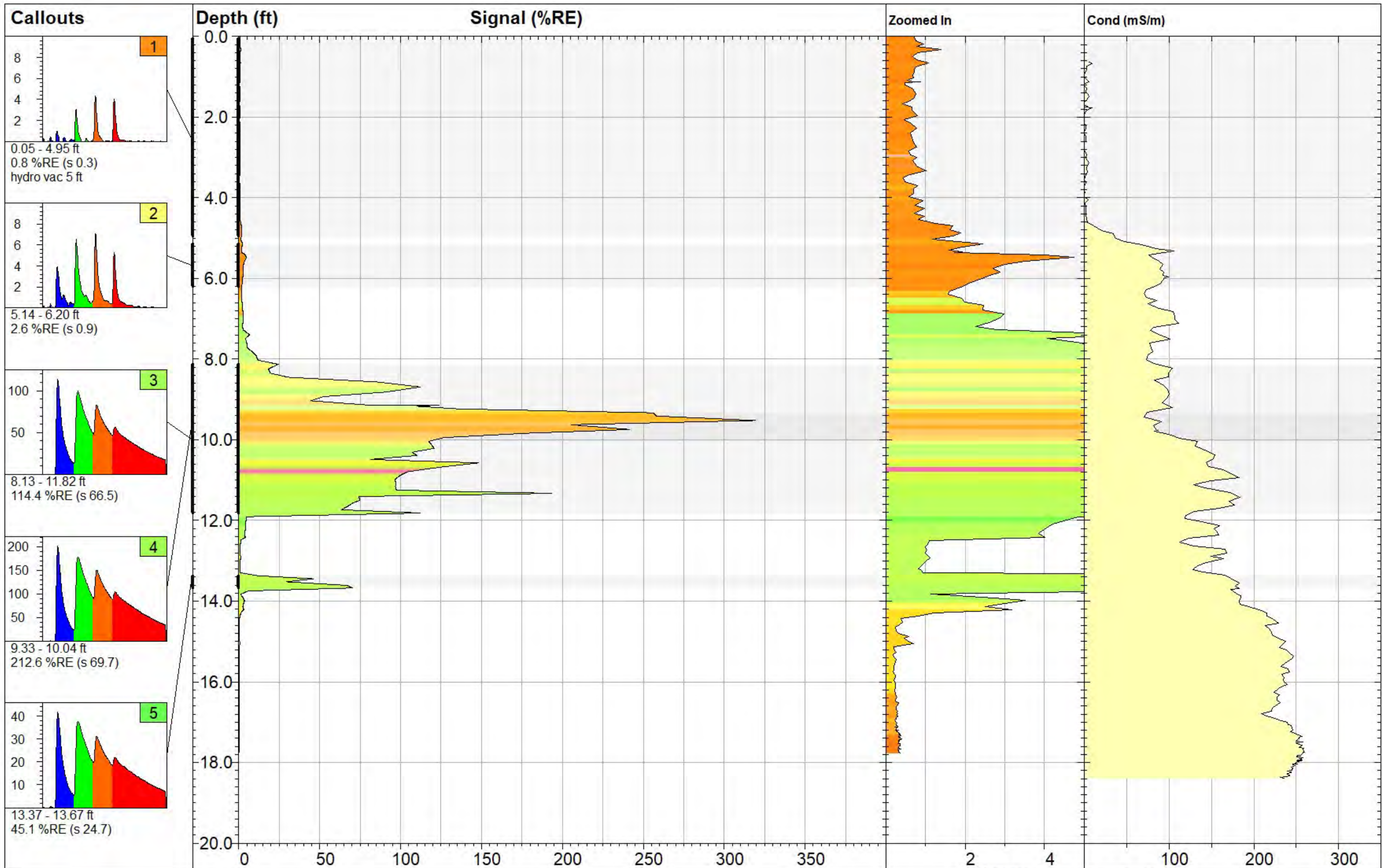
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-83		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 19.29 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 238.7 %RE @ 10.77 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-01 15:02 MST	



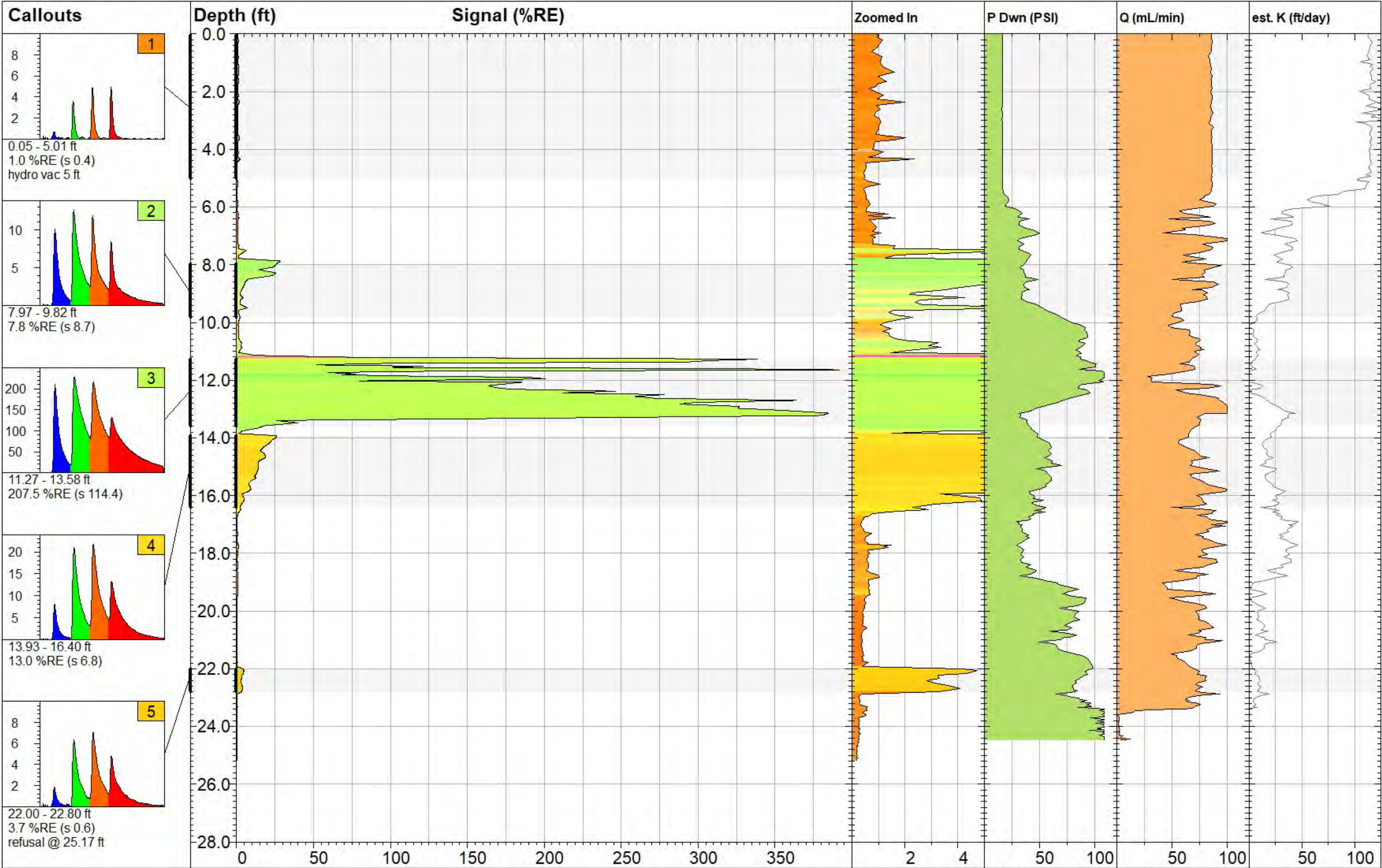
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-84		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 16.78 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 524.0 %RE @ 16.06 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-01 15:41 MST	



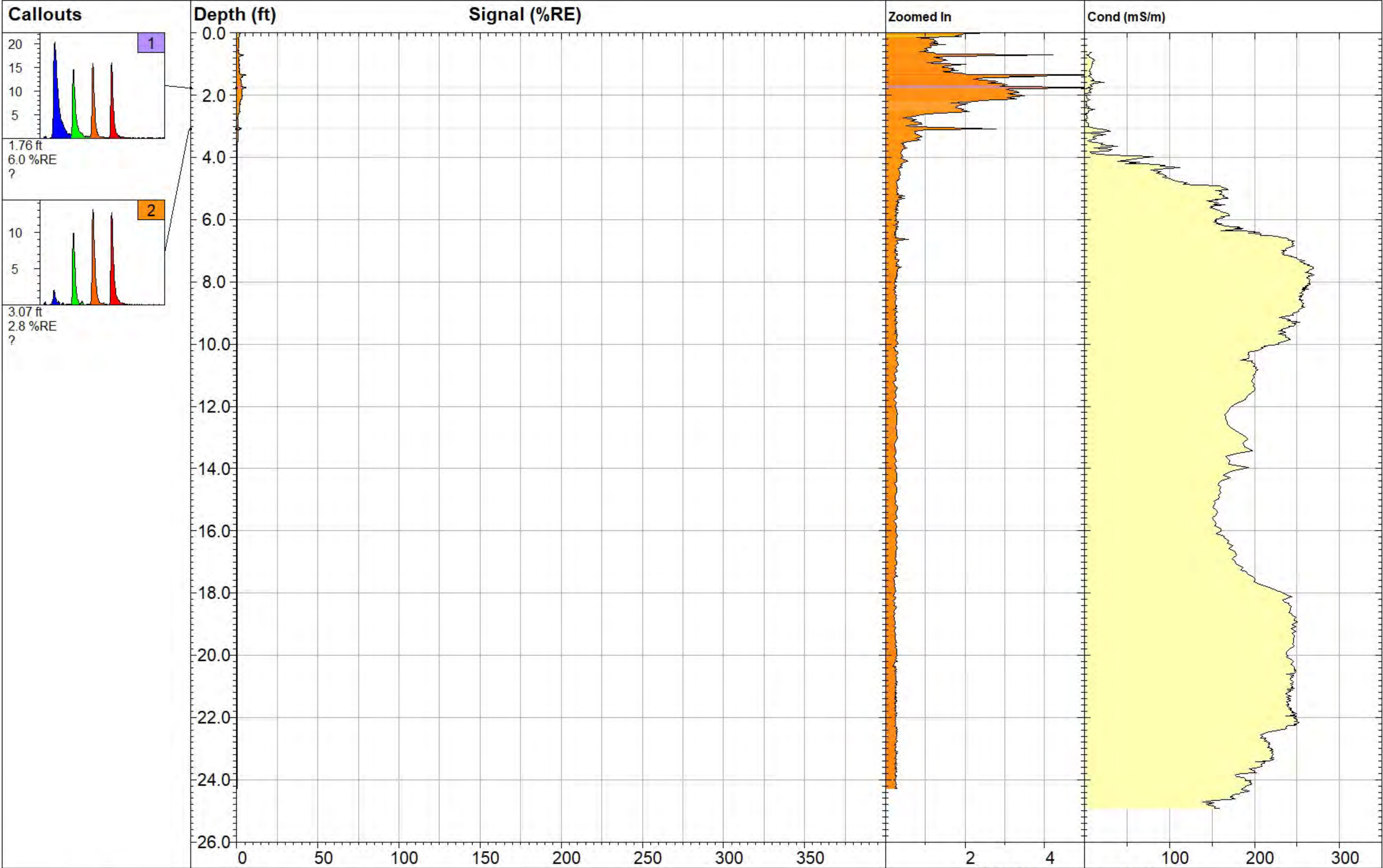
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-85		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 16.30 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 608.7 %RE @ 11.00 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-05 09:48 MST	



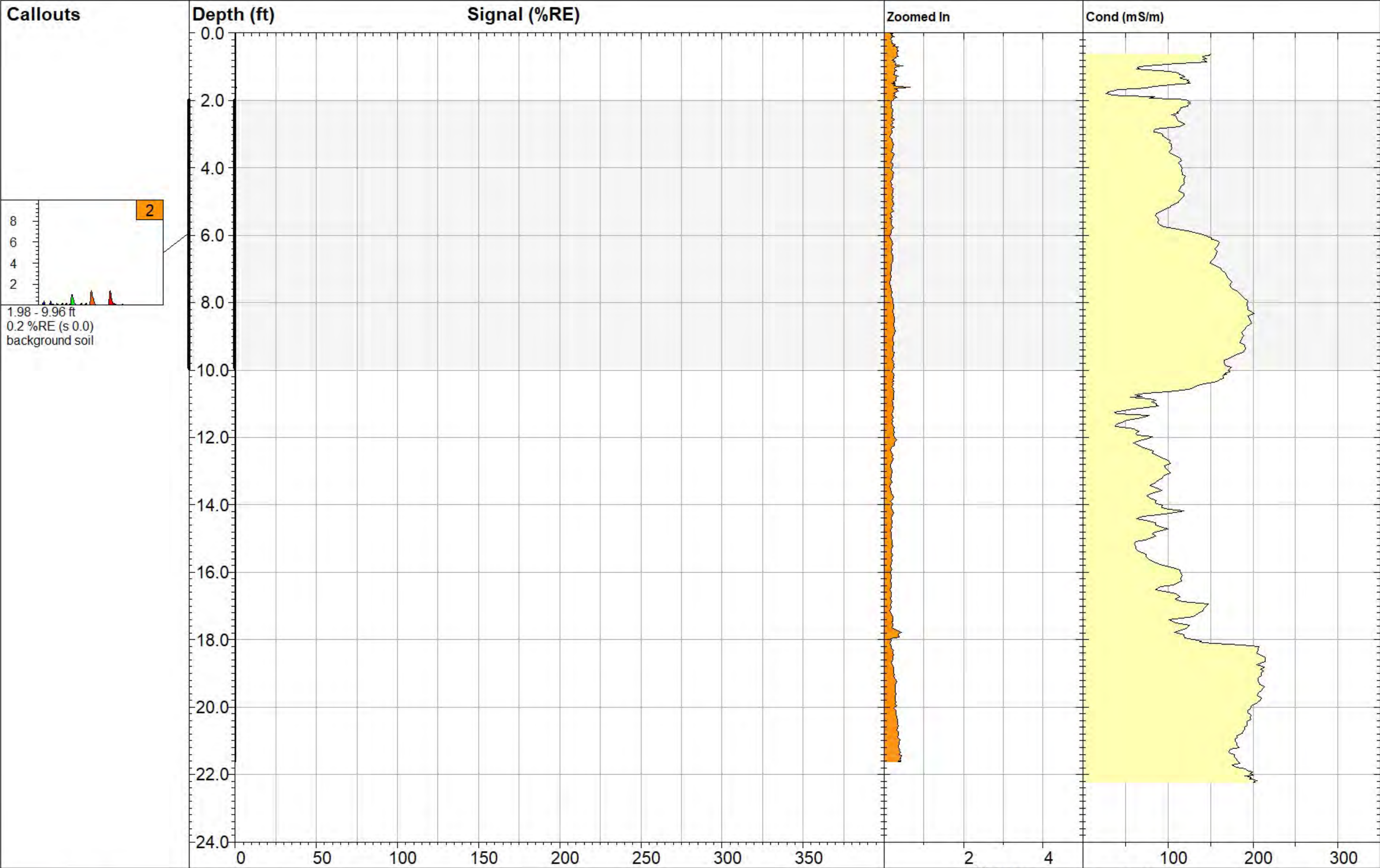
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-86		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 17.76 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 319.3 %RE @ 9.52 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-05 09:19 MST	



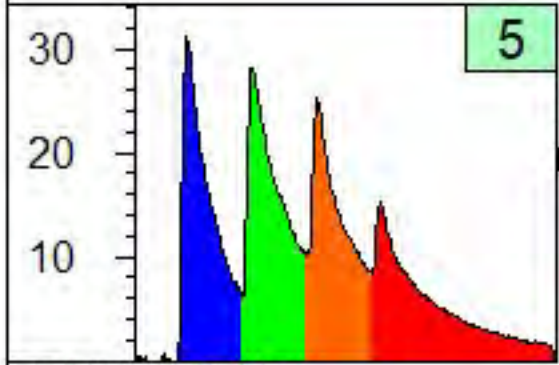
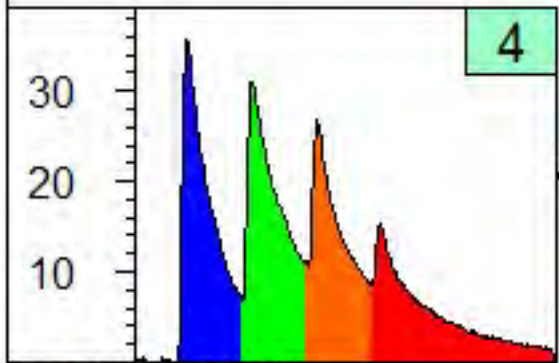
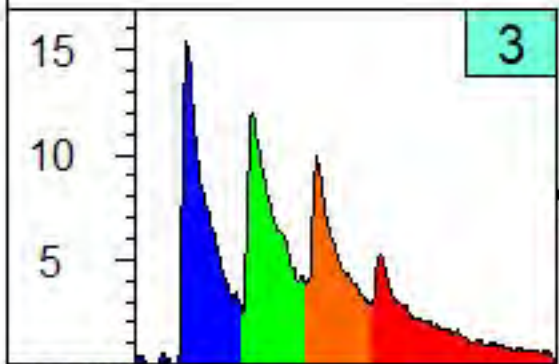
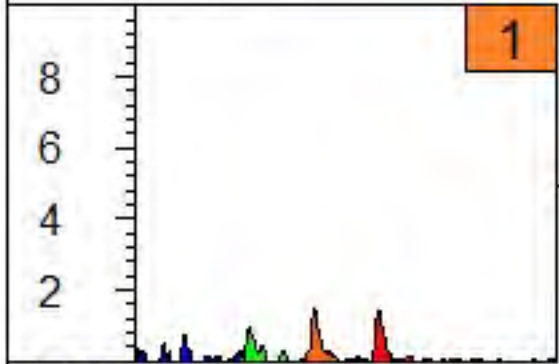
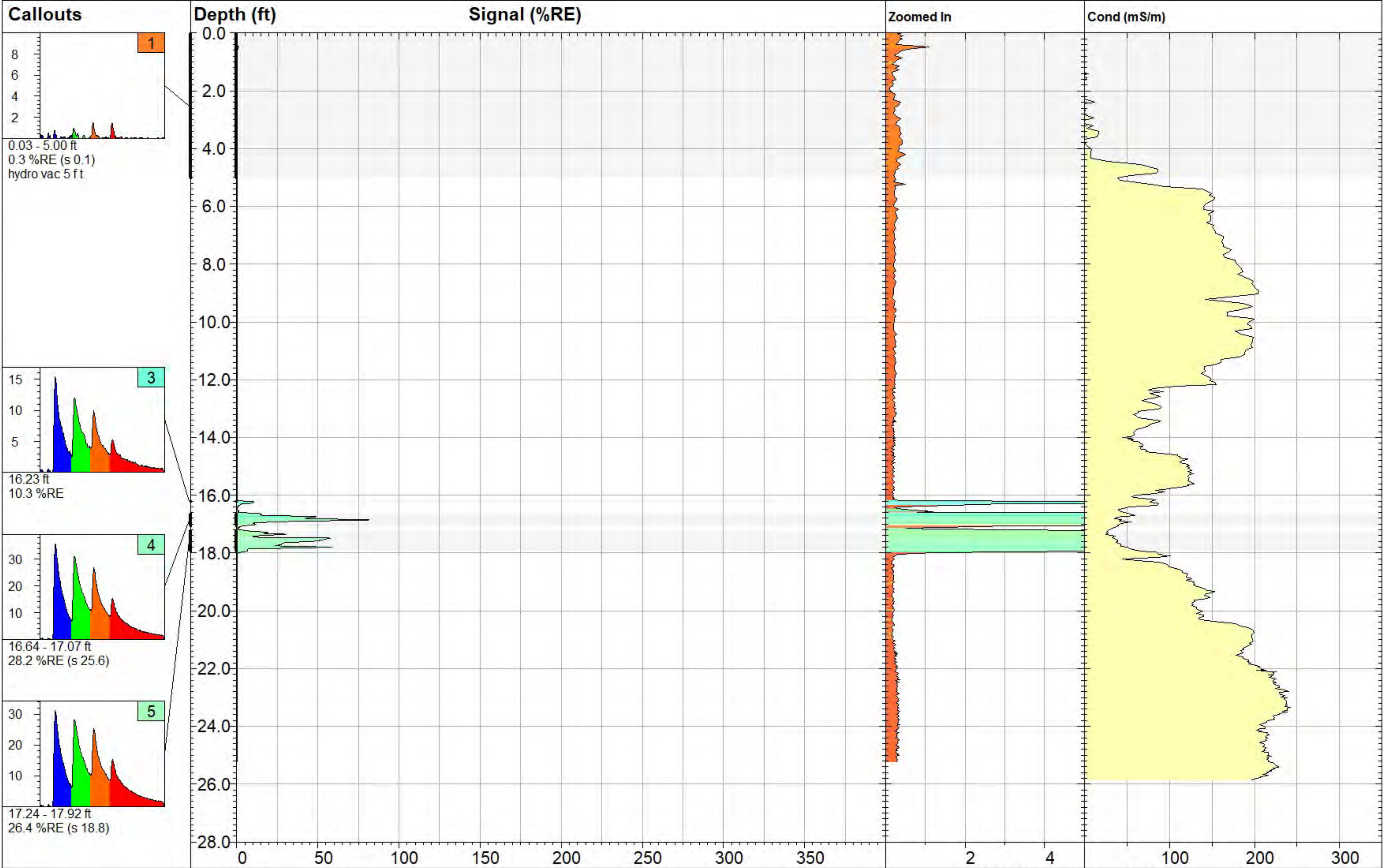
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-87		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 25.17 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 394.3 %RE @ 11.64 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-01 16:22 MST	



 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-88			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 24.29 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 6.0 %RE @ 1.76 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 10:09 MST	



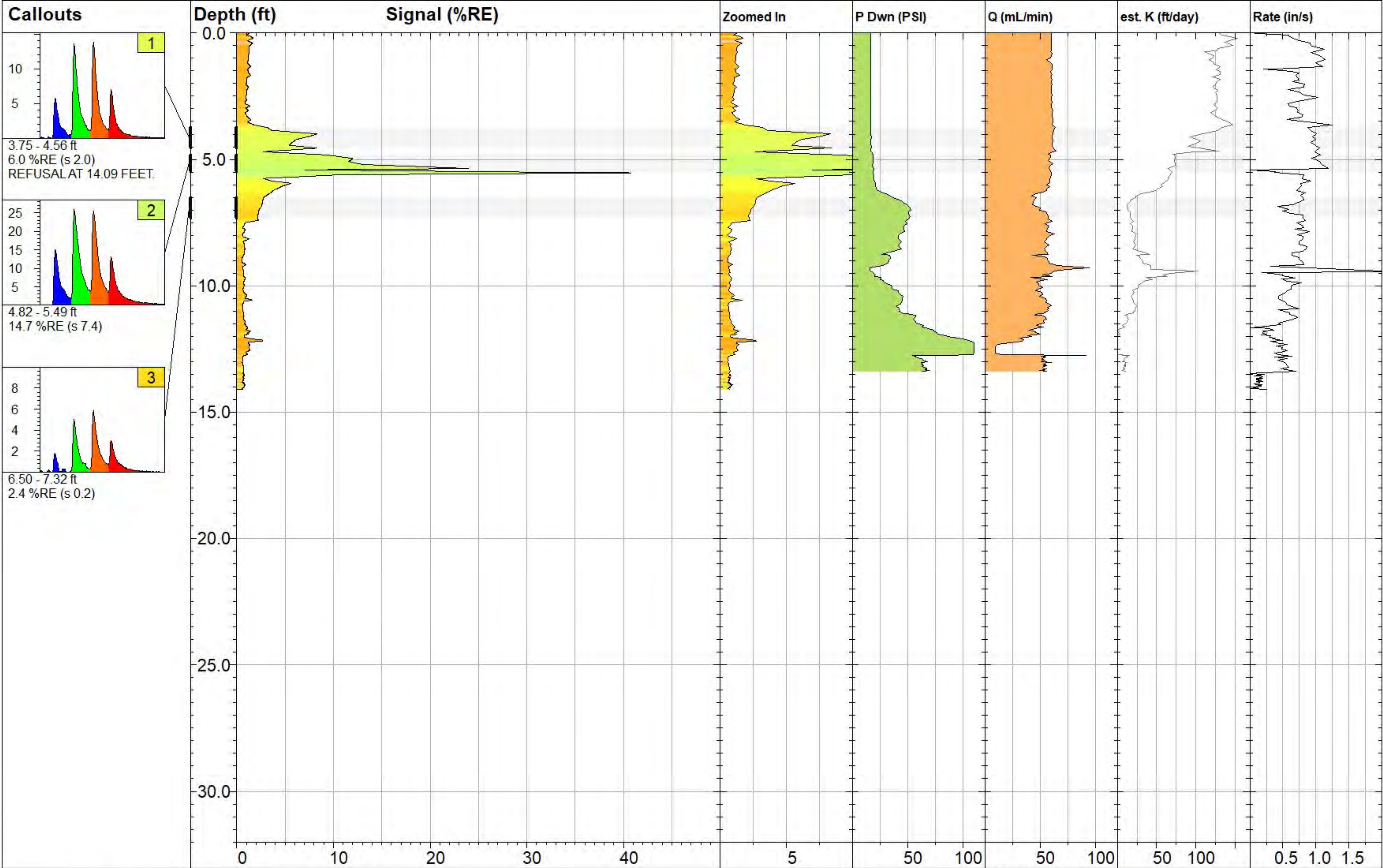
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-89			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable		Final Depth: 21.61 ft	
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable		Max Signal: 0.7 %RE @ 1.62 ft	
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable		Date & Time: 2021-02-04 10:53 MST	



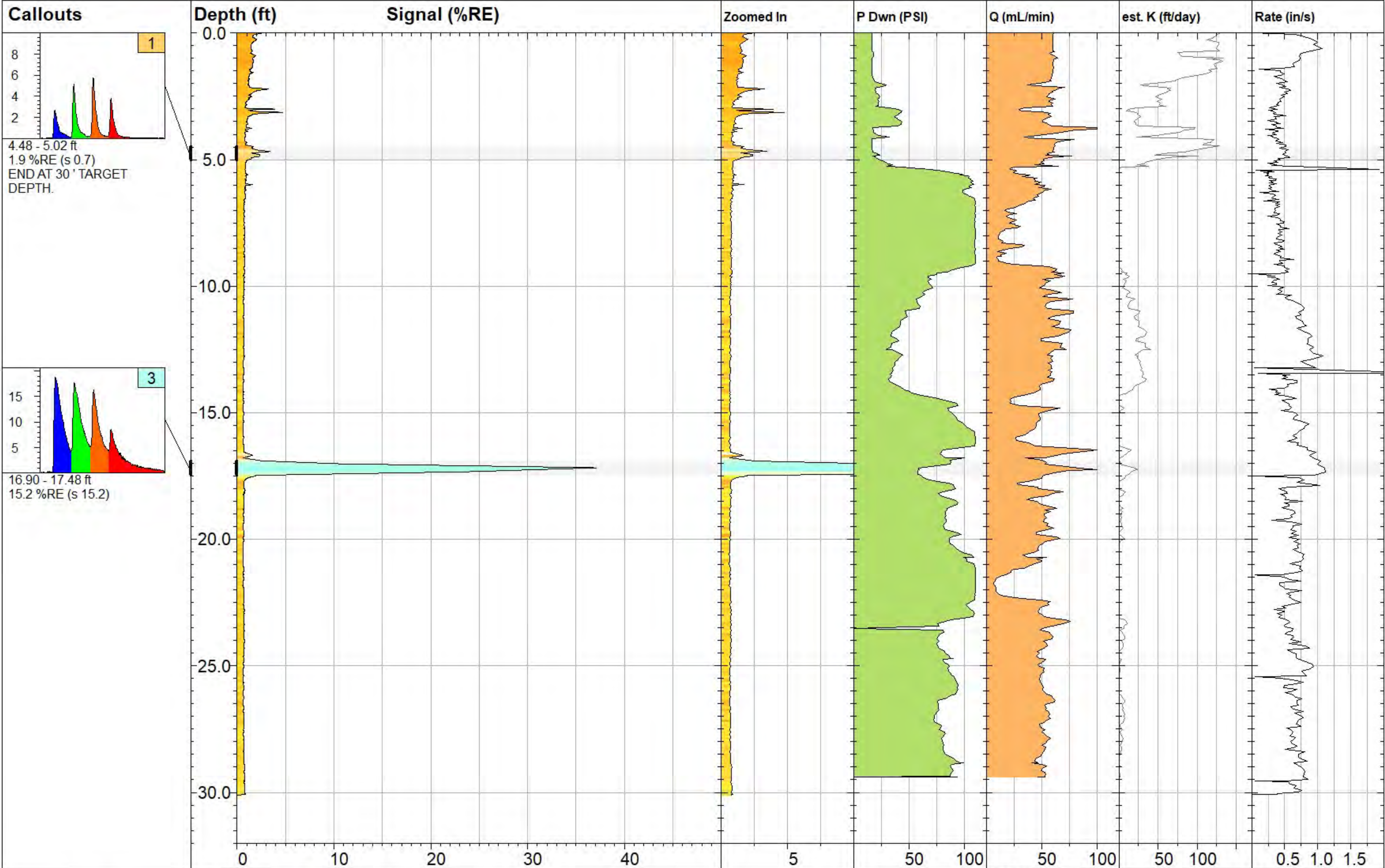
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-90		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 25.23 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 83.2 %RE @ 16.86 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-05 07:59 MST	



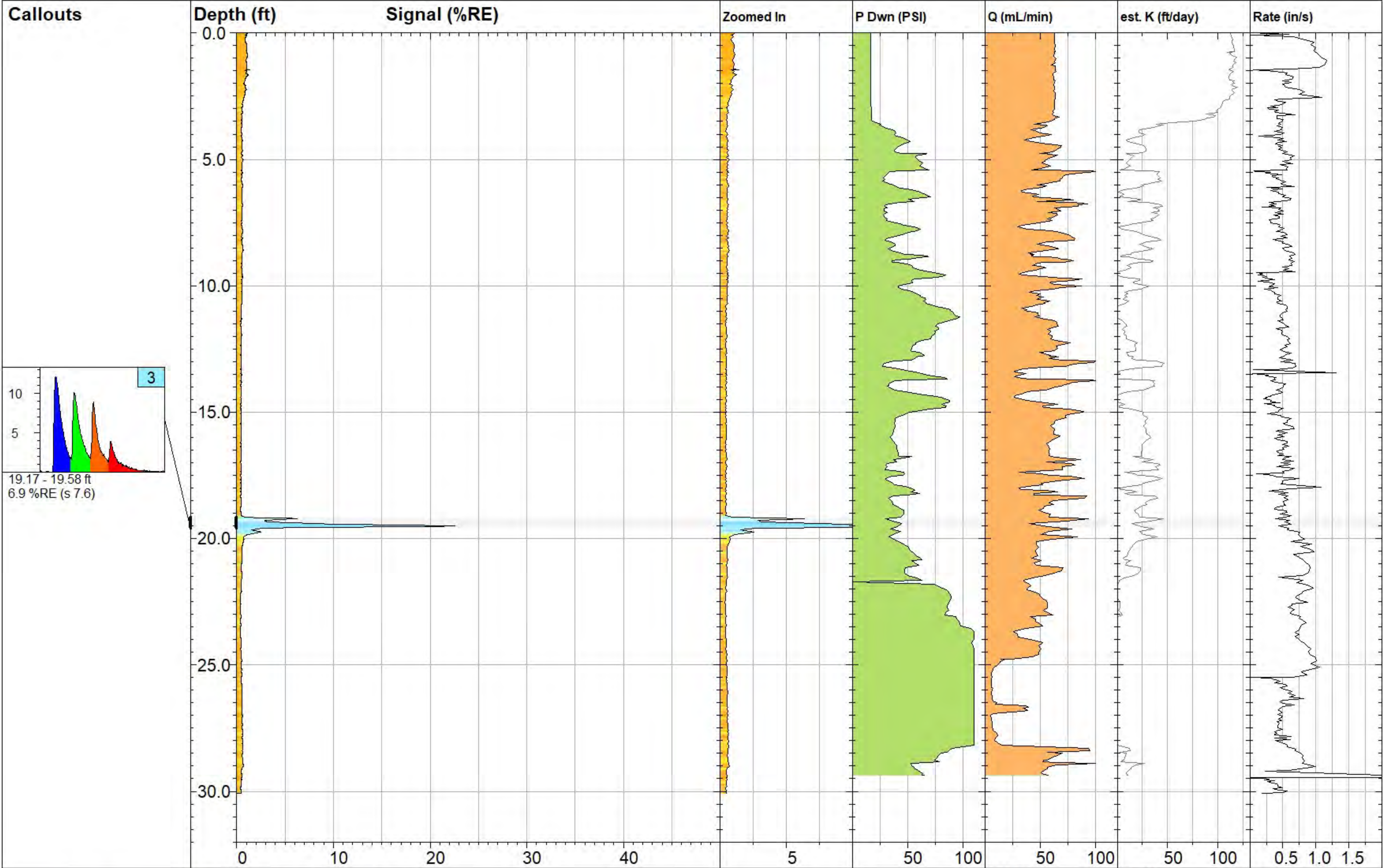
DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	MKTF-LIF-124			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 9.54 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 2.3 %RE @ 1.43 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-12 14:36 MDT	



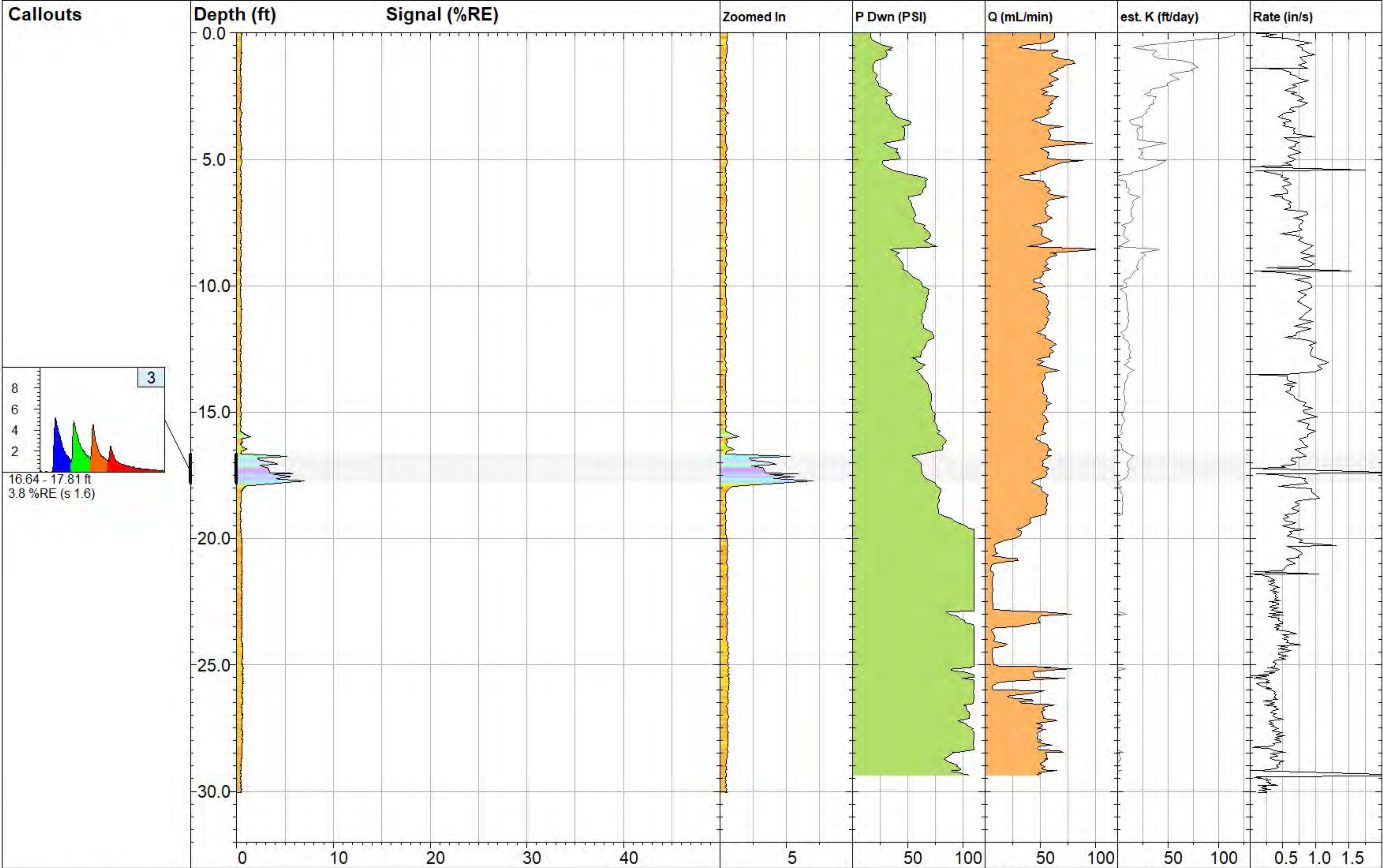
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-126			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 14.09 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 41.6 %RE @ 5.53 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-12 14:04 MDT	



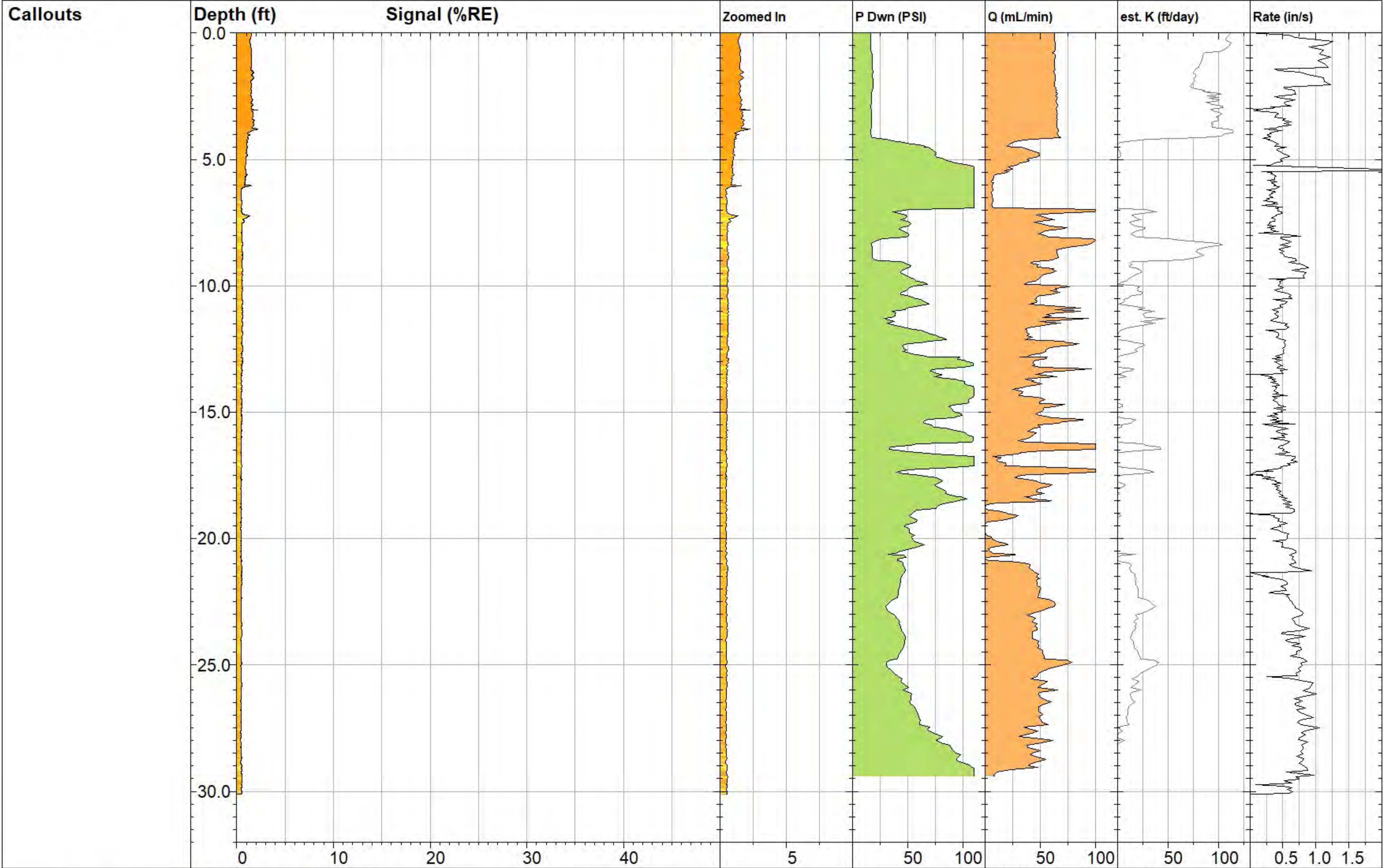
 www.DAKOTATECHNOLOGIES.COM		MKTF-LIF-131		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 30.10 ft	
		Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 37.2 %RE @ 17.18 ft	
		Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-13 12:54 MDT	



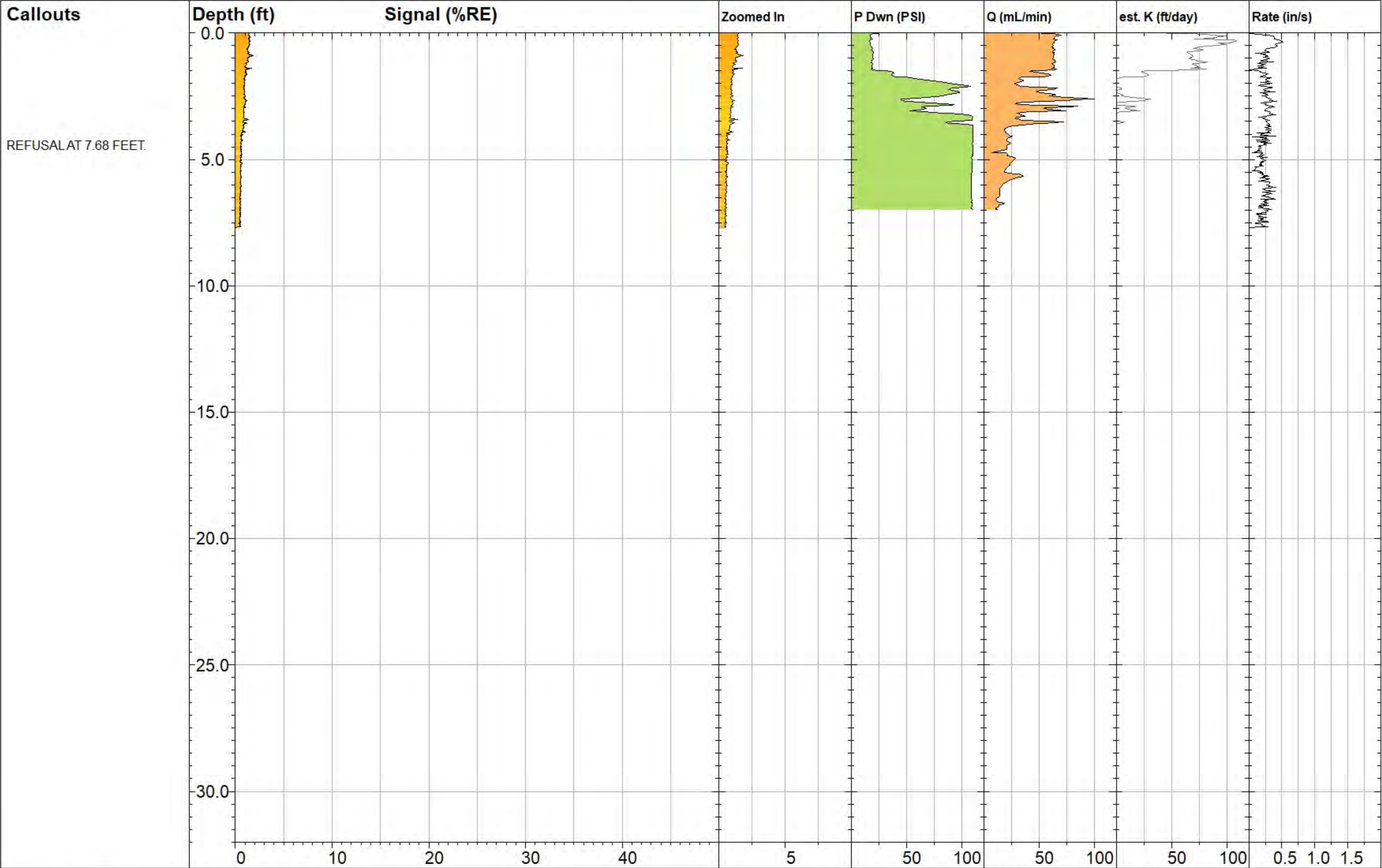
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-132			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 30.07 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 23.0 %RE @ 19.50 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-13 15:06 MDT	



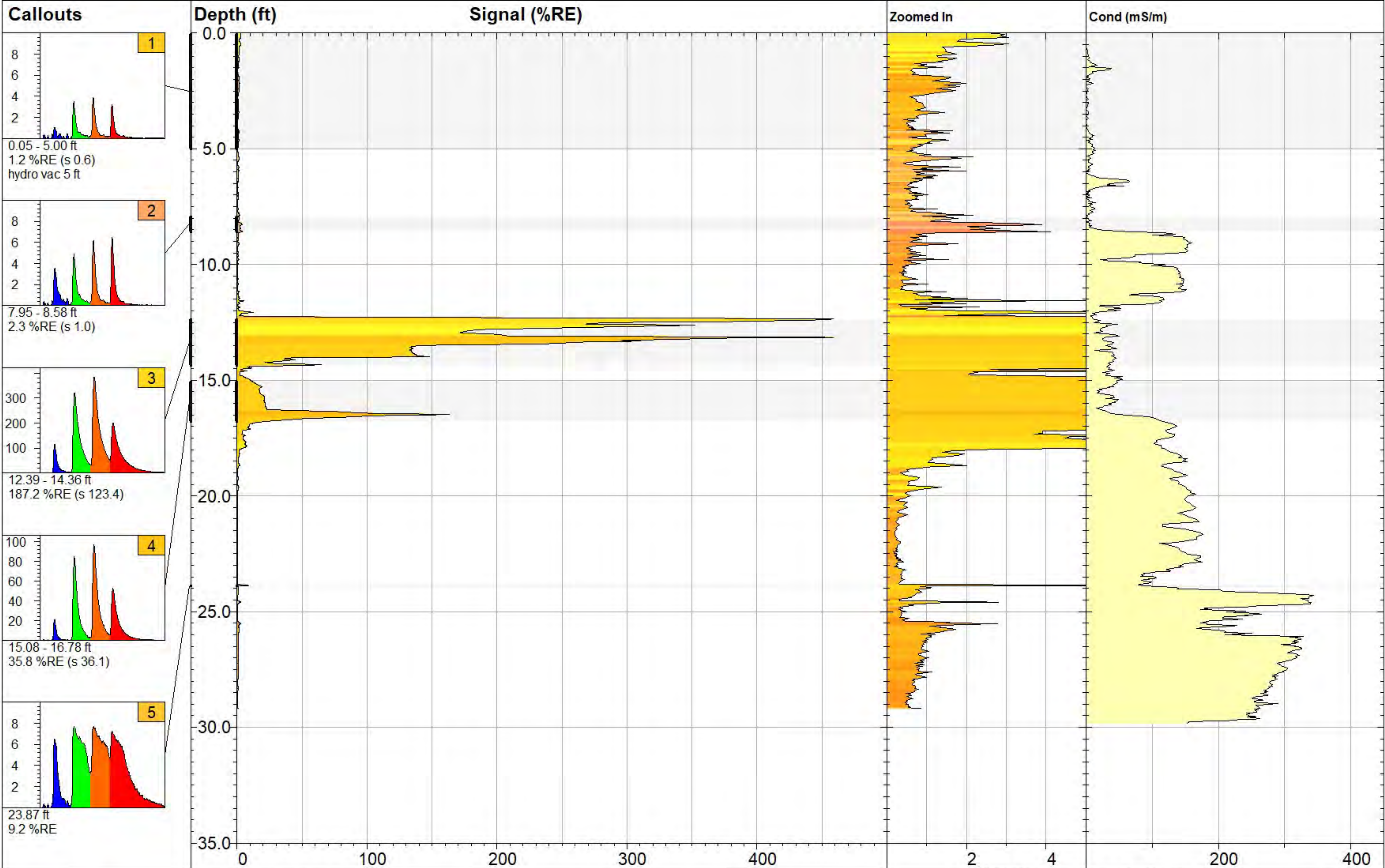
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-133			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 30.05 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 7.0 %RE @ 17.72 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-13 15:47 MDT	



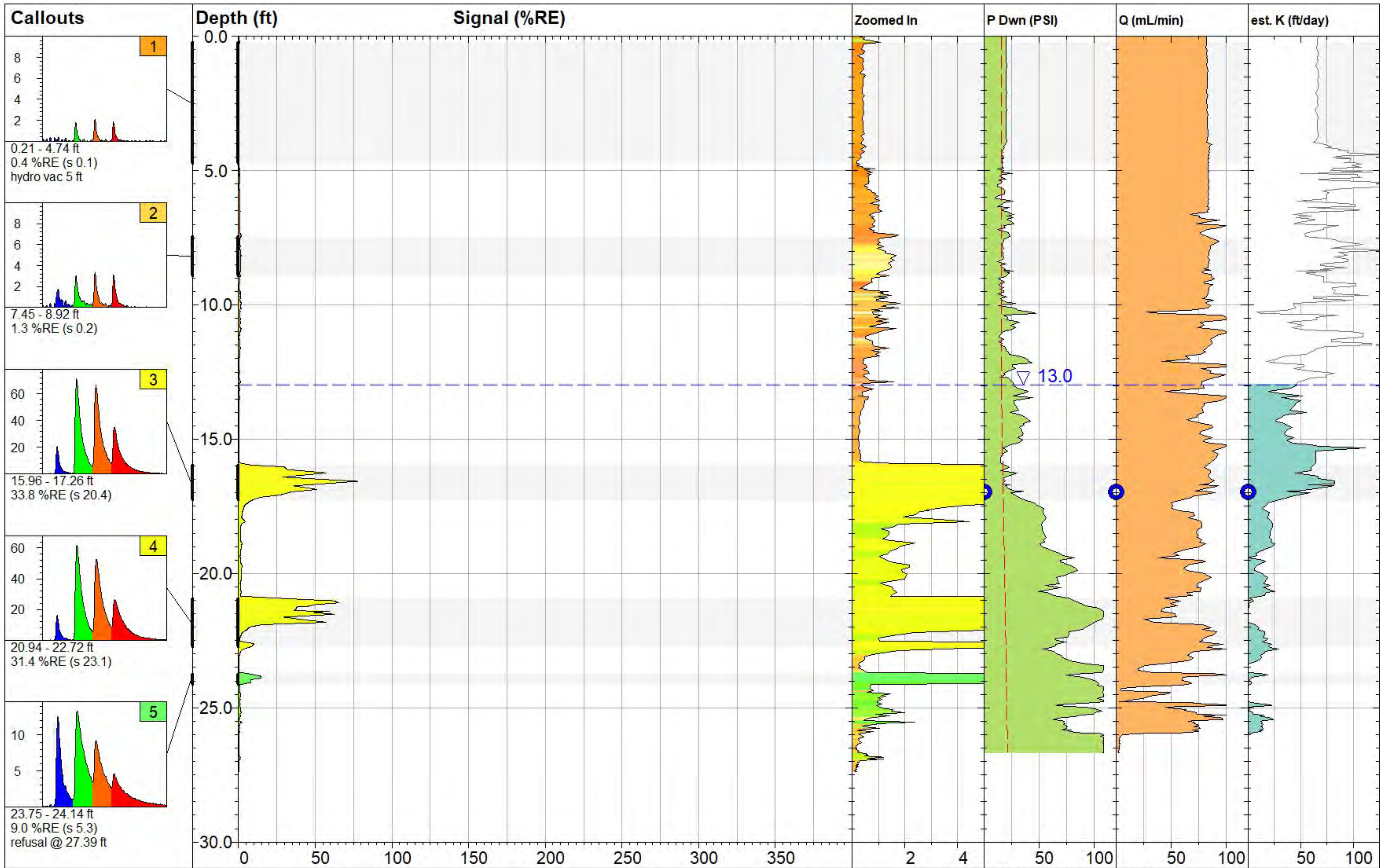
 www.DAKOTATECHNOLOGIES.COM	MKTF-LIF-134			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 30.10 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 2.2 %RE @ 3.80 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-13 14:26 MDT	



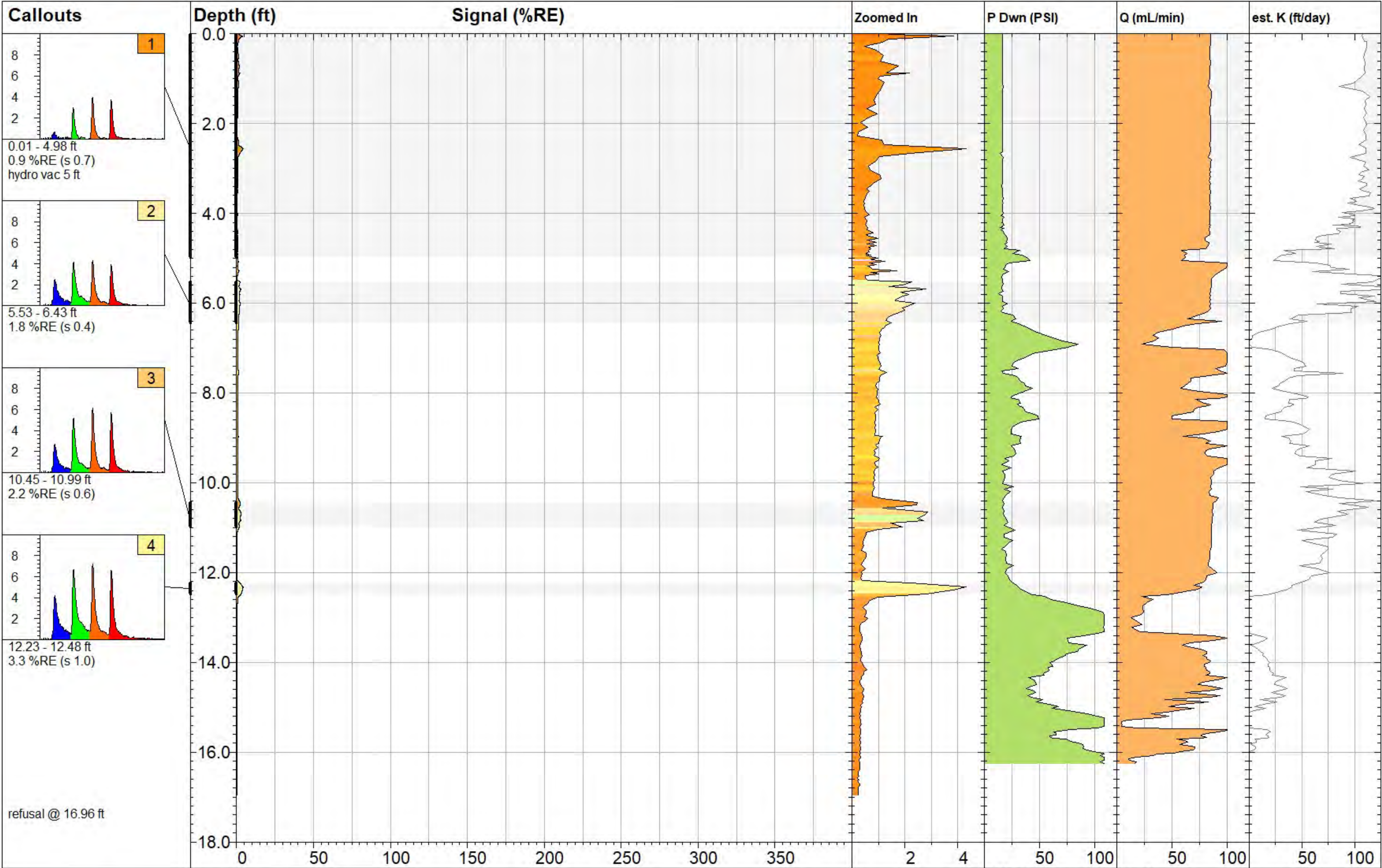
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	MKTF-LIF-135			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 7.68 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 1.9 %RE @ 0.89 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-14 07:01 MDT	



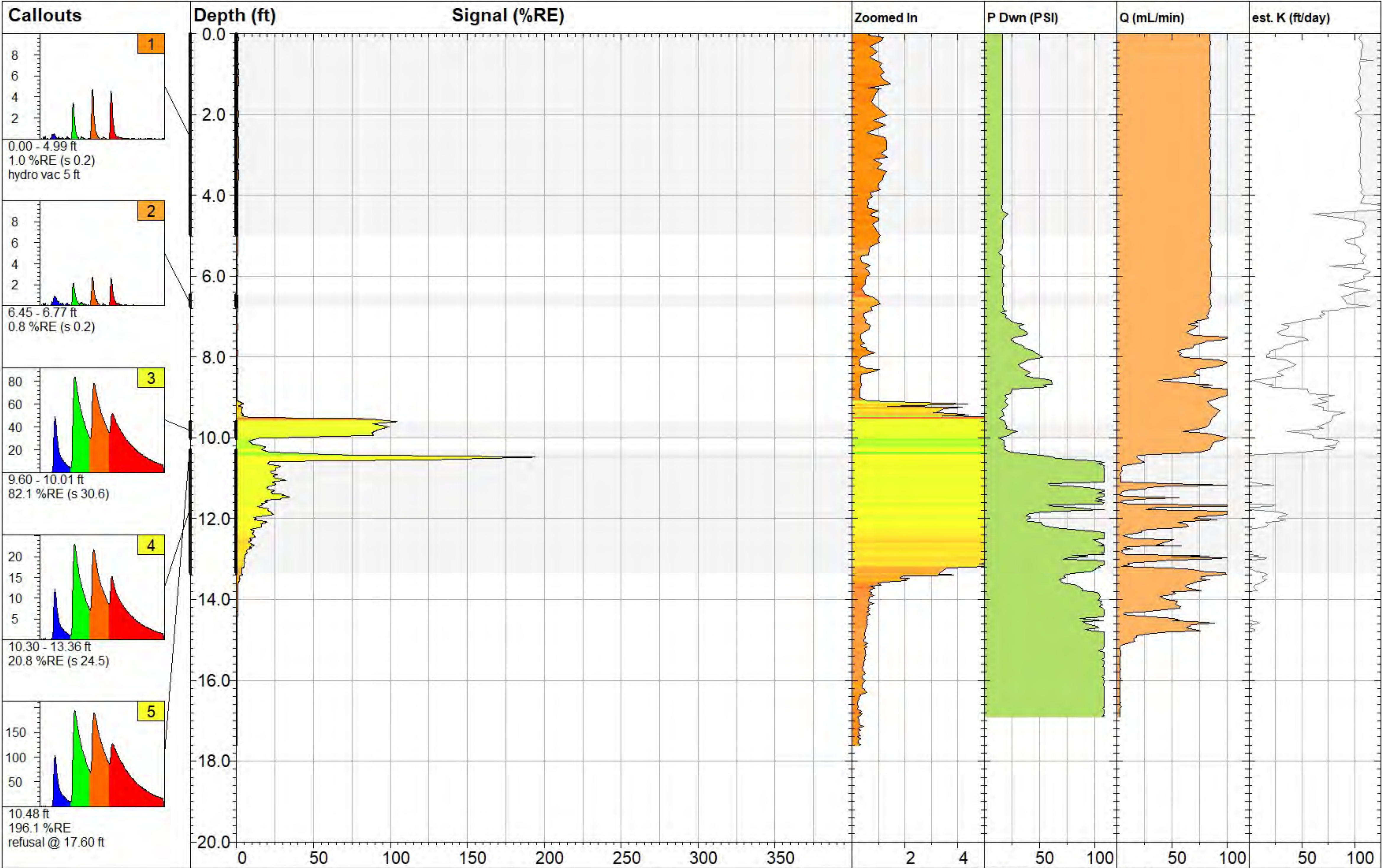
 www.DAKOTATECHNOLOGIES.COM		PA-LIF-01		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 29.19 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 464.7 %RE @ 13.15 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-05 11:56 MST	



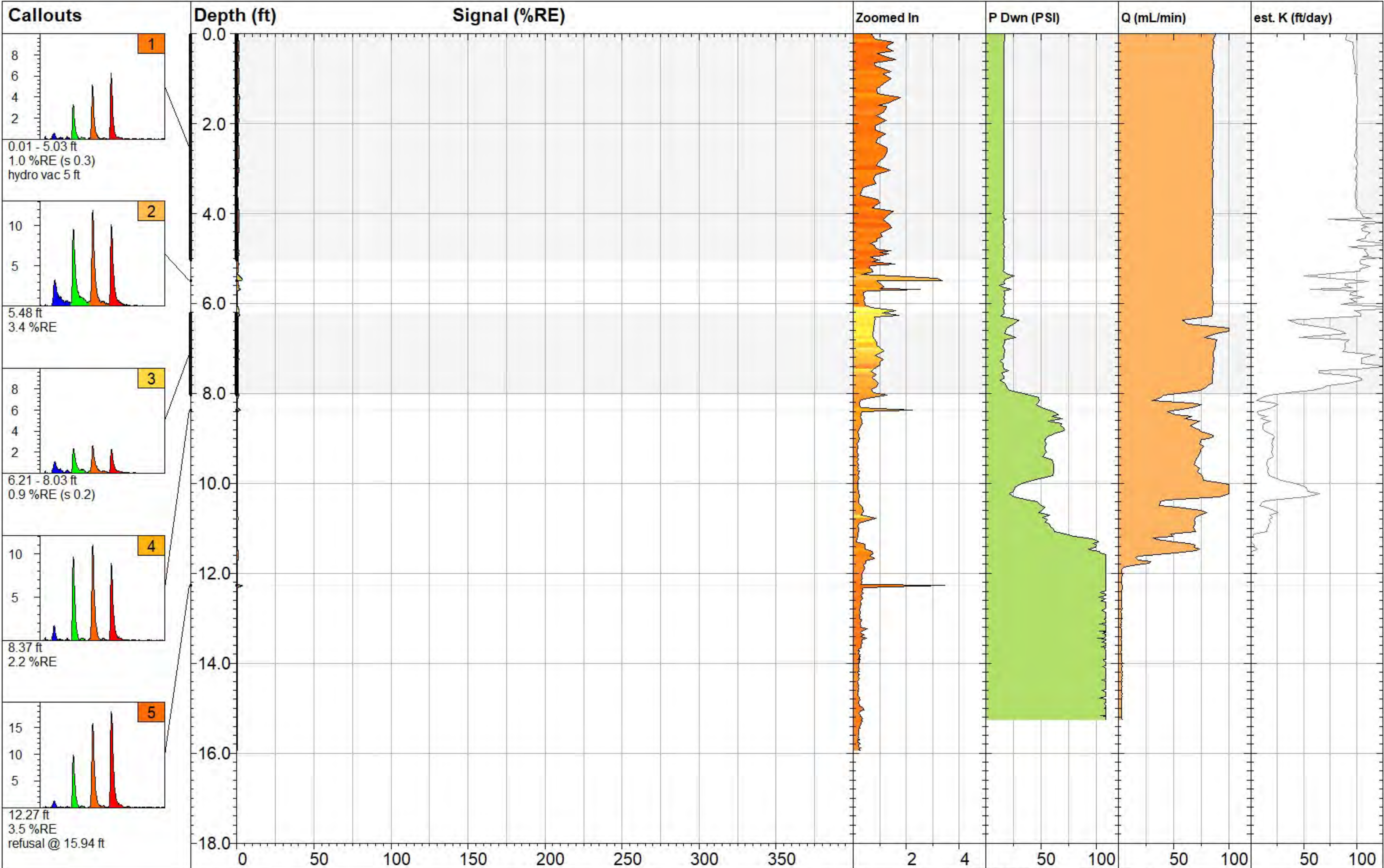
 www.DAKOTATECHNOLOGIES.COM		PA-LIF-02		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 27.39 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 77.7 %RE @ 16.57 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-01 10:05 MST	



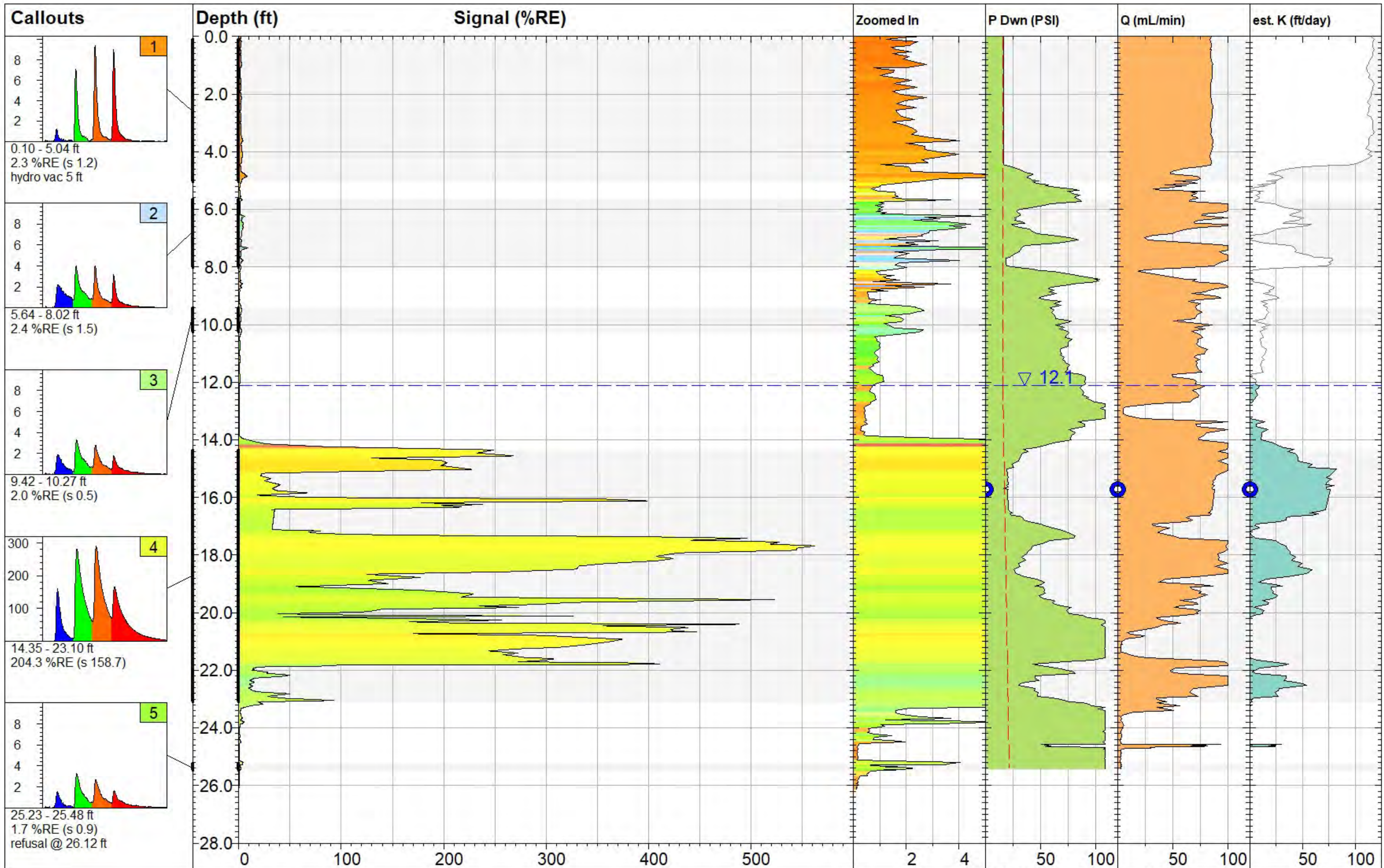
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	PA-LIF-03		UVOST® By Dakota www.DakotaTechnologies.com
	Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 16.96 ft
	Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 4.3 %RE @ 2.55 ft
	Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-01 11:12 MST



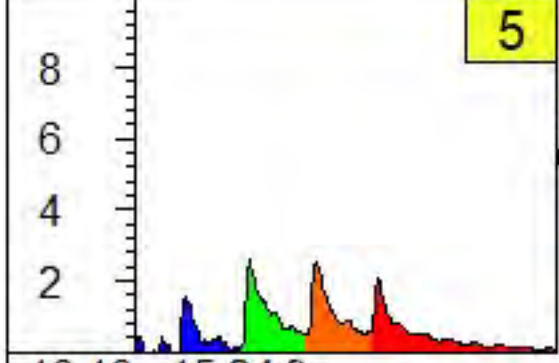
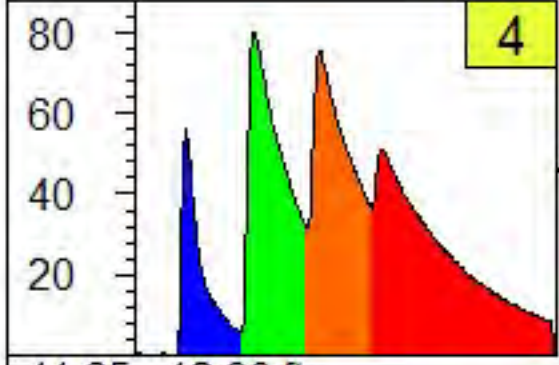
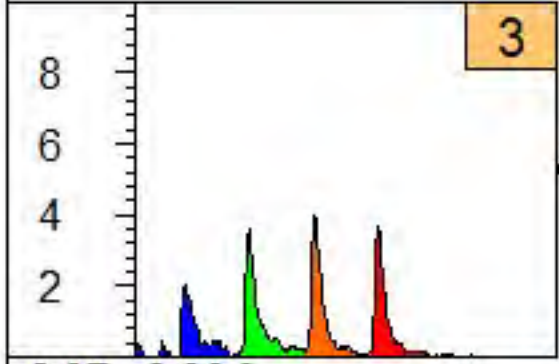
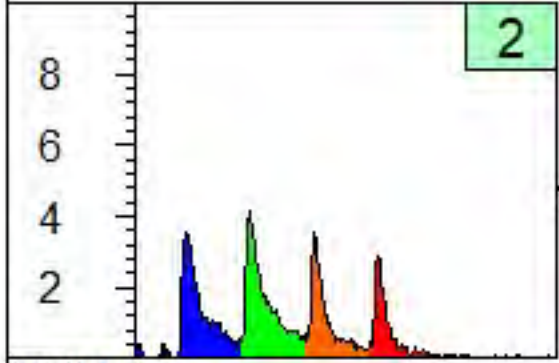
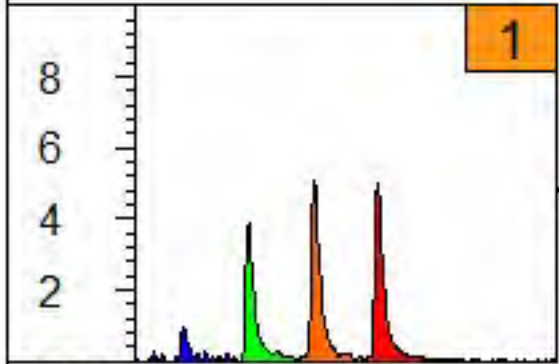
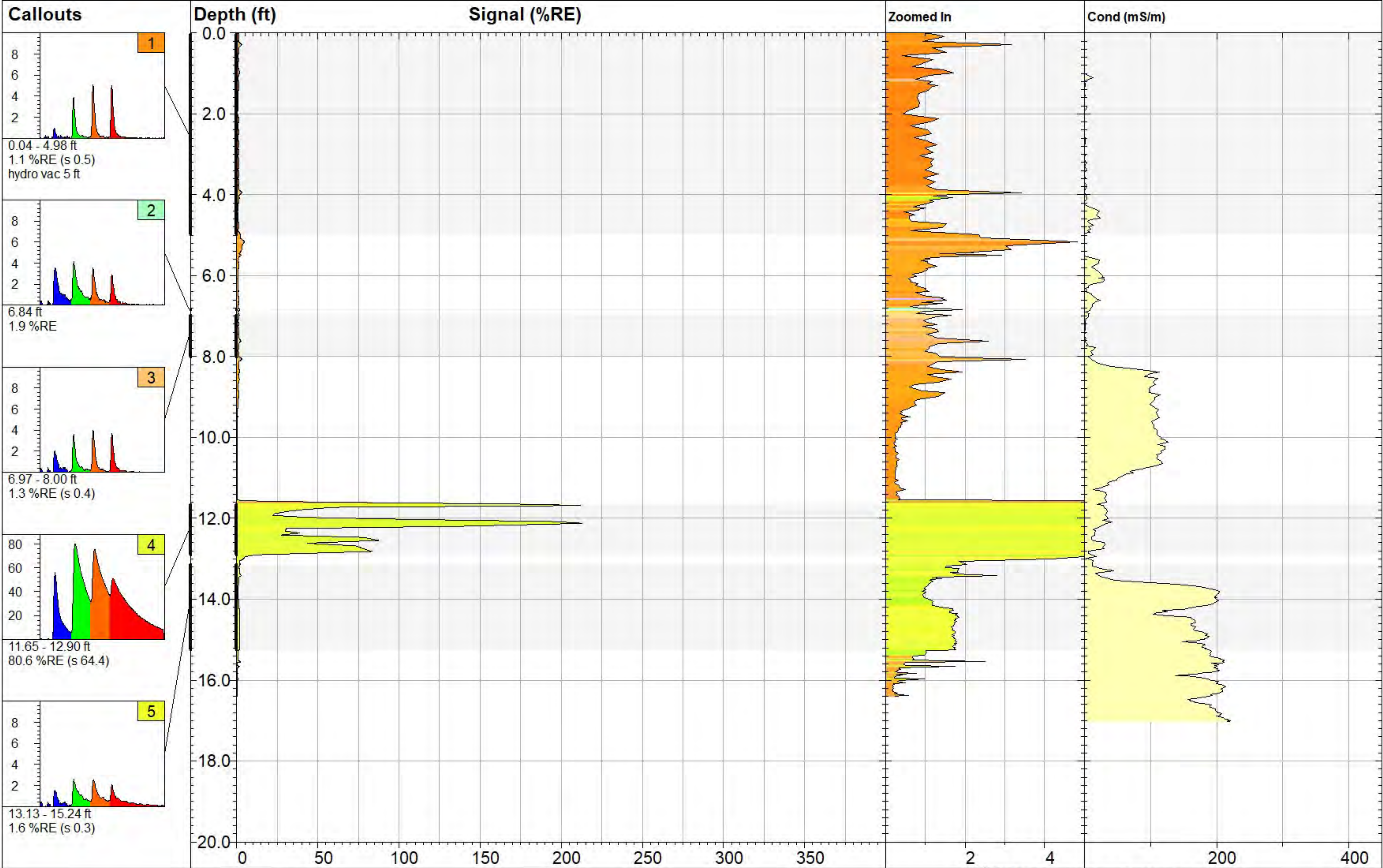
 www.DAKOTATECHNOLOGIES.COM		PA-LIF-04		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 17.60 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 196.1 %RE @ 10.48 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-01 11:46 MST	



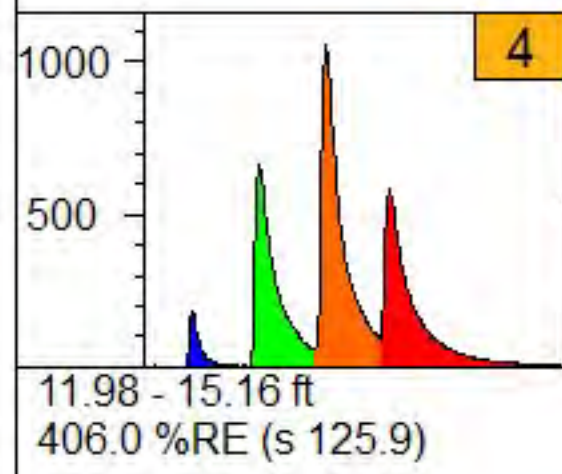
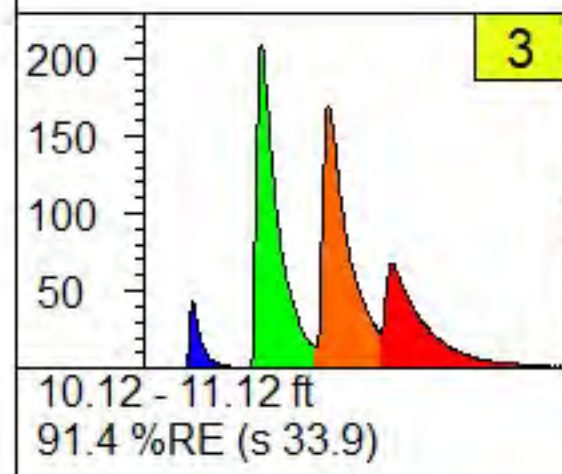
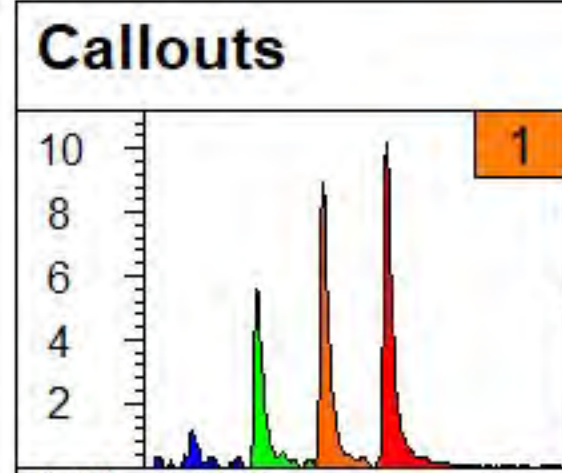
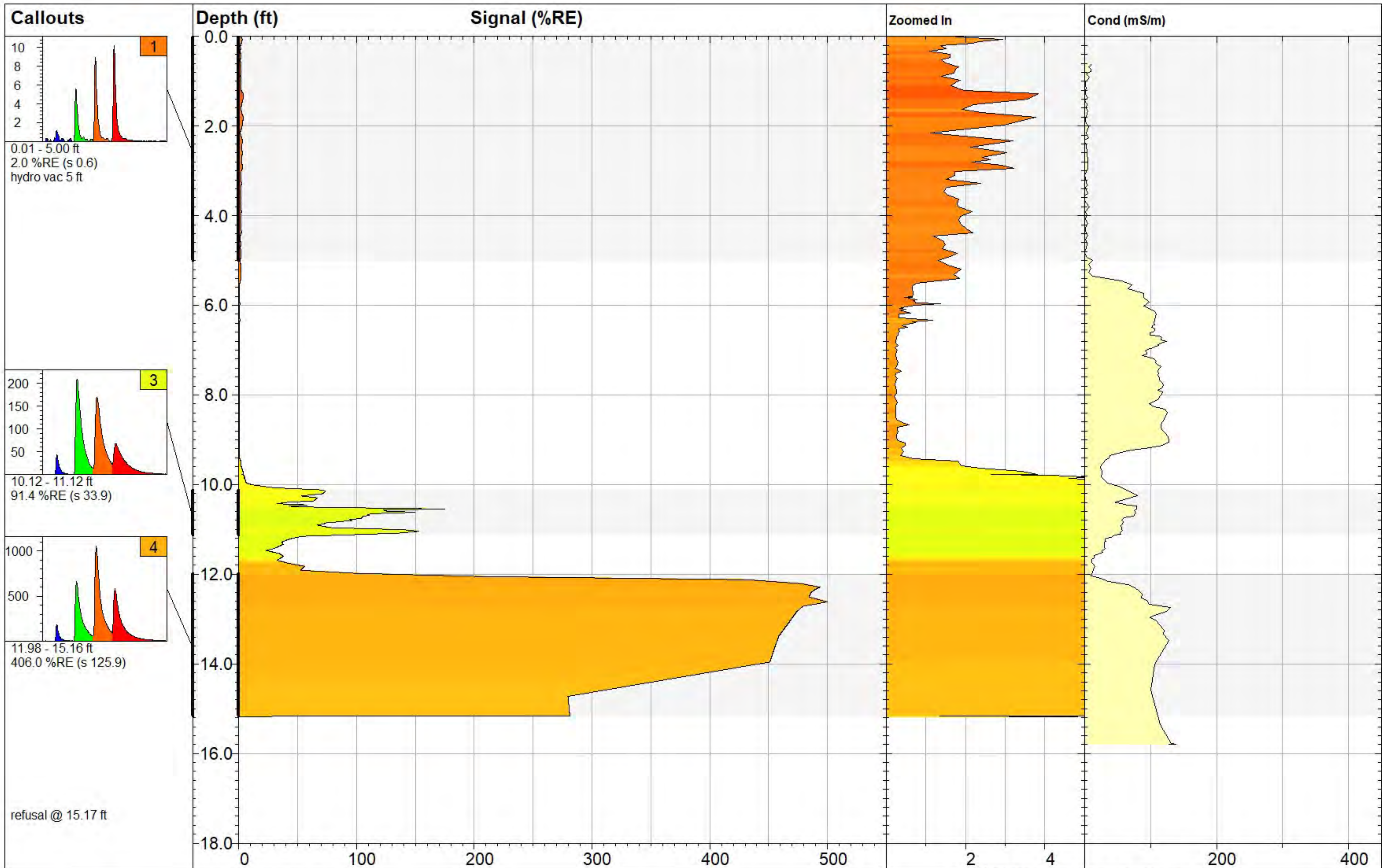
 www.DAKOTATECHNOLOGIES.COM		PA-LIF-05		UVOST® By Dakota www.DakotaTechnologies.com	
		Site: Marathon Marketing Tank Farm	Y Coord.(Lat/North): Unavailable	Final Depth: 15.94 ft	
		Client / Job: TriHydro / 0049.21	X Coord.(Long/East): Unavailable	Max Signal: 3.5 %RE @ 12.27 ft	
		Operator / Unit: A. Nagle / UVOST1613	Elevation: Unavailable	Date & Time: 2021-02-01 12:30 MST	



 www.DAKOTATECHNOLOGIES.COM		PA-LIF-06		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 26.12 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 562.8 %RE @ 17.68 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-01 13:34 MST	

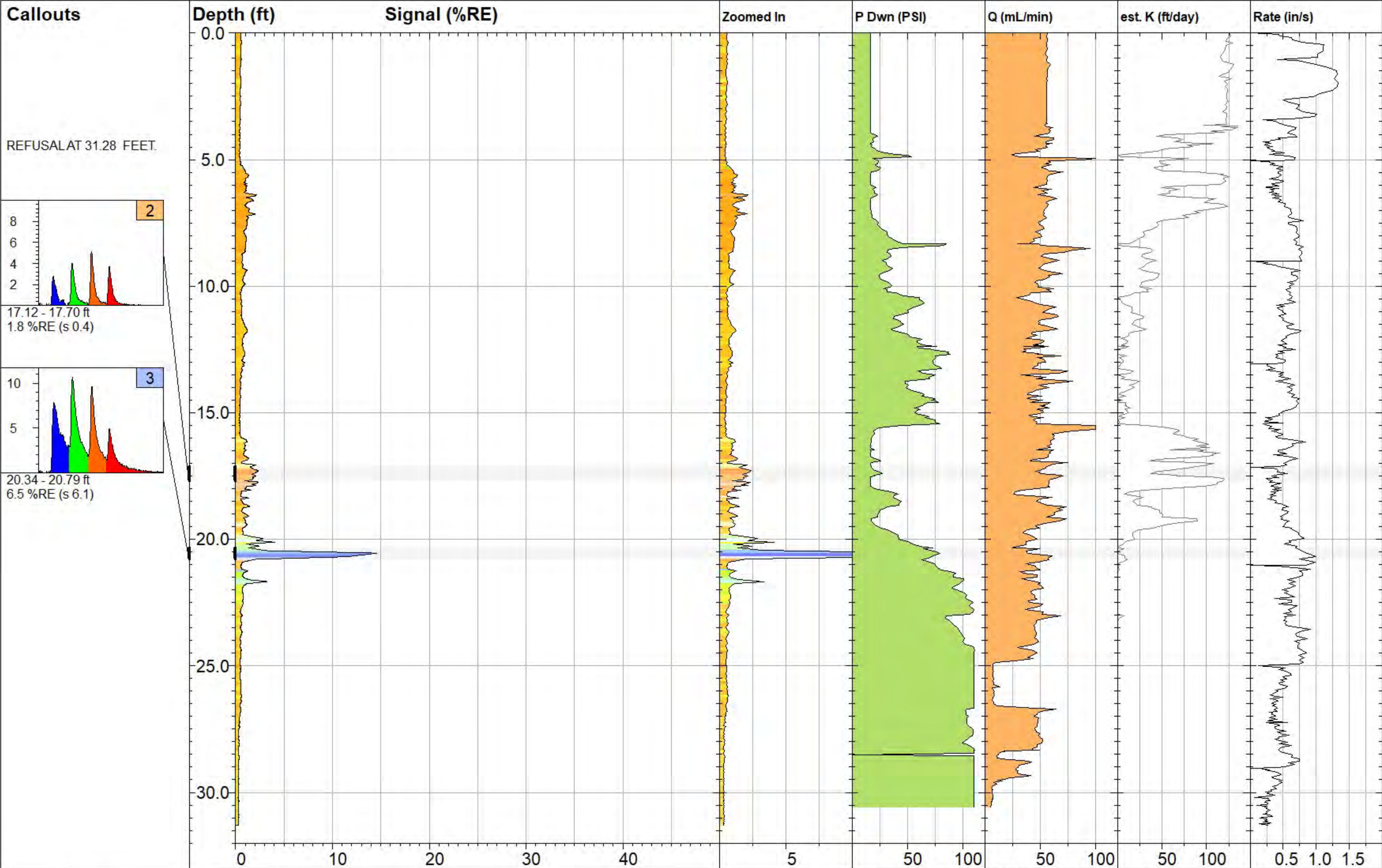


 www.DAKOTATECHNOLOGIES.COM		PA-LIF-07		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 16.40 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 213.7 %RE @ 11.68 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-05 12:41 MST	

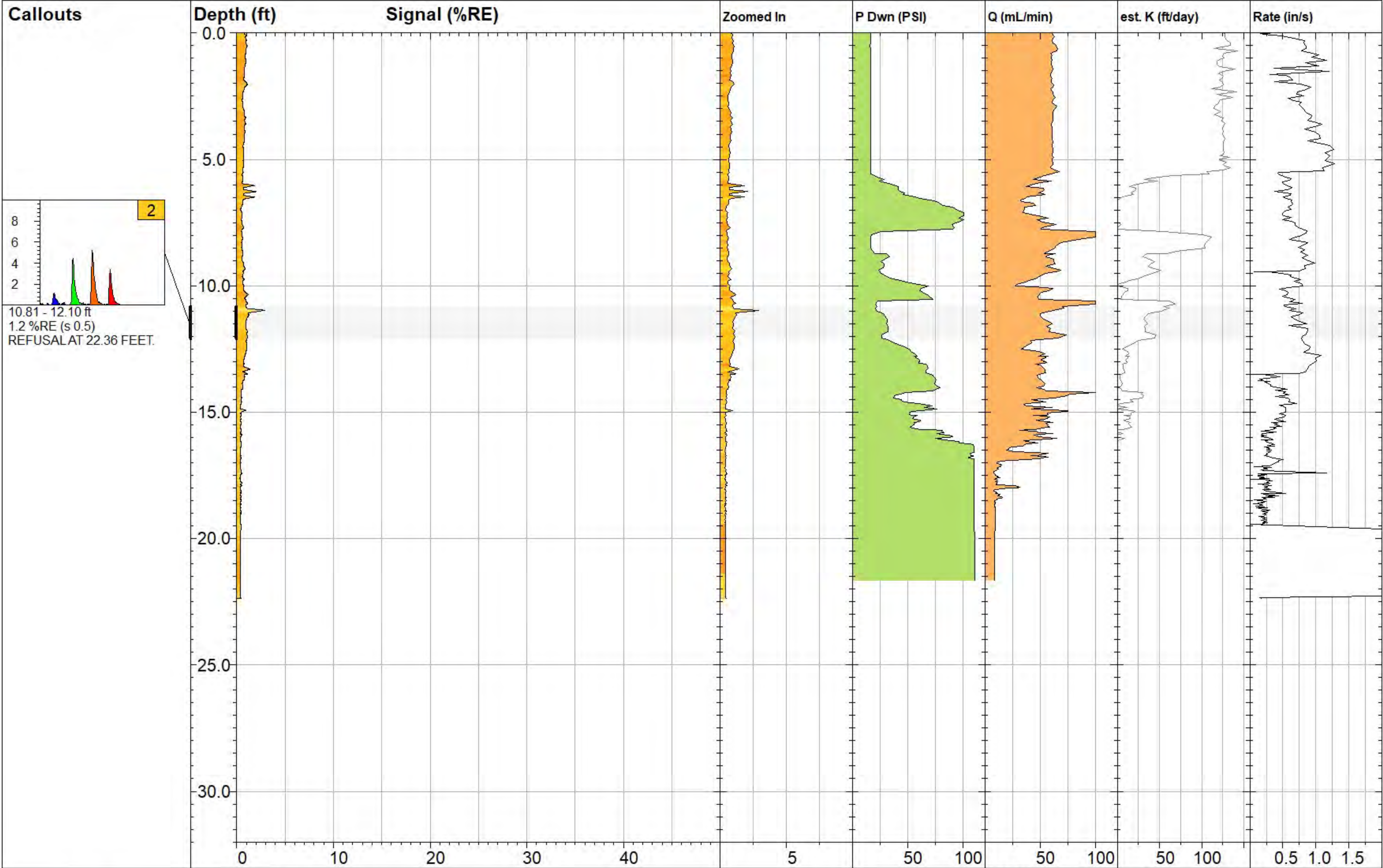


refusal @ 15.17 ft

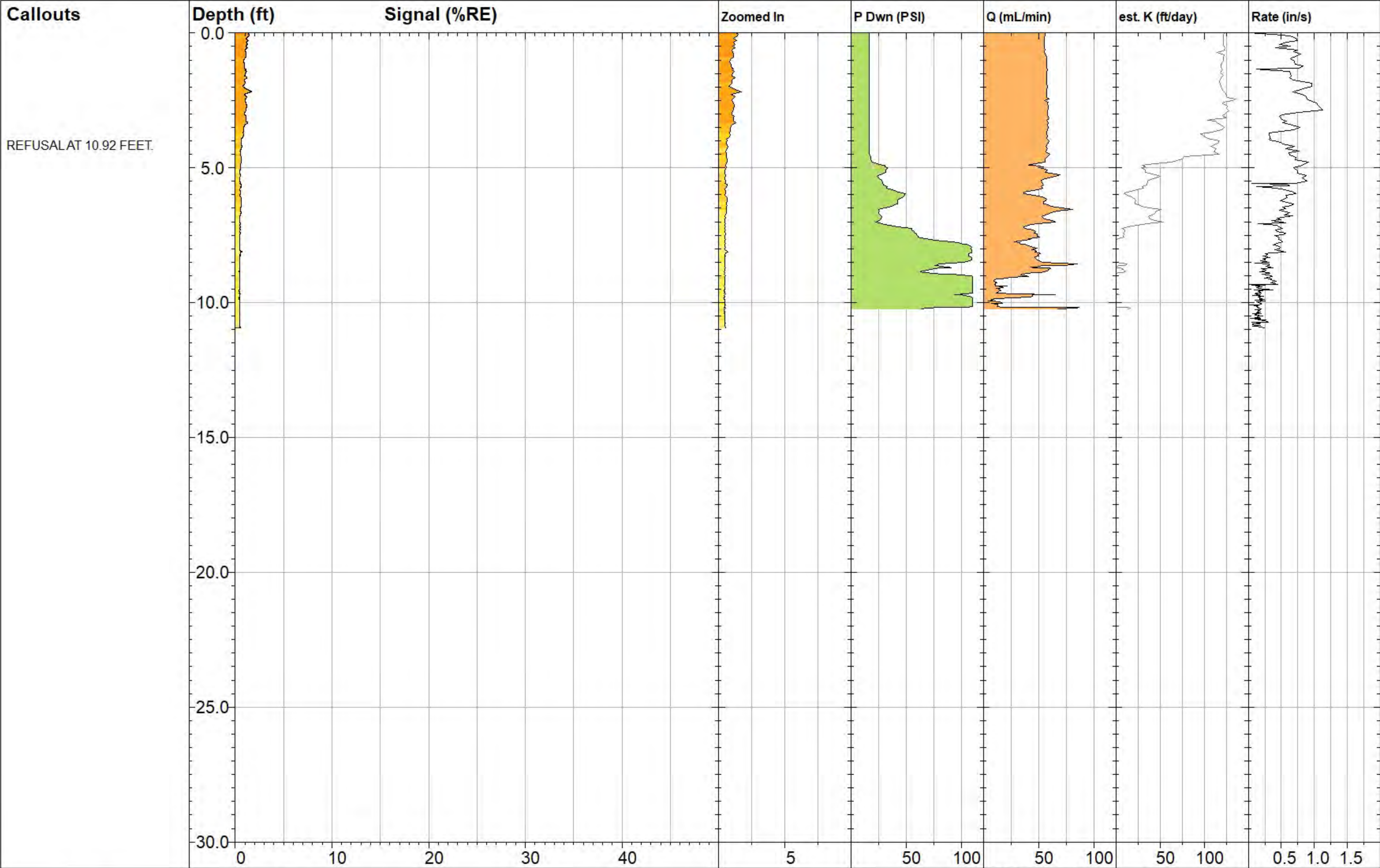
 www.DAKOTATECHNOLOGIES.COM		PA-LIF-08		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Marketing Tank Farm		Y Coord.(Lat/North): Unavailable		Final Depth: 15.17 ft	
Client / Job: TriHydro / 0049.21		X Coord.(Long/East): Unavailable		Max Signal: 500.0 %RE @ 12.62 ft	
Operator / Unit: A. Nagle / UVOST1613		Elevation: Unavailable		Date & Time: 2021-02-05 11:15 MST	



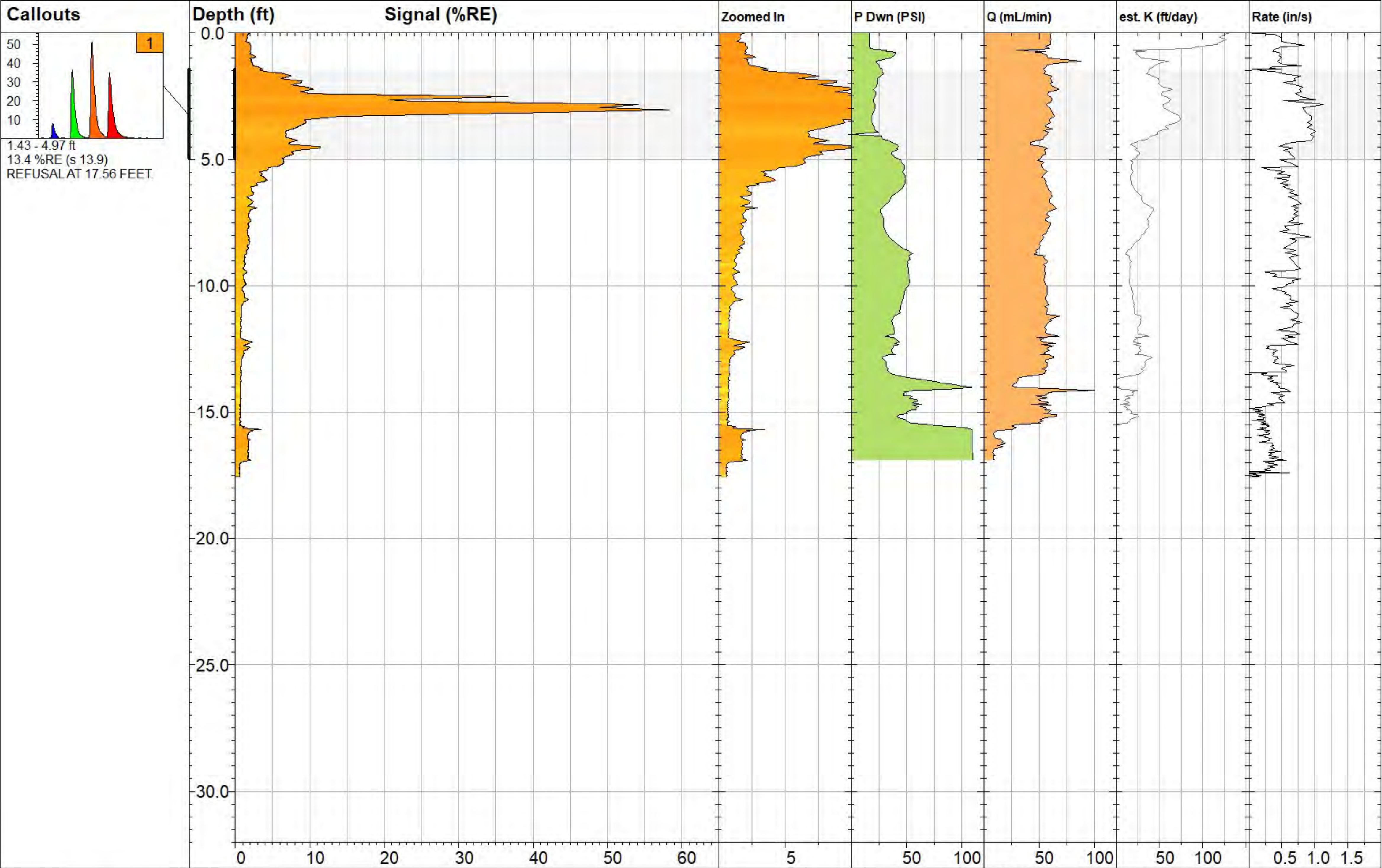
 www.DAKOTATECHNOLOGIES.COM	WB-LIF-100			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 31.28 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 14.6 %RE @ 20.55 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-11 09:41 MDT	



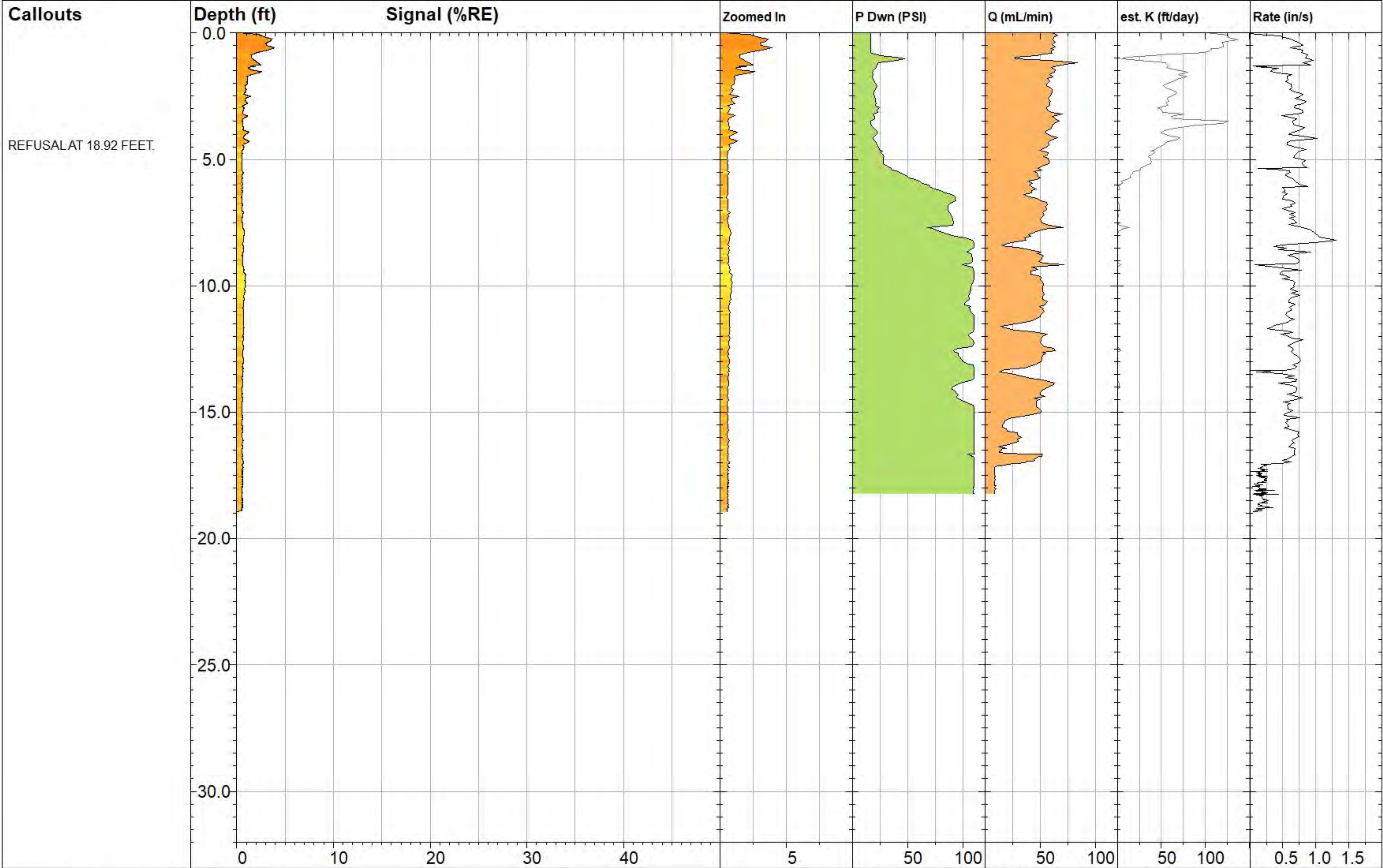
 www.DAKOTATECHNOLOGIES.COM	WB-LIF-110			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 22.36 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 2.9 %RE @ 10.97 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-11 14:57 MDT	



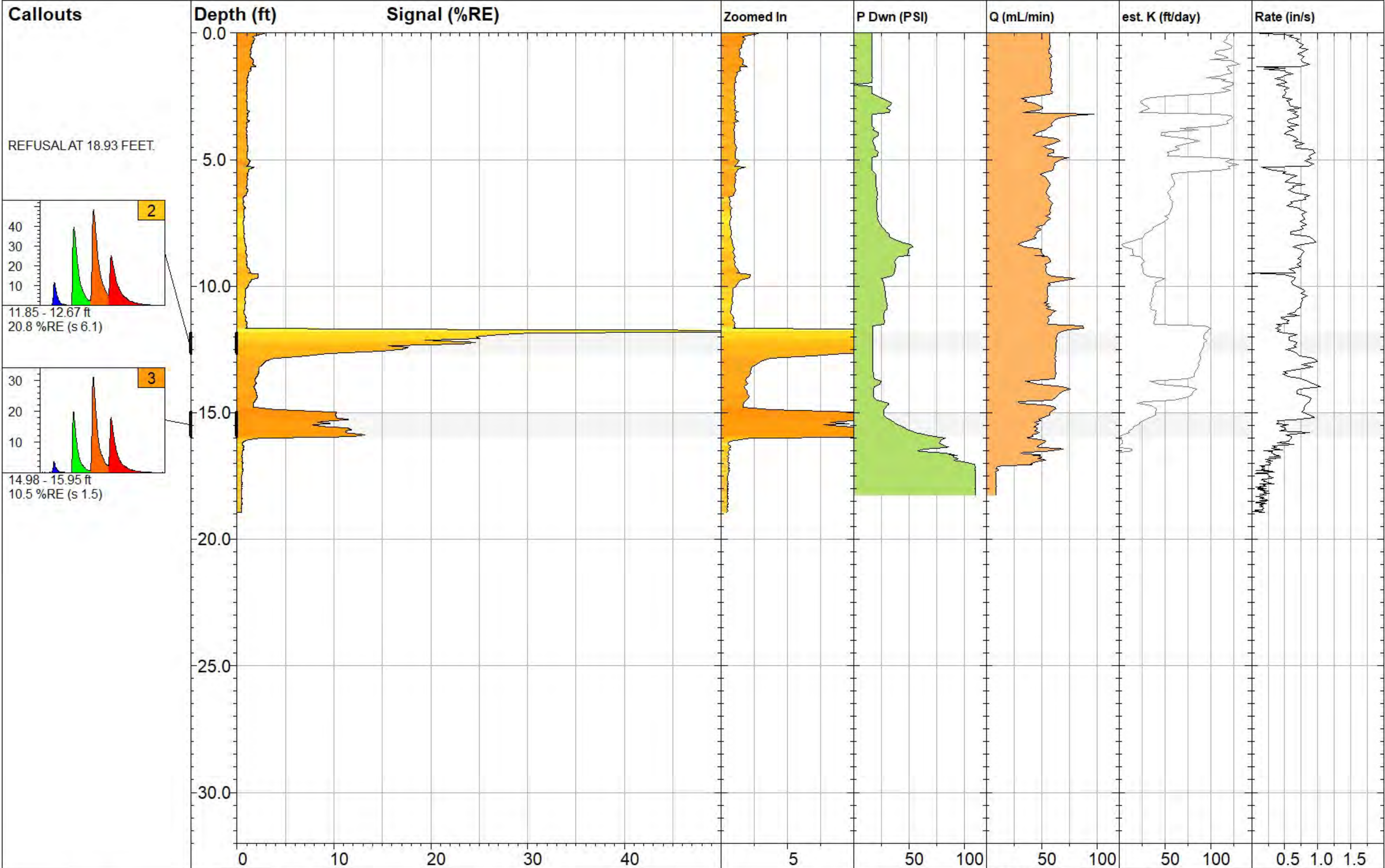
 www.dakotatechnologies.com	WB-LIF-111		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 10.92 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 1.7 %RE @ 2.18 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-10 11:40 MDT	



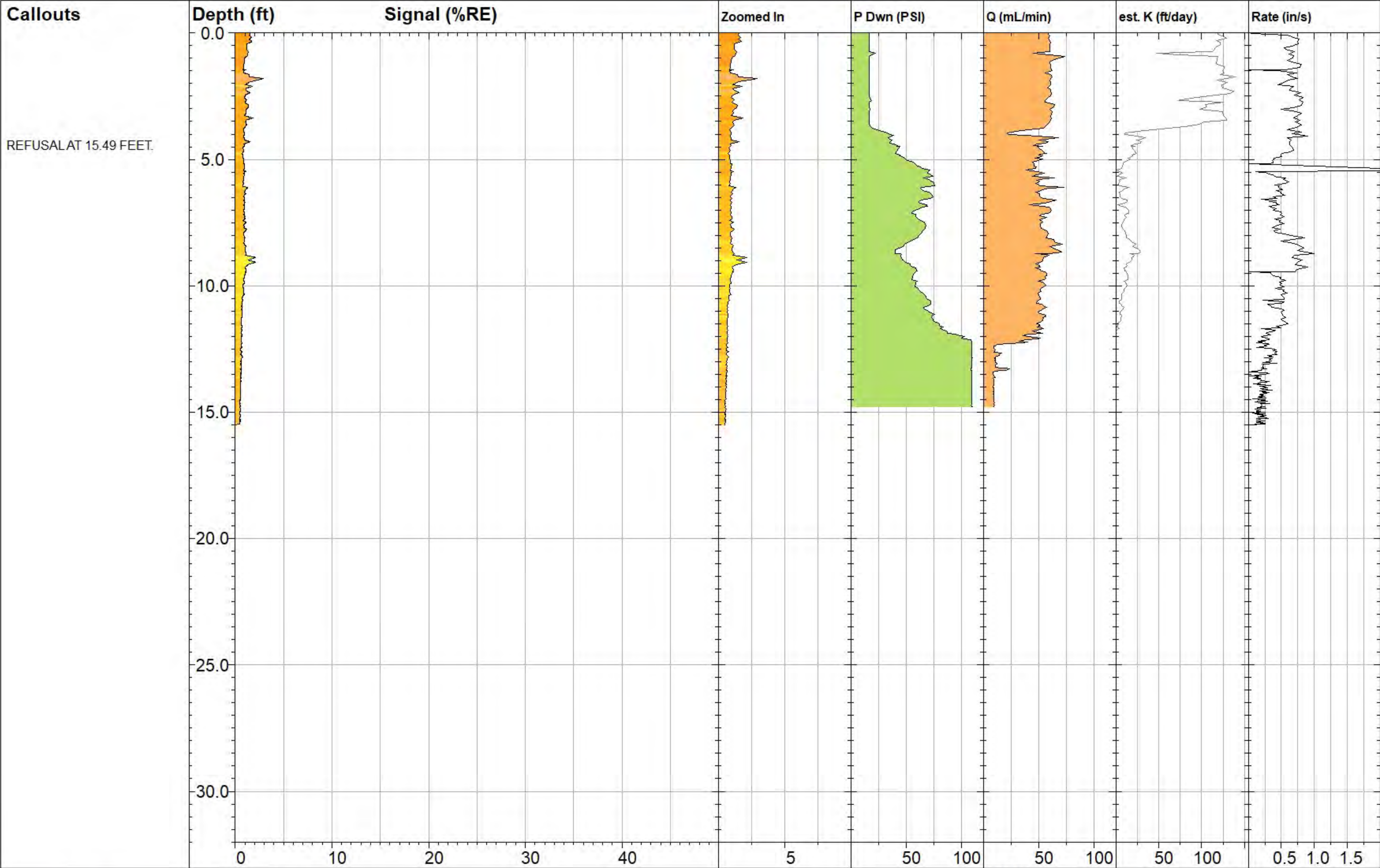
 www.DAKOTATECHNOLOGIES.COM	WB-LIF-112			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 17.56 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 58.3 %RE @ 3.04 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-12 16:20 MDT	



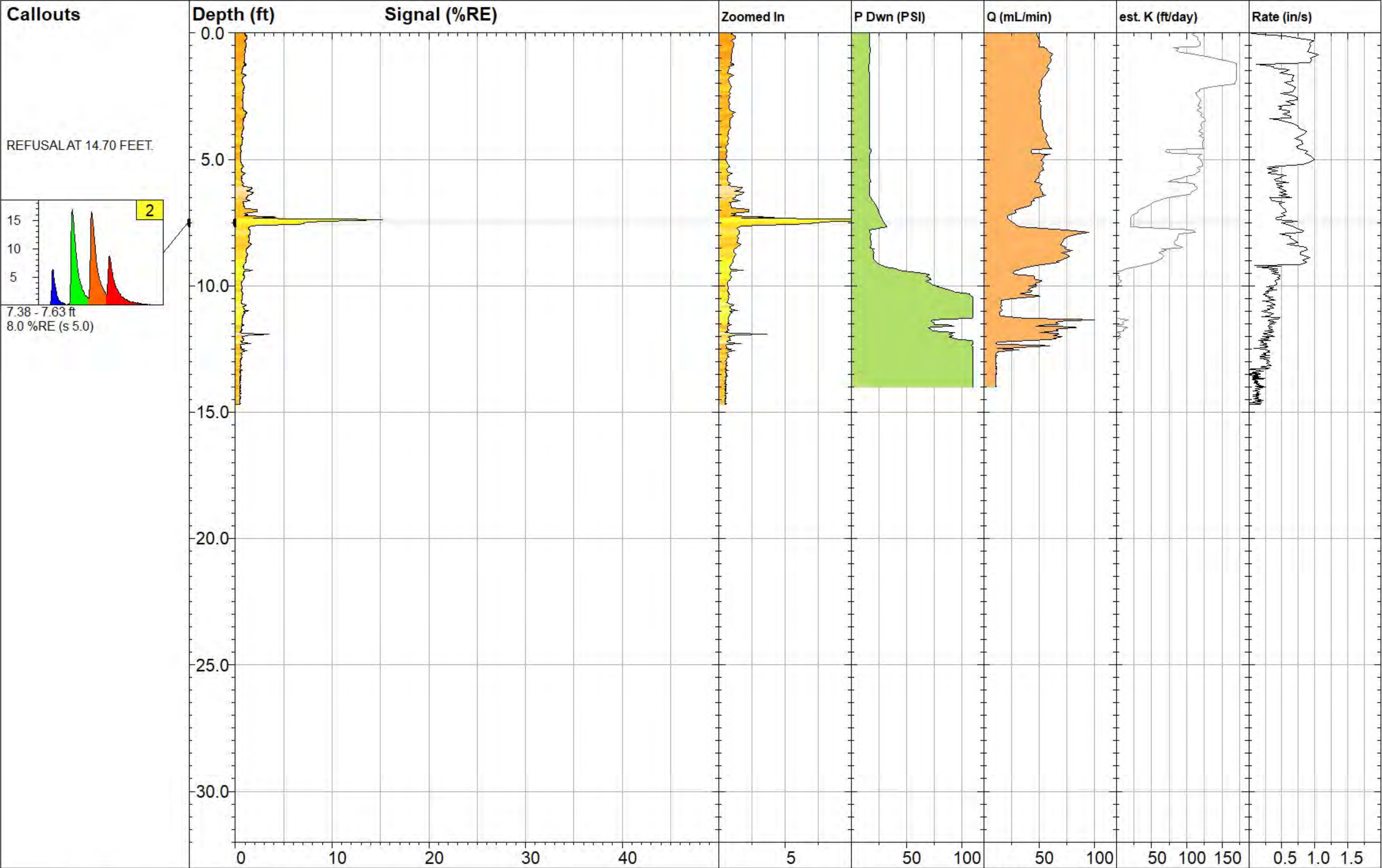
 www.DAKOTATECHNOLOGIES.COM	WB-LIF-113		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 18.92 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 3.9 %RE @ 0.59 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-12 15:10 MDT	

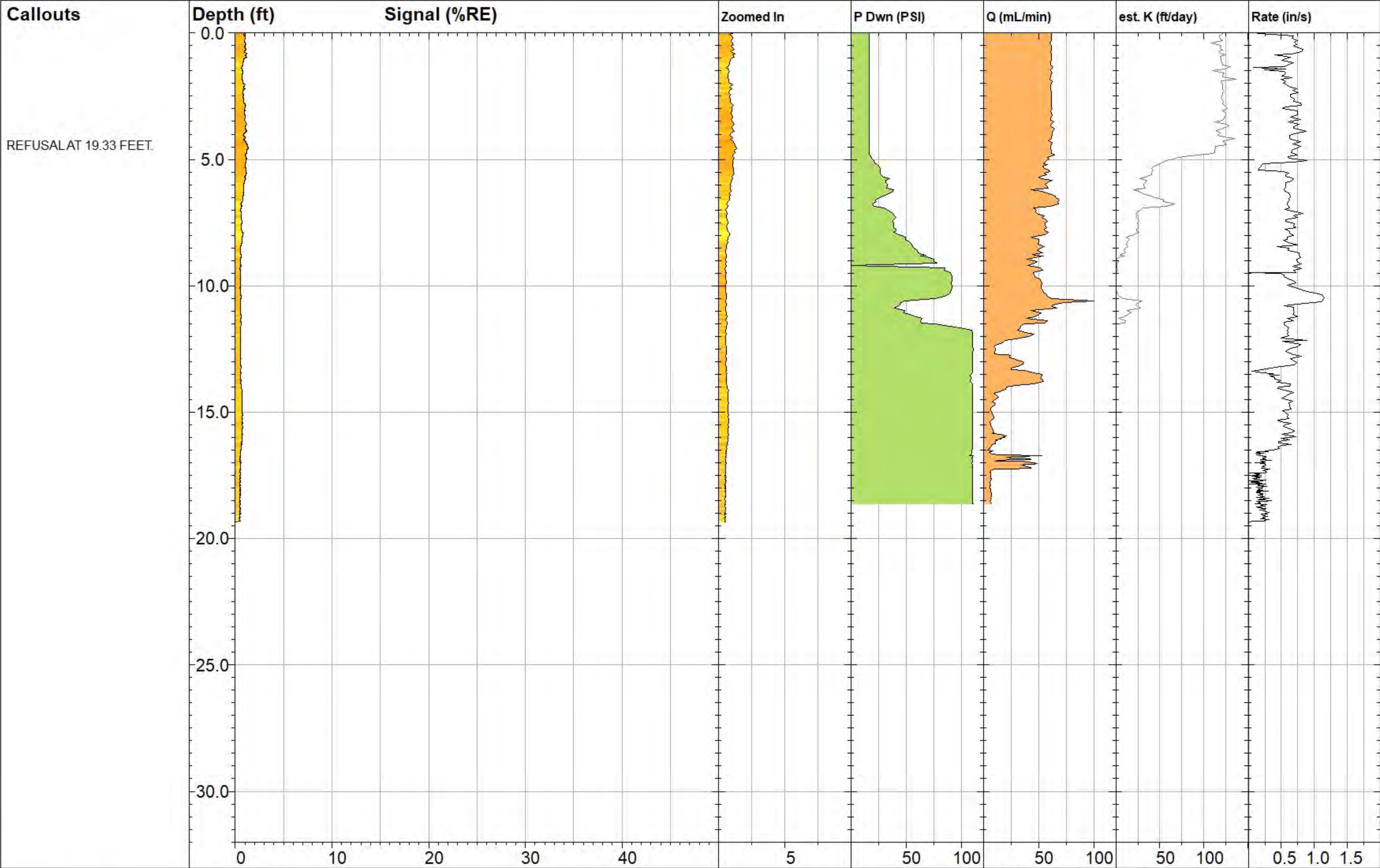


 www.DAKOTATECHNOLOGIES.COM		WB-LIF-114		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Gallup Refinery		Y Coord.(Lat/North): Unavailable		Final Depth: 18.93 ft	
Client / Job: Trihydro / 0049B.21		X Coord.(Long/East): Unavailable		Max Signal: 78.7 %RE @ 11.77 ft	
Operator / Unit: BG / UVOST1612		Elevation: Unavailable		Date & Time: 2021-05-12 08:21 MDT	

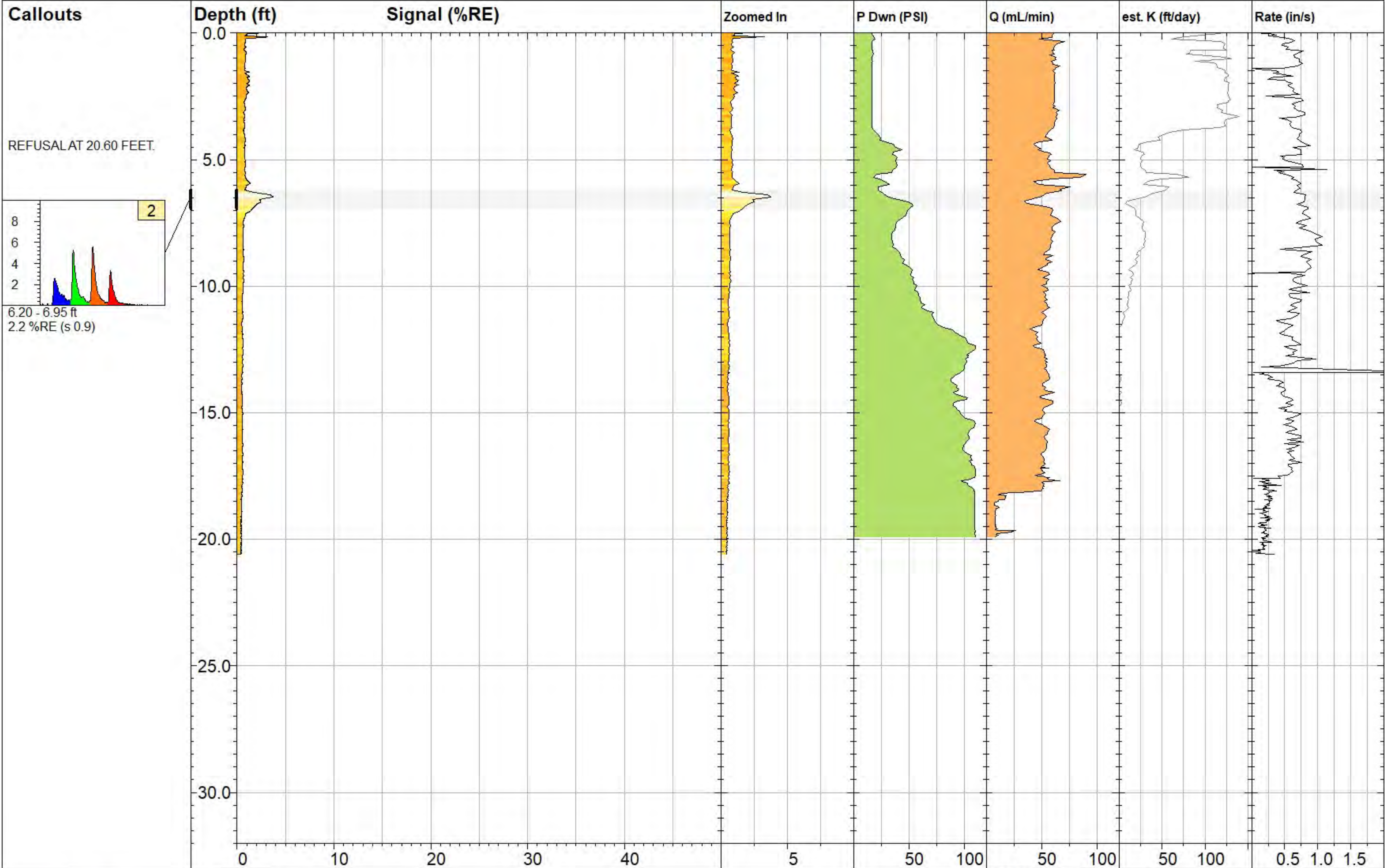


DAKOTA TECHNOLOGIES www.DAKOTATECHNOLOGIES.COM	WB-LIF-115			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 15.49 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 2.9 %RE @ 1.80 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-12 10:47 MDT	

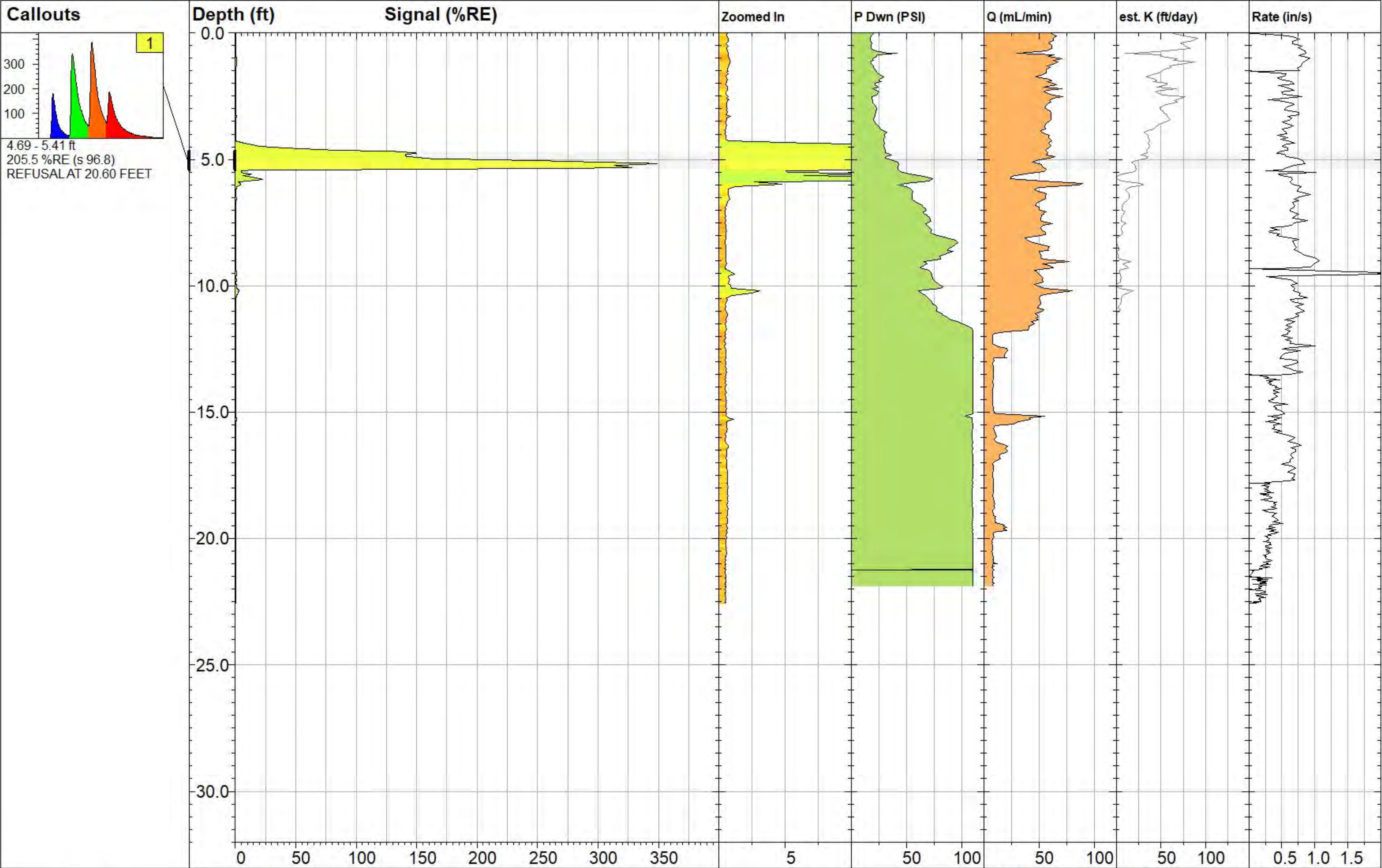


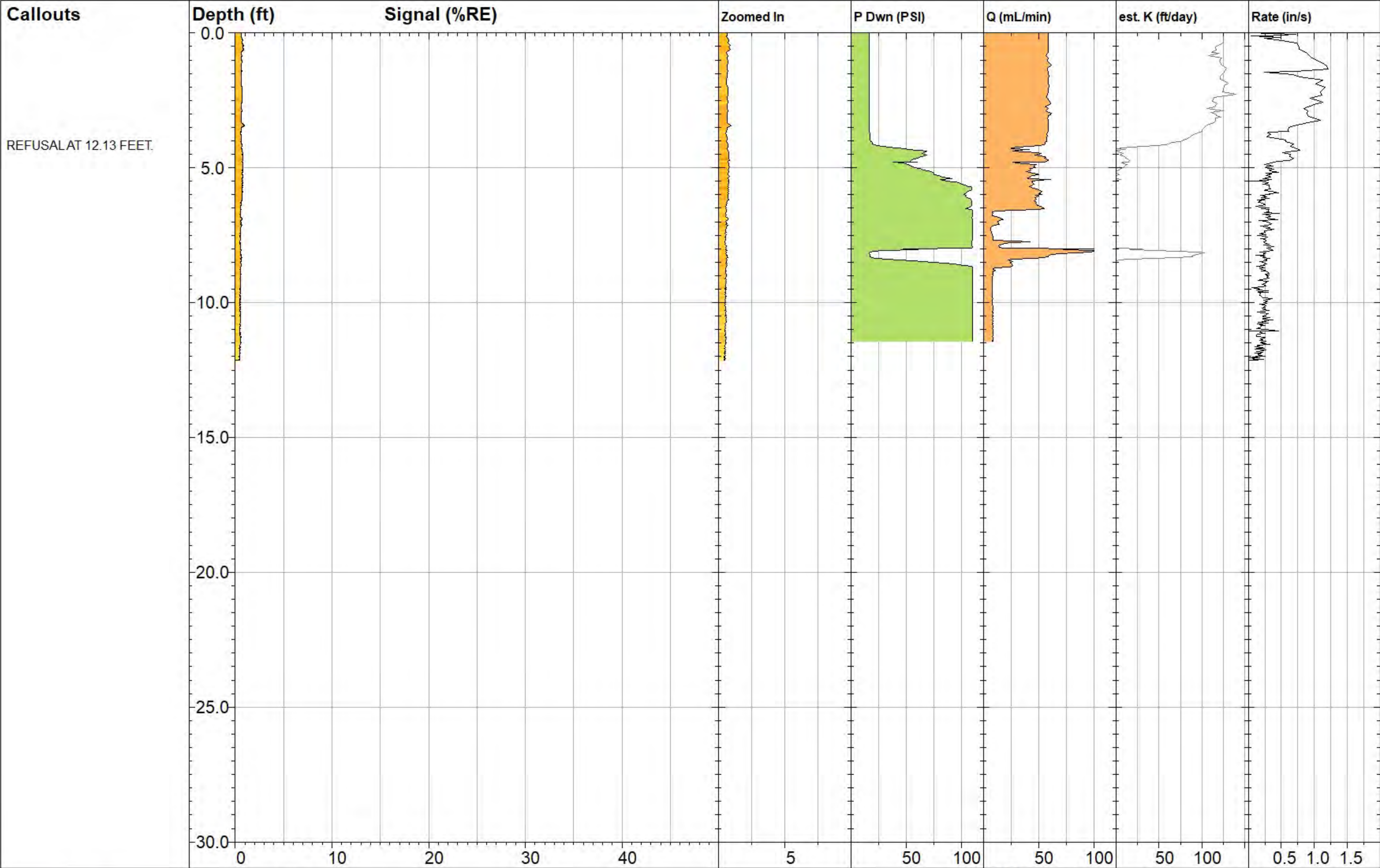


 www.DAKOTATECHNOLOGIES.COM	WB-LIF-117		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 19.33 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 1.3 %RE @ 4.57 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-12 07:46 MDT	

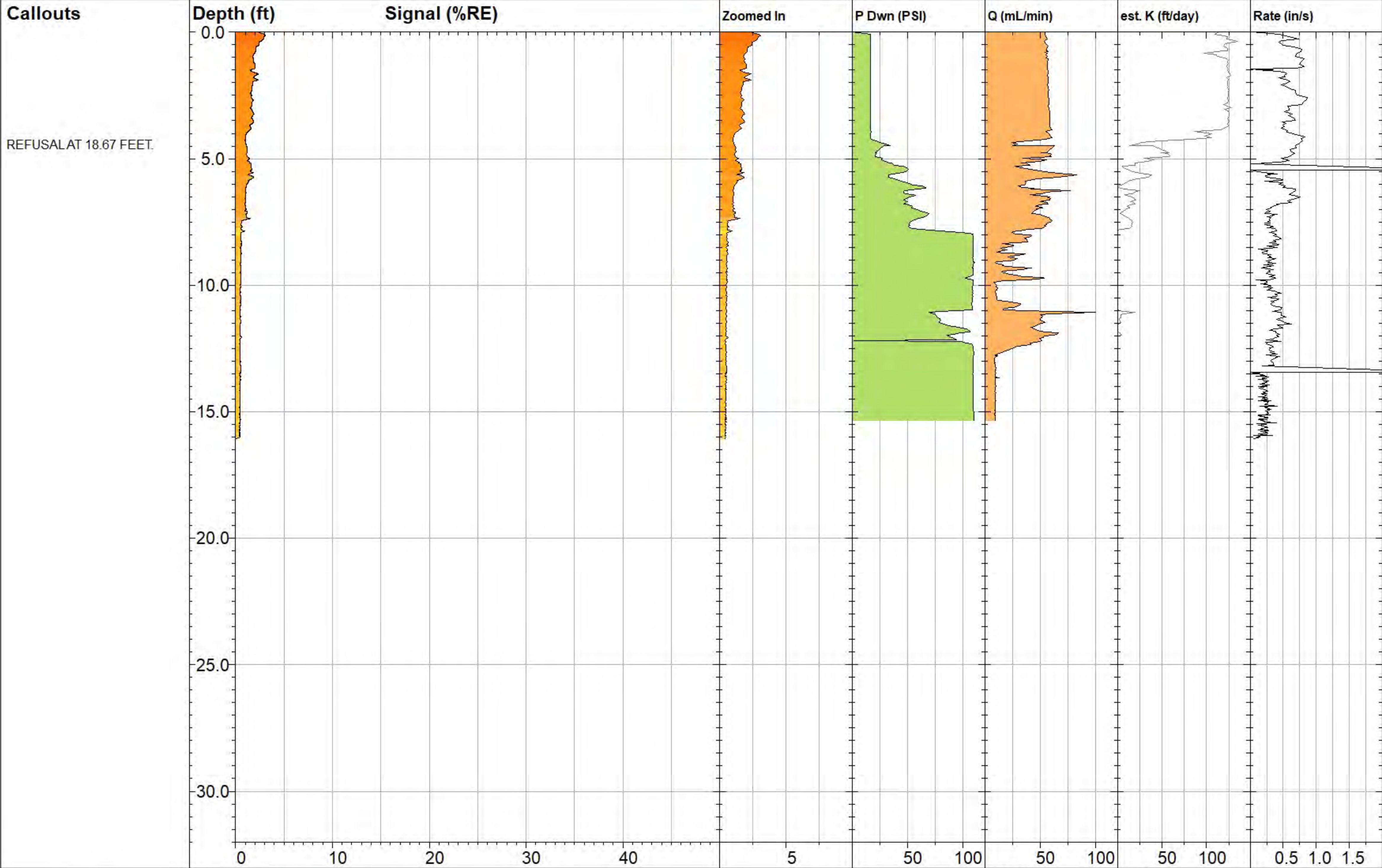


 www.DAKOTATECHNOLOGIES.COM	WB-LIF-118		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 20.60 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 3.7 %RE @ 6.48 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-11 15:31 MDT	

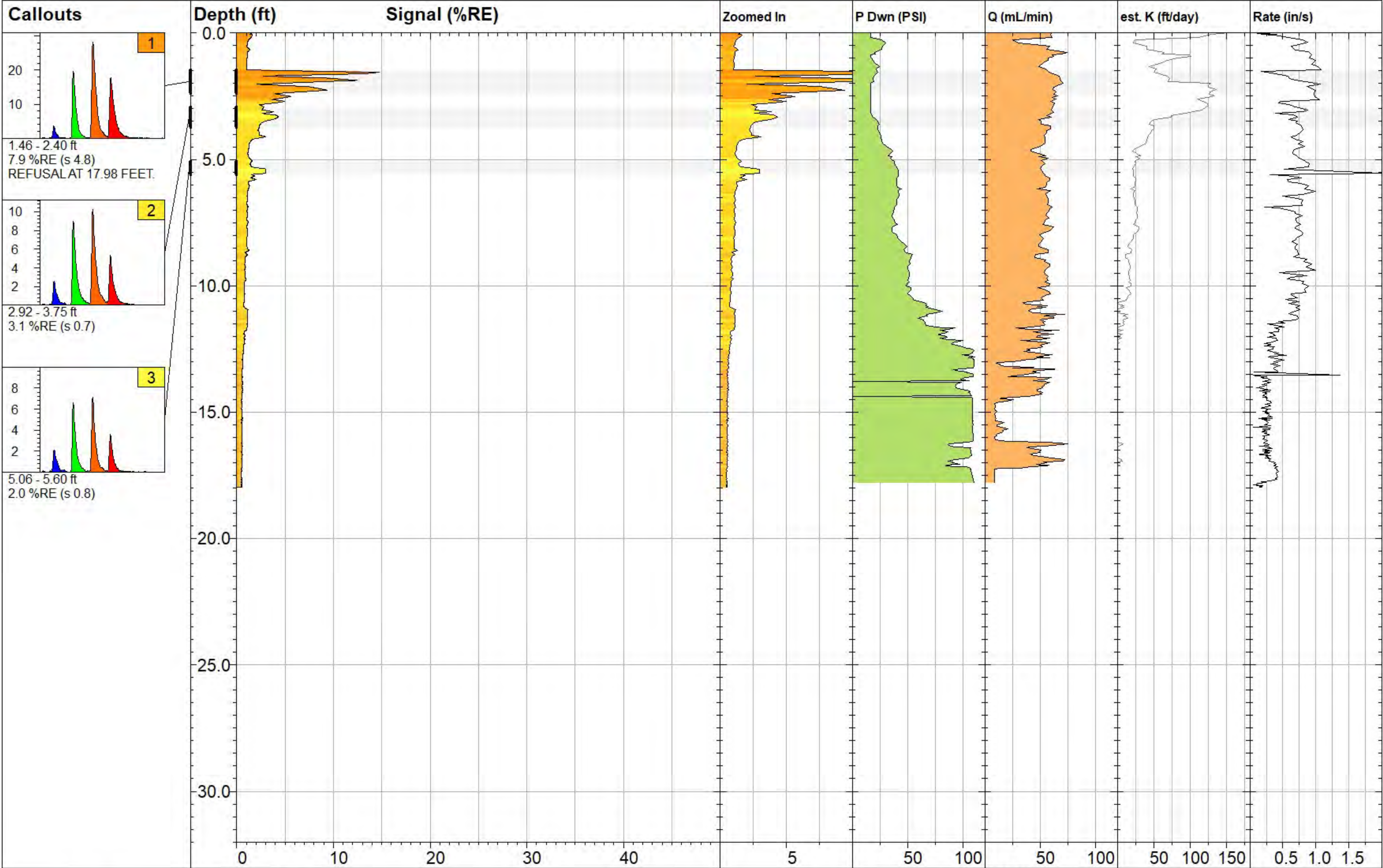




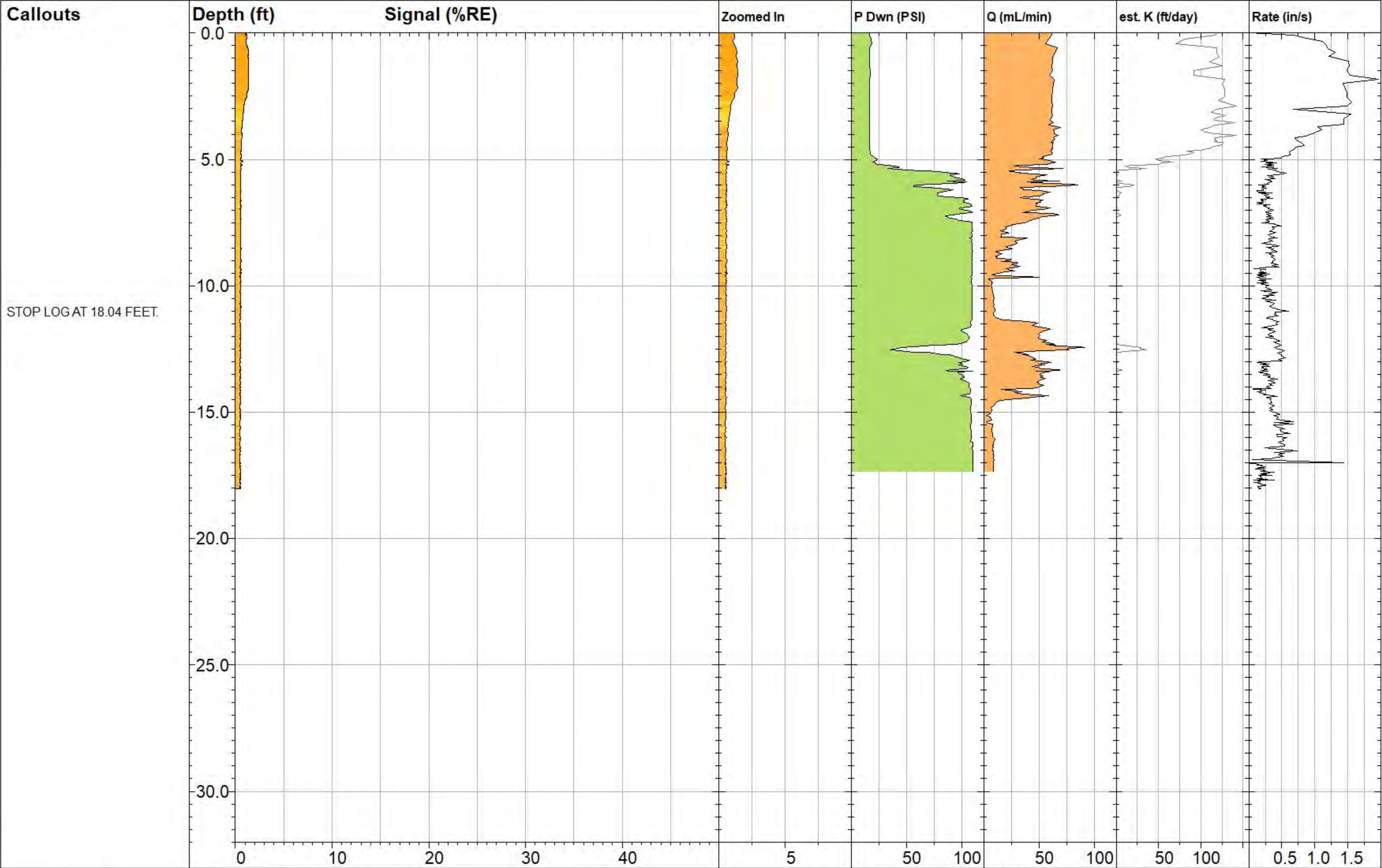
DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	WB-LIF-120			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 12.13 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 1.0 %RE @ 3.43 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-10 12:14 MDT	



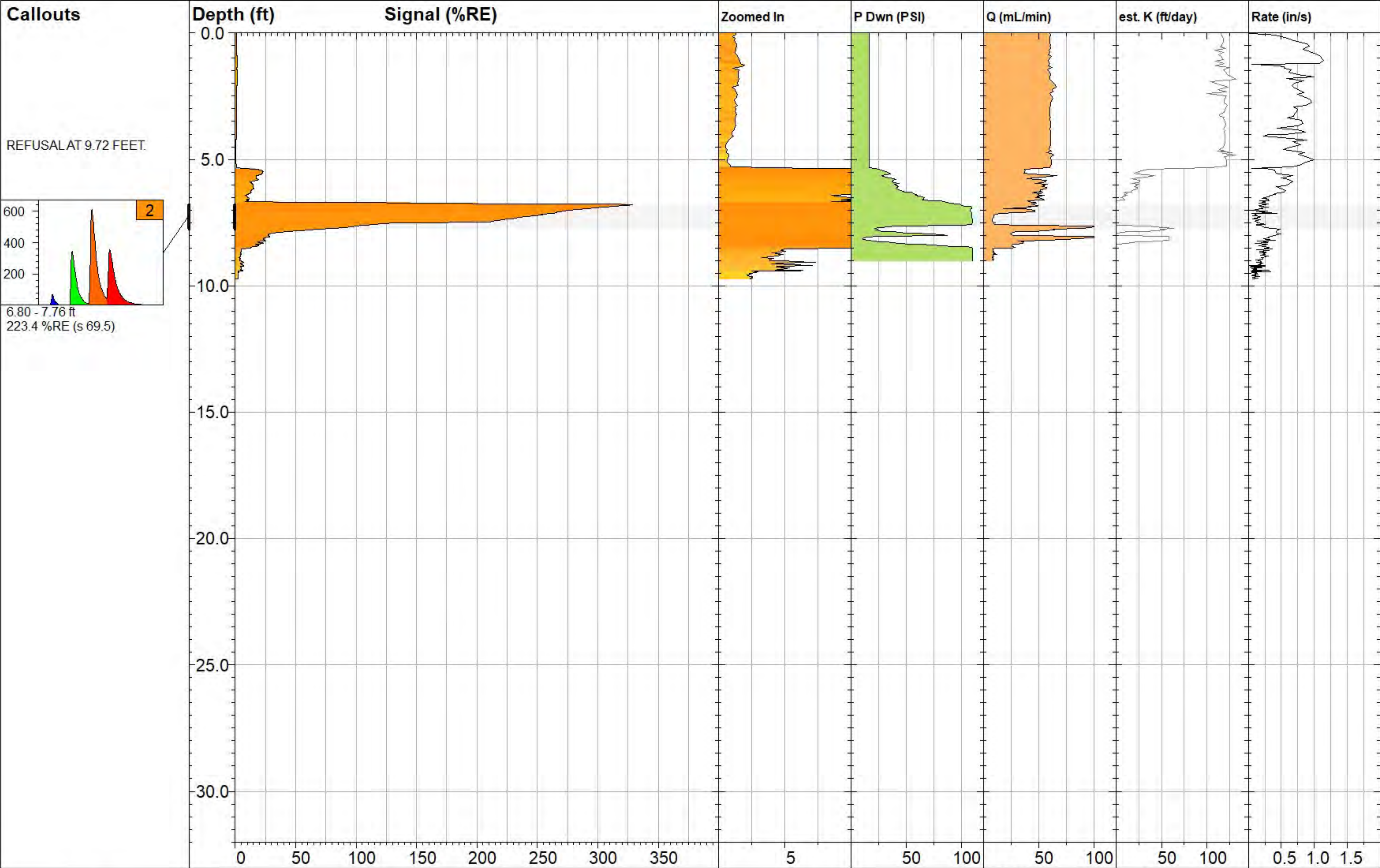
 www.DAKOTATECHNOLOGIES.COM	WB-LIF-123		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 16.05 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 3.1 %RE @ 0.13 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-12 09:32 MDT	



 www.DAKOTATECHNOLOGIES.COM		WB-LIF-125		UVOST® By Dakota www.DakotaTechnologies.com	
Site: Marathon Gallup Refinery		Y Coord.(Lat/North): Unavailable		Final Depth: 17.98 ft	
Client / Job: Trihydro / 0049B.21		X Coord.(Long/East): Unavailable		Max Signal: 14.7 %RE @ 1.55 ft	
Operator / Unit: BG / UVOST1612		Elevation: Unavailable		Date & Time: 2021-05-12 12:16 MDT	



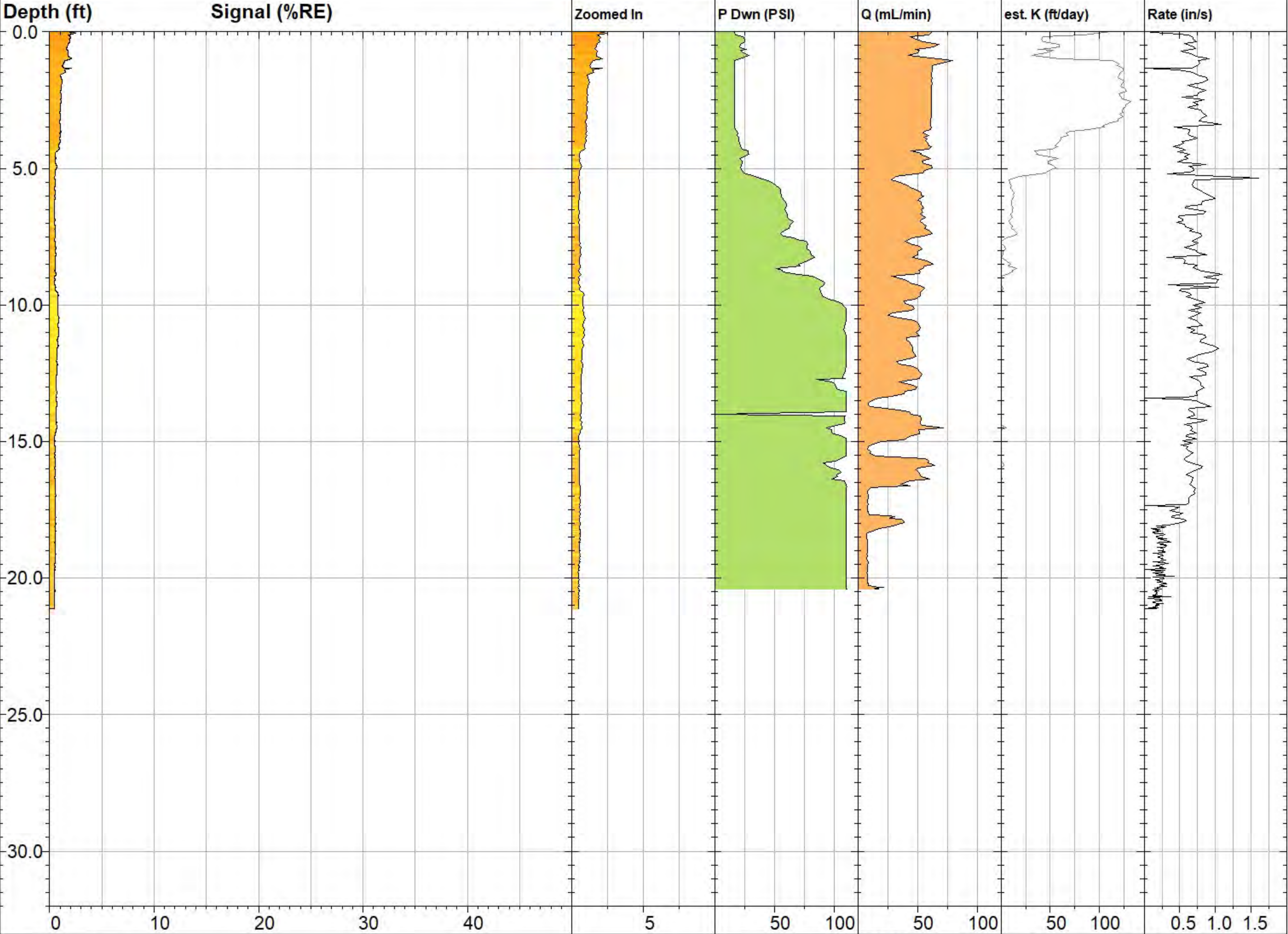
 DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM	WB-LIF-127			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 18.04 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 1.4 %RE @ 1.13 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-12 12:46 MDT	



 DAKOTA TECHNOLOGIES www.DAKOTATECHNOLOGIES.COM	WB-LIF-128		UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable	Final Depth: 9.72 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable	Max Signal: 329.6 %RE @ 6.80 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable	Date & Time: 2021-05-12 13:30 MDT	

Callouts

REFUSAL AT 21.12 FEET.



www.DAKOTATECHNOLOGIES.COM

WB-LIF-129

Site:
Marathon Gallup Refinery

Client / Job:
Trihydro / 0049B.21

Operator / Unit:
BG / UVOST1612

Y Coord.(Lat/North):
Unavailable

X Coord.(Long/East):
Unavailable

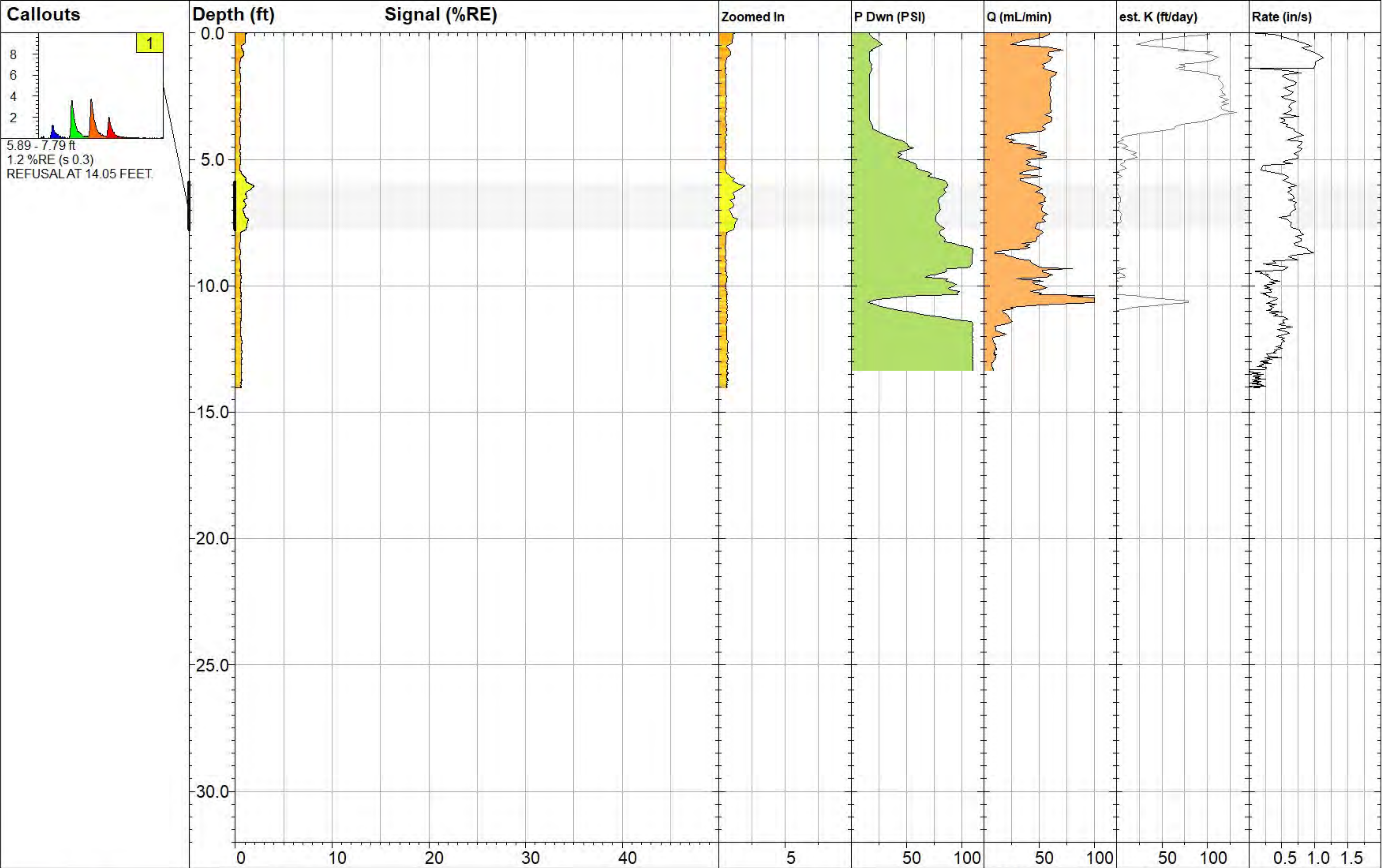
Elevation:
Unavailable

UVOST® By Dakota
www.DakotaTechnologies.com

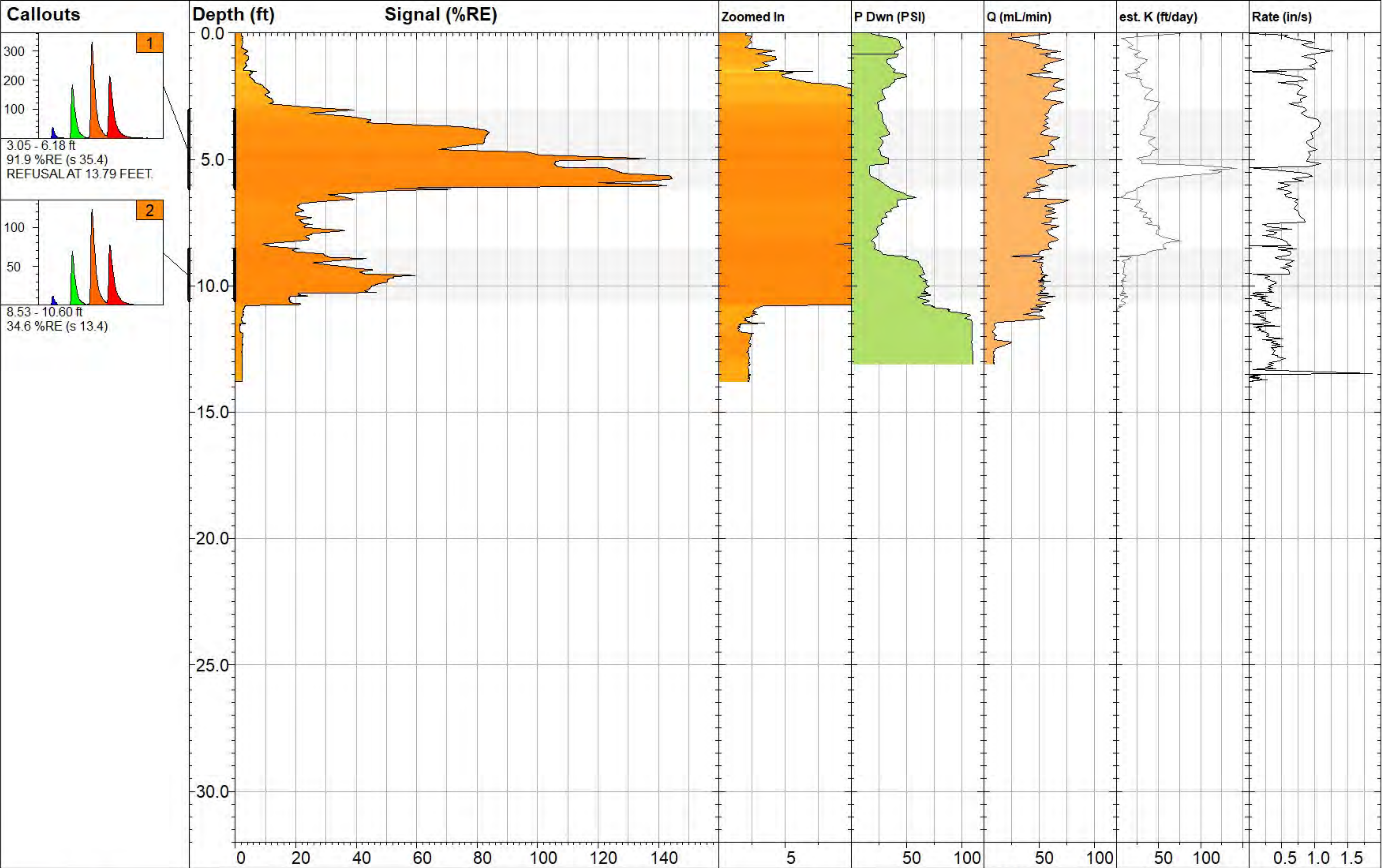
Final Depth:
21.12 ft

Max Signal:
2.5 %RE @ 0.04 ft

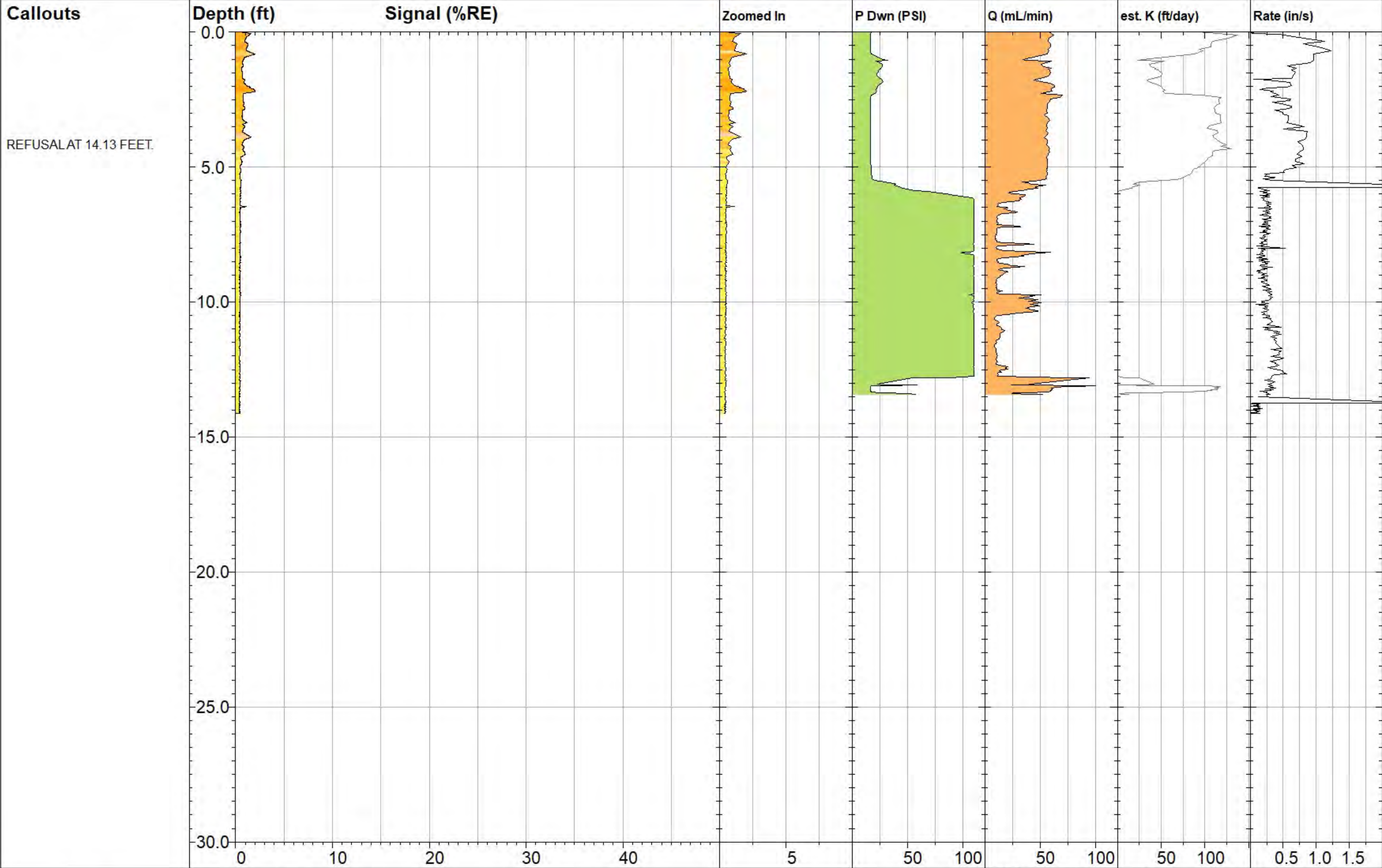
Date & Time:
2021-05-12 08:52 MDT



DAKOTA TECHNOLOGIES WWW.DAKOTATECHNOLOGIES.COM WB-LIF-130 Site: Marathon Gallup Refinery Client / Job: Trihydro / 0049B.21 Operator / Unit: BG / UVOST1612 Y Coord.(Lat/North): Unavailable X Coord.(Long/East): Unavailable Elevation: Unavailable UVOST® By Dakota www.DakotaTechnologies.com Final Depth: 14.05 ft Max Signal: 2.0 %RE @ 6.05 ft Date & Time: 2021-05-12 10:09 MDT	
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 www.DAKOTATECHNOLOGIES.COM	WB-LIF-136			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 13.79 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 144.5 %RE @ 5.77 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-12 15:49 MDT	



 www.dakotatechnologies.com	WB-LIF-137			UVOST® By Dakota www.DakotaTechnologies.com	
	Site: Marathon Gallup Refinery	Y Coord.(Lat/North): Unavailable		Final Depth: 14.13 ft	
	Client / Job: Trihydro / 0049B.21	X Coord.(Long/East): Unavailable		Max Signal: 2.0 %RE @ 2.17 ft	
	Operator / Unit: BG / UVOST1612	Elevation: Unavailable		Date & Time: 2021-05-10 11:04 MDT	

Appendix D – LIF/HP Elevation Data

APPENDIX D. LIF/HP ELEVATION DATA

Location Name	Latitude	Longitude	Easting	Northing
EB-LIF-02	35.48949415	-108.4244757	2547121.323	1633999.546
EB-LIF-03	35.4892531	-108.4243654	2547150.535	1633913.67
EB-LIF-04	35.48945235	-108.4241815	2547208.808	1633983.808
EB-LIF-05	35.48958933	-108.4236912	2547351.967	1634034.85
EB-LIF-06	35.48967095	-108.4234147	2547434.446	1634064.065
EB-LIF-07	35.49072992	-108.4229797	2547566.243	1634448.738
EB-LIF-08	35.48922125	-108.4237995	2547318.937	1633901.067
EB-LIF-09	35.48923881	-108.4233514	2547426.075	1634108.011
EB-LIF-11	35.48989576	-108.422932	2547581.721	1634142.974
EB-LIF-12	35.49025398	-108.4229297	2547580.094	1634275.414
EB-LIF-13	35.49117974	-108.4229849	2547565.686	1634612.474
EB-LIF-14	35.49181511	-108.4229789	2547568.846	1634843.729
EB-LIF-15	35.49007269	-108.4241239	2547224.219	1634211.554
EB-LIF-16	35.49003786	-108.4245939	2547084.229	1634199.715
EB-LIF-17	35.49015022	-108.4243194	2547166.175	1634240.122
EB-LIF-18	35.49198088	-108.4247972	2547027.956	1634907.305
EB-LIF-19	35.49197572	-108.4242977	2547176.616	1634904.534
EB-LIF-20	35.49015666	-108.4251056	2546932.164	1634243.869
EB-LIF-21	35.48966229	-108.4250859	2546936.939	1634063.893
EB-LIF-22	35.48926496	-108.4251044	2546930.581	1633919.302
EB-LIF-23	35.48905045	-108.4230387	2547545.031	1633837.546
EB-LIF-25	35.48899483	-108.4242458	2547185.583	1633819.451
EB-LIF-26	35.48900585	-108.4248271	2547012.547	1633824.499
EB-LIF-27	35.48924324	-108.4256109	2546779.735	1633912.301
EB-LIF-28	35.49017398	-108.4256409	2546772.855	1634251.132
EB-LIF-30	35.48879167	-108.4243972	2547140.073	1633745.773
EB-LIF-33	35.48899808	-108.4253885	2546845.414	1633822.67
EB-LIF-34	35.48900141	-108.4258848	2546697.674	1633824.769
MKTF-LIF-36	35.48796781	-108.4289527	2545782.111	1633454.055
MKTF-LIF-37	35.48754575	-108.4287125	2545852.698	1633300.003
MKTF-LIF-38	35.48739047	-108.4286994	2545856.276	1633243.458
MKTF-LIF-39	35.48805981	-108.4291528	2545722.77	1633487.901
MKTF-LIF-40	35.48825649	-108.4292596	2545691.385	1633559.68
MKTF-LIF-41	35.4878015	-108.4292045	2545706.797	1633393.972
MKTF-LIF-42	35.48752451	-108.4291637	2545718.338	1633293.08
MKTF-LIF-43	35.48738666	-108.4291408	2545724.866	1633242.866

APPENDIX D. LIF/HP ELEVATION DATA

Location Name	Latitude	Longitude	Easting	Northing
MKTF-LIF-44	35.48757165	-108.4284391	2545934.146	1633308.937
MKTF-LIF-45	35.4876625	-108.4282741	2545983.48	1633341.708
MKTF-LIF-46	35.48785391	-108.4284032	2545945.471	1633411.61
MKTF-LIF-47	35.4882182	-108.4285556	2545900.9	1633544.478
MKTF-LIF-48	35.4883784	-108.4285596	2545900.041	1633602.798
MKTF-LIF-49	35.48849343	-108.4285507	2545902.947	1633644.648
MKTF-LIF-50	35.48831778	-108.4290209	2545762.605	1633581.562
MKTF-LIF-51	35.48860386	-108.4284713	2545926.817	1633684.703
MKTF-LIF-52	35.48857081	-108.4290944	2545741.28	1633673.792
MKTF-LIF-53	35.48732482	-108.4283712	2545953.809	1633218.972
MKTF-LIF-55	35.48808811	-108.4300108	2545467.391	1633499.745
MKTF-LIF-56	35.48875371	-108.4299676	2545481.714	1633741.933
MKTF-LIF-58	35.48828031	-108.4302091	2545408.798	1633570.058
MKTF-LIF-59	35.48808959	-108.4304351	2545341.09	1633501.047
MKTF-LIF-60	35.48796243	-108.4301061	2545438.746	1633454.173
MKTF-LIF-61	35.48777215	-108.4302447	2545397.079	1633385.162
MKTF-LIF-63	35.48756376	-108.4304268	2545342.392	1633309.641
MKTF-LIF-65	35.48722289	-108.4306343	2545279.892	1633185.943
MKTF-LIF-67	35.48713244	-108.4301175	2545433.538	1633152.089
MKTF-LIF-70	35.48837798	-108.4307128	2545259.058	1633606.516
MKTF-LIF-72	35.48782592	-108.4309449	2545188.746	1633405.995
MKTF-LIF-73	35.48765565	-108.4313767	2545059.84	1633344.797
MKTF-LIF-74	35.48758181	-108.4311181	2545136.663	1633317.454
MKTF-LIF-77	35.48693071	-108.431122	2545134.058	1633080.474
MKTF-LIF-78	35.48671465	-108.4306874	2545262.965	1633001.047
MKTF-LIF-84	35.48902399	-108.4283051	2545977.215	1633837.325
MKTF-LIF-81	35.48704559	-108.4287717	2545833.991	1633118.059
MKTF-LIF-68	35.48704068	-108.4291879	2545710.07	1633117.017
MKTF-LIF-62	35.48772597	-108.430637	2545280.194	1633369.058
MKTF-LIF-64	35.4873741	-108.4307126	2545256.895	1633241.123
MKTF-LIF-54	35.48742715	-108.4304725	2545328.501	1633259.999
MKTF-LIF-88	35.48790589	-108.4320564	2544858.027	1633437.108
MKTF-LIF-89	35.48772308	-108.4317128	2544959.923	1633369.949
MKTF-LIF-75	35.48745528	-108.4313389	2545070.652	1633271.797
MKTF-LIF-76	35.487197	-108.4313205	2545075.557	1633177.755
MKTF-LIF-71	35.48816487	-108.4313457	2545070.173	1633530.088

APPENDIX D. LIF/HP ELEVATION DATA

Location Name	Latitude	Longitude	Easting	Northing
MKTF-LIF-79	35.48693499	-108.4304097	2545346.103	1633080.747
MKTF-LIF-80	35.4870094	-108.4297533	2545541.695	1633106.651
MKTF-LIF-82	35.4869596	-108.4282181	2545998.611	1633085.765
MKTF-LIF-85	35.48880313	-108.4290754	2545747.419	1633758.318
MKTF-LIF-79A	35.48702532	-108.4302734	2545386.874	1633113.381
PA-LIF-7	35.48797078	-108.4262235	2546594.609	1633450.243
PA-LIF-5	35.48805736	-108.4258927	2546693.248	1633481.165
PA-LIF-6	35.48798305	-108.4253022	2546868.899	1633453.065
PA-LIF-4	35.48830053	-108.4261326	2546622.386	1633570.104
PA-LIF-3	35.48852451	-108.4259658	2546672.528	1633651.33
MKTF-LIF-90	35.48687368	-108.4312927	2545083.106	1633060.021
PA-LIF-1	35.48859727	-108.4251775	2546907.341	1633676.405
PA-LIF-2	35.48865012	-108.4254399	2546829.36	1633696.113
PA-LIF-8	35.48820636	-108.4246497	2547063.617	1633533.18
MKTF-LIF-83	35.4891915	-108.4280632	2546049.606	1633897.859
MKTF-LIF-86	35.48900206	-108.4293981	2545651.792	1633831.305
MKTF-LIF-87	35.48898193	-108.4295961	2545592.819	1633824.335
MKTF-LIF-66	35.48874976	-108.4279984	2546067.937	1633736.959
MKTF-LIF-57	35.48809507	-108.4282042	2546005.218	1633499.032
EB-LIF-109	35.48891713	-108.4270368	2546357.644	1633794.098
EB-LIF-96	35.49112717	-108.4261098	2546638.428	1634596.855
EB-LIF-99	35.49150697	-108.4268123	2546430.136	1634736.352
EB-LIF-95	35.49080958	-108.4264955	2546522.927	1634481.946
EB-LIF-97	35.4911302	-108.4276613	2546176.591	1634600.737
WB-LIF-100	35.49183633	-108.4286112	2545895.372	1634859.459
WB-LIF-119	35.49169249	-108.429177	2545726.622	1634808.119
WB-LIF-113	35.49096142	-108.4304413	2545348.667	1634544.3
EB-LIF-92	35.48969616	-108.4264889	2546522.449	1634076.67
EB-LIF-93	35.48967884	-108.4277066	2546159.916	1634072.548
EB-LIF-94	35.49003166	-108.4270974	2546342.044	1634199.874
MKTF-LIF-124	35.48944084	-108.4298849	2545510.942	1633989.829
WB-LIF-136	35.49058222	-108.4311923	2545124.279	1634407.628
WB-LIF-112	35.49047872	-108.4317431	2544960.093	1634370.951
WB-LIF-115	35.49086315	-108.4289217	2545800.802	1634505.798
MKTF-LIF-131	35.48710311	-108.4295864	2545594.686	1633138.4
MKTF-LIF-134	35.48667014	-108.4310285	2545164.397	1632983.404

APPENDIX D. LIF/HP ELEVATION DATA

Location Name	Latitude	Longitude	Easting	Northing
MKTF-LIF-132	35.48709351	-108.4309556	2545187.052	1633137.372
MKTF-LIF-133	35.48698575	-108.4314451	2545041.071	1633099.031
MKTF-LIF-135	35.48690336	-108.4322954	2544787.783	1633070.577
MKTF-LIF-126	35.48950931	-108.4295453	2545612.187	1634014.142
WB-LIF-128	35.49040478	-108.4299067	2545506.586	1634340.729
WB-LIF-127	35.49000134	-108.4296711	2545575.829	1634193.459
WB-LIF-125	35.49000348	-108.4299704	2545486.736	1634194.776
WB-LIF-129	35.49064895	-108.4301719	2545428.185	1634430.078
WB-LIF-114	35.49105076	-108.4294711	2545637.664	1634575.069
WB-LIF-130	35.49106439	-108.4290007	2545777.737	1634579.187
WB-LIF-117	35.49181156	-108.4295463	2545616.962	1634852.124
WB-LIF-118	35.49198762	-108.4292424	2545707.81	1634915.66
WB-LIF-116	35.49221053	-108.4301636	2545434.078	1634998.453
WB-LIF-110	35.49217222	-108.4303201	2545387.404	1634984.79
WB-LIF-111	35.49292183	-108.4308211	2545239.915	1635258.54
WB-LIF-137	35.49320768	-108.4310511	2545172.087	1635362.998
WB-LIF-120	35.49319732	-108.4302066	2545423.467	1635357.704
EB-LIF-105	35.4924439	-108.4251029	2546941.035	1635074.323
EB-LIF-106	35.49243639	-108.4244724	2547128.708	1635070.467
EB-LIF-107	35.49239975	-108.4238776	2547305.698	1635056.069
EB-LIF-138	35.49220932	-108.4271024	2546345.328	1634992.515
EB-LIF-102	35.49184154	-108.4263891	2546556.864	1634857.372
EB-LIF-103	35.49202992	-108.4259172	2546697.734	1634925.098
EB-LIF-104	35.49165146	-108.4247851	2547033.923	1634785.323
EB-LIF-121	35.49116383	-108.4242335	2547197.07	1634606.848
EB-LIF-122	35.4899109	-108.4237328	2547343.369	1634149.91
EB-LIF-108	35.48891822	-108.4248292	2547014.841	1633790.547
EB-LIF-91	35.4892014	-108.4268845	2546403.601	1633897.293
EB-LIF-101	35.49184005	-108.4278617	2546118.496	1634859.467
EB-LIF-98	35.49145438	-108.4278936	2546108.142	1634719.149
WB-LIF-123	35.49078308	-108.4282478	2546001.239	1634475.44

Appendix E – Laboratory Analytical Reports



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 17, 2019

Brian Moore
Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX:

RE: LIF Investigation

OrderNo.: 1911C03

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 11 sample(s) on 11/26/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light gray rectangular background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-53 7.8

Project: LIF Investigation

Collection Date: 11/25/2019 10:45:00 AM

Lab ID: 1911C03-001

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	15	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	100	11		mg/Kg-dr	1	12/2/2019 10:28:48 AM	49056
Motor Oil Range Organics (MRO)	ND	57		mg/Kg-dr	1	12/2/2019 10:28:48 AM	49056
Surr: DNOP	72.4	70-130		%Rec	1	12/2/2019 10:28:48 AM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1600	29		mg/Kg-dr	10	12/2/2019 11:52:49 PM	S64862
Surr: BFB	214	77.4-118	S	%Rec	10	12/2/2019 11:52:49 PM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-53 8-9

Project: LIF Investigation

Collection Date: 11/25/2019 10:45:00 AM

Lab ID: 1911C03-002

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	13	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	270	11		mg/Kg-dr	1	12/2/2019 10:37:56 AM	49056
Motor Oil Range Organics (MRO)	ND	56		mg/Kg-dr	1	12/2/2019 10:37:56 AM	49056
Surr: DNOP	114	70-130		%Rec	1	12/2/2019 10:37:56 AM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1100	31		mg/Kg-dr	10	12/3/2019 1:00:52 AM	S64862
Surr: BFB	162	77.4-118	S	%Rec	10	12/3/2019 1:00:52 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-44 6-7

Project: LIF Investigation

Collection Date: 11/24/2019 2:30:00 PM

Lab ID: 1911C03-003

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	6.2	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	84	10		mg/Kg-dr	1	12/2/2019 10:47:04 AM	49056
Motor Oil Range Organics (MRO)	ND	50		mg/Kg-dr	1	12/2/2019 10:47:04 AM	49056
Surr: DNOP	80.2	70-130		%Rec	1	12/2/2019 10:47:04 AM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	97	28		mg/Kg-dr	5	12/3/2019 1:23:30 AM	S64862
Surr: BFB	95.0	77.4-118		%Rec	5	12/3/2019 1:23:30 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-44 8-10

Project: LIF Investigation

Collection Date: 11/24/2019 2:15:00 PM

Lab ID: 1911C03-004

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	13	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	98	11		mg/Kg-dr	1	12/2/2019 10:56:10 AM	49056
Motor Oil Range Organics (MRO)	ND	53		mg/Kg-dr	1	12/2/2019 10:56:10 AM	49056
Surr: DNOP	80.6	70-130		%Rec	1	12/2/2019 10:56:10 AM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1400	18		mg/Kg-dr	5	12/3/2019 1:46:09 AM	S64862
Surr: BFB	234	77.4-118	S	%Rec	5	12/3/2019 1:46:09 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-44 18-19

Project: LIF Investigation

Collection Date: 11/24/2019 2:20:00 PM

Lab ID: 1911C03-005

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	21	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	840	12		mg/Kg-dr	1	12/2/2019 11:05:15 AM	49056
Motor Oil Range Organics (MRO)	ND	61		mg/Kg-dr	1	12/2/2019 11:05:15 AM	49056
Surr: DNOP	109	70-130		%Rec	1	12/2/2019 11:05:15 AM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1500	180		mg/Kg-dr	50	12/3/2019 9:48:07 AM	S64862
Surr: BFB	114	77.4-118		%Rec	50	12/3/2019 9:48:07 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: EB-LIF-34 20-21

Project: LIF Investigation

Collection Date: 11/25/2019 8:20:00 AM

Lab ID: 1911C03-006

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	16	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	1300	110		mg/Kg-dr	10	12/3/2019 4:00:19 PM	49056
Motor Oil Range Organics (MRO)	ND	540		mg/Kg-dr	10	12/3/2019 4:00:19 PM	49056
Surr: DNOP	0	70-130	S	%Rec	10	12/3/2019 4:00:19 PM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	210	43		mg/Kg-dr	10	12/3/2019 2:31:27 AM	S64862
Surr: BFB	143	77.4-118	S	%Rec	10	12/3/2019 2:31:27 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: EB-LIF-19 16-18

Project: LIF Investigation

Collection Date: 11/25/2019 9:03:00 AM

Lab ID: 1911C03-007

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	17	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	2100	120		mg/Kg-dr	10	12/3/2019 4:09:32 PM	49056
Motor Oil Range Organics (MRO)	ND	580		mg/Kg-dr	10	12/3/2019 4:09:32 PM	49056
Surr: DNOP	0	70-130	S	%Rec	10	12/3/2019 4:09:32 PM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	18000	420		mg/Kg-dr	100	12/3/2019 2:54:04 AM	S64862
Surr: BFB	162	77.4-118	S	%Rec	100	12/3/2019 2:54:04 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: EB-LIF-20 27-28

Project: LIF Investigation

Collection Date: 11/25/2019 1:20:00 PM

Lab ID: 1911C03-008

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	12	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	200	11		mg/Kg-dr	1	12/2/2019 11:32:34 AM	49056
Motor Oil Range Organics (MRO)	ND	56		mg/Kg-dr	1	12/2/2019 11:32:34 AM	49056
Surr: DNOP	83.5	70-130		%Rec	1	12/2/2019 11:32:34 AM	49056
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	670	29		mg/Kg-dr	10	12/3/2019 3:16:39 AM	S64862
Surr: BFB	300	77.4-118	S	%Rec	10	12/3/2019 3:16:39 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: EB-LIF-28 20-21

Project: LIF Investigation

Collection Date: 11/25/2019 9:40:00 AM

Lab ID: 1911C03-009

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	13	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	240	110		mg/Kg-dr	10	12/3/2019 8:48:27 AM	49070
Motor Oil Range Organics (MRO)	ND	550		mg/Kg-dr	10	12/3/2019 8:48:27 AM	49070
Surr: DNOP	0	70-130	S	%Rec	10	12/3/2019 8:48:27 AM	49070
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1800	31		mg/Kg-dr	10	12/3/2019 3:39:14 AM	S64862
Surr: BFB	783	77.4-118	S	%Rec	10	12/3/2019 3:39:14 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: EB-LIF-28 21-23

Project: LIF Investigation

Collection Date: 11/25/2019 9:30:00 AM

Lab ID: 1911C03-010

Matrix: SOIL

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	12	1.0		wt%	1	11/26/2019 5:45:00 PM	R64814
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	780	100		mg/Kg-dr	10	12/3/2019 8:57:24 AM	49070
Motor Oil Range Organics (MRO)	ND	500		mg/Kg-dr	10	12/3/2019 8:57:24 AM	49070
Surr: DNOP	0	70-130	S	%Rec	10	12/3/2019 8:57:24 AM	49070
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	2100	69		mg/Kg-dr	20	12/3/2019 4:01:50 AM	S64862
Surr: BFB	448	77.4-118	S	%Rec	20	12/3/2019 4:01:50 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 1911C03

Date Reported: 12/17/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MeOH Blank

Project: LIF Investigation

Collection Date:

Lab ID: 1911C03-011

Matrix: MEOH BLAN

Received Date: 11/26/2019 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/3/2019 4:24:23 AM	S64862
Surr: BFB	79.2	77.4-118		%Rec	1	12/3/2019 4:24:23 AM	S64862

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Laboratory Report for Hall Environmental Analysis Laboratory

Work Order Number: 1911C03

December 16, 2019



Daniel B. Stephens & Associates, Inc.

4400 Alameda Blvd. NE, Suite C • Albuquerque, New Mexico 87113



December 16, 2019

Andy Freeman
Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite D
Albuquerque, NM 87109
(505) 345-3975

Re: DBS&A Laboratory Report for the Hall Environmental Analysis Laboratory Work Order #1911C03 Project

Dear Mr. Freeman:

Enclosed is the report for the Hall Environmental Analysis Laboratory Work Order #1911C03 project samples. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to Hall Environmental Analysis Laboratory and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Adam Bland
Laboratory Operations Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory

4400 Alameda Blvd. NE, Suite C
Albuquerque, NM 87113

505-889-7752
FAX 505-889-0258

Summaries



Daniel B. Stephens & Associates, Inc.

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties ¹			Saturated Hydraulic Conductivity ²			Moisture Characteristics ³								Particle Size ⁴			Specific Gravity ⁵		Air Perm- eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K _{unsat}	DS	WS	H	F	C			
MKTFLIF-53 7-8																X	X					
MKTFLIF-53 8-9																X	X					
MKTFLIF-44 6-7																X	X					
MKTFLIF-44 8-10																X	X					
MKTFLIF-44 18-19																X	X					
EB-LIF-34 20-21																X	X					
EB-LIF-19 16-19																X	X					
EB-LIF-20 27-28																X	X					
EB-LIF-28 20-21																X	X					
EB-LIF-28 21-23																X	X					

¹ G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method² CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall³ HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, K_{unsat} = Calculated Unsaturated Hydraulic Conductivity⁴ DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer⁵ F = Fine (<4.75mm), C = Coarse (>4.75mm)



Daniel B. Stephens & Associates, Inc.

Notes

Sample Receipt:

Ten samples, each as loose material in a 10% full 1-gallon bag, were hand-delivered on December 2, 2019. All samples were contained in a cardboard box and were received in good order.

Sample Preparation and Testing Notes:

Each of the samples was subjected to particle size analysis, using a combination of standard sieves and client specified sieves, as well as hydrometer.

Particle diameter calculations in the hydrometer portion of the particle size analysis testing, are based on the use of an assumed specific gravity value of 2.65.



Daniel B. Stephens & Associates, Inc.

Summary of Particle Size Results

Standard Sieve Size Sieve Opening (mm)	Sieves (% Passing)													
	3"	2"	1.5"	1"	3/4"	3/8"	#4	#10	#20	#35	#60	#120	#230	#400
Sample Number														
MKTFLIF-53 7-8	100.00	100.00	100.00	100.00	100.00	95.67	94.50	93.85	92.83	91.17	82.62	60.86	48.48	43.01
MKTFLIF-53 8-9	100.00	100.00	100.00	100.00	97.24	80.13	67.88	56.80	46.66	39.66	29.32	20.65	17.24	15.54
MKTFLIF-44 6-7	100.00	100.00	100.00	100.00	100.00	88.97	66.43	47.98	36.84	32.61	26.86	19.88	16.07	14.34
MKTFLIF-44 8-10	100.00	100.00	100.00	95.42	92.13	81.58	71.14	62.91	56.83	53.27	43.00	30.06	25.01	22.64
MKTFLIF-44 18-19	100.00	100.00	100.00	100.00	100.00	100.00	99.88	99.59	99.29	98.79	93.88	76.93	61.17	54.80
EB-LIF-34 20-21	100.00	100.00	100.00	100.00	100.00	98.62	97.09	95.05	92.84	90.27	79.61	66.04	51.47	43.50
EB-LIF-19 16-19	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.94	99.62	97.39	90.20	81.08	71.38	64.27
EB-LIF-20 27-28	100.00	100.00	100.00	100.00	100.00	100.00	94.92	91.11	85.96	78.04	51.13	31.01	22.14	18.76
EB-LIF-28 20-21	100.00	100.00	100.00	100.00	95.50	83.34	76.92	72.30	66.75	60.78	41.58	27.14	22.23	19.90
EB-LIF-28 21-23	100.00	100.00	100.00	100.00	100.00	88.37	76.41	64.54	53.97	45.01	30.61	21.91	17.90	15.96



Daniel B. Stephens & Associates, Inc.

Percent Gravel, Sand, Silt and Clay

Sample Number	% Medium - Coarse Gravel*	% Fine Gravel*	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Coarse Silt	% Fine Silt	% Clay**
	(>8mm)	(<8mm, >2mm)	(<2mm, >0.5mm)	(<.5mm, >0.25mm)	(<0.25mm, >0.125mm)	(<.0.125mm, >0.063mm)	(<.0.063mm, >0.038mm)	(<.0.038mm, >0.002mm)	(<0.002mm)
MKTFLIF-53 7-8	4.6	1.5	2.7	8.6	21.8	12.4	5.5	26.0	17.0
MKTFLIF-53 8-9	22.9	20.3	17.1	10.3	8.7	3.4	1.7	8.8	6.8
MKTFLIF-44 6-7	16.6	35.4	15.4	5.8	7.0	3.8	1.7	6.2	8.1
MKTFLIF-44 8-10	21.0	16.1	9.6	10.3	12.9	5.1	2.4	12.2	10.4
MKTFLIF-44 18-19	0.0	0.4	0.8	4.9	16.9	15.8	6.4	31.4	23.4
EB-LIF-34 20-21	1.8	3.2	4.8	10.7	13.6	14.6	8.0	23.9	19.6
EB-LIF-19 16-19	0.0	0.1	2.5	7.2	9.1	9.7	7.1	30.6	33.7
EB-LIF-20 27-28	1.3	7.6	13.1	26.9	20.1	8.9	3.4	11.1	7.7
EB-LIF-28 20-21	18.3	9.5	11.5	19.2	14.4	4.9	2.3	10.5	9.4
EB-LIF-28 21-23	14.6	20.9	19.5	14.4	8.7	4.0	1.9	9.1	6.9

*Percent passing and retained on 8 mm sieve interpolated from percent passing 9.75 and 4.75 mm results.

**USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis



Daniel B. Stephens & Associates, Inc.

Summary of Particle Size Results

Standard Sieve Size Sieve Opening (mm)	Sieves (% Passing)													
	3"	2"	1.5"	1"	3/4"	3/8"	#4	#10	#20	#35	#60	#120	#230	#400
Sample Number														
MKTFLIF-53 7-8	100.00	100.00	100.00	100.00	100.00	95.67	94.50	93.85	92.83	91.17	82.62	60.86	48.48	43.01
MKTFLIF-53 8-9	100.00	100.00	100.00	100.00	97.24	80.13	67.88	56.80	46.66	39.66	29.32	20.65	17.24	15.54
MKTFLIF-44 6-7	100.00	100.00	100.00	100.00	100.00	88.97	66.43	47.98	36.84	32.61	26.86	19.88	16.07	14.34
MKTFLIF-44 8-10	100.00	100.00	100.00	95.42	92.13	81.58	71.14	62.91	56.83	53.27	43.00	30.06	25.01	22.64
MKTFLIF-44 18-19	100.00	100.00	100.00	100.00	100.00	100.00	99.88	99.59	99.29	98.79	93.88	76.93	61.17	54.80
EB-LIF-34 20-21	100.00	100.00	100.00	100.00	100.00	98.62	97.09	95.05	92.84	90.27	79.61	66.04	51.47	43.50
EB-LIF-19 16-19	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.94	99.62	97.39	90.20	81.08	71.38	64.27
EB-LIF-20 27-28	100.00	100.00	100.00	100.00	100.00	100.00	94.92	91.11	85.96	78.04	51.13	31.01	22.14	18.76
EB-LIF-28 20-21	100.00	100.00	100.00	100.00	95.50	83.34	76.92	72.30	66.75	60.78	41.58	27.14	22.23	19.90
EB-LIF-28 21-23	100.00	100.00	100.00	100.00	100.00	88.37	76.41	64.54	53.97	45.01	30.61	21.91	17.90	15.96



Daniel B. Stephens & Associates, Inc.

Percent Gravel, Sand, Silt and Clay

Sample Number	% Medium - Coarse Gravel*	% Fine Gravel*	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Coarse Silt	% Fine Silt	% Clay**
	(>8mm)	(<8mm, >2mm)	(<2mm, >0.5mm)	(<.5mm, >0.25mm)	(<0.25mm, >0.125mm)	(<.0.125mm, >0.063mm)	(<.0.063mm, >0.038mm)	(<.0.038mm, >0.002mm)	(<0.002mm)
MKTFLIF-53 7-8	4.6	1.5	2.7	8.6	21.8	12.4	5.5	26.0	17.0
MKTFLIF-53 8-9	22.9	20.3	17.1	10.3	8.7	3.4	1.7	8.8	6.8
MKTFLIF-44 6-7	16.6	35.4	15.4	5.8	7.0	3.8	1.7	6.2	8.1
MKTFLIF-44 8-10	21.0	16.1	9.6	10.3	12.9	5.1	2.4	12.2	10.4
MKTFLIF-44 18-19	0.0	0.4	0.8	4.9	16.9	15.8	6.4	31.4	23.4
EB-LIF-34 20-21	1.8	3.2	4.8	10.7	13.6	14.6	8.0	23.9	19.6
EB-LIF-19 16-19	0.0	0.1	2.5	7.2	9.1	9.7	7.1	30.6	33.7
EB-LIF-20 27-28	1.3	7.6	13.1	26.9	20.1	8.9	3.4	11.1	7.7
EB-LIF-28 20-21	18.3	9.5	11.5	19.2	14.4	4.9	2.3	10.5	9.4
EB-LIF-28 21-23	14.6	20.9	19.5	14.4	8.7	4.0	1.9	9.1	6.9

*Percent passing and retained on 8 mm sieve interpolated from percent passing 9.75 and 4.75 mm results.

**USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-53 7-8
 HEAL ID: 1911C03-001B
 Lab Label: MK-1
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 132.91
 Weight Passing #10 (g): 124.73
 Weight Retained #10 (g): 8.18
 Weight of Hydrometer Sample (g): 62.19
 Calculated Weight of Sieve Sample (g): 66.27

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	132.91	100.00
	2"	50	0.00	0.00	132.91	100.00
	1.5"	38.1	0.00	0.00	132.91	100.00
	1"	25	0.00	0.00	132.91	100.00
	3/4"	19.0	0.00	0.00	132.91	100.00
	3/8"	9.5	5.76	5.76	127.15	95.67
	4	4.75	1.55	7.31	125.60	94.50
	10	2.00	0.87	8.18	124.73	93.85
-10			(Based on calculated sieve wt.)			
	20	0.85	0.67	4.75	61.52	92.83
	35	0.500	1.10	5.85	60.42	91.17
	60	0.250	5.67	11.52	54.75	82.62
	120	0.125	14.42	25.94	40.33	60.86
	230	0.063	8.20	34.14	32.13	48.48
	400	0.038	3.63	37.77	28.50	43.01
	dry pan		0.28	38.05	28.22	
	wet pan			28.22	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-53 7-8
 HEAL ID: 1911C03-001B
 Lab Label: MK-1
 Test Date: 10-Dec-19
 Start Time: 9:00

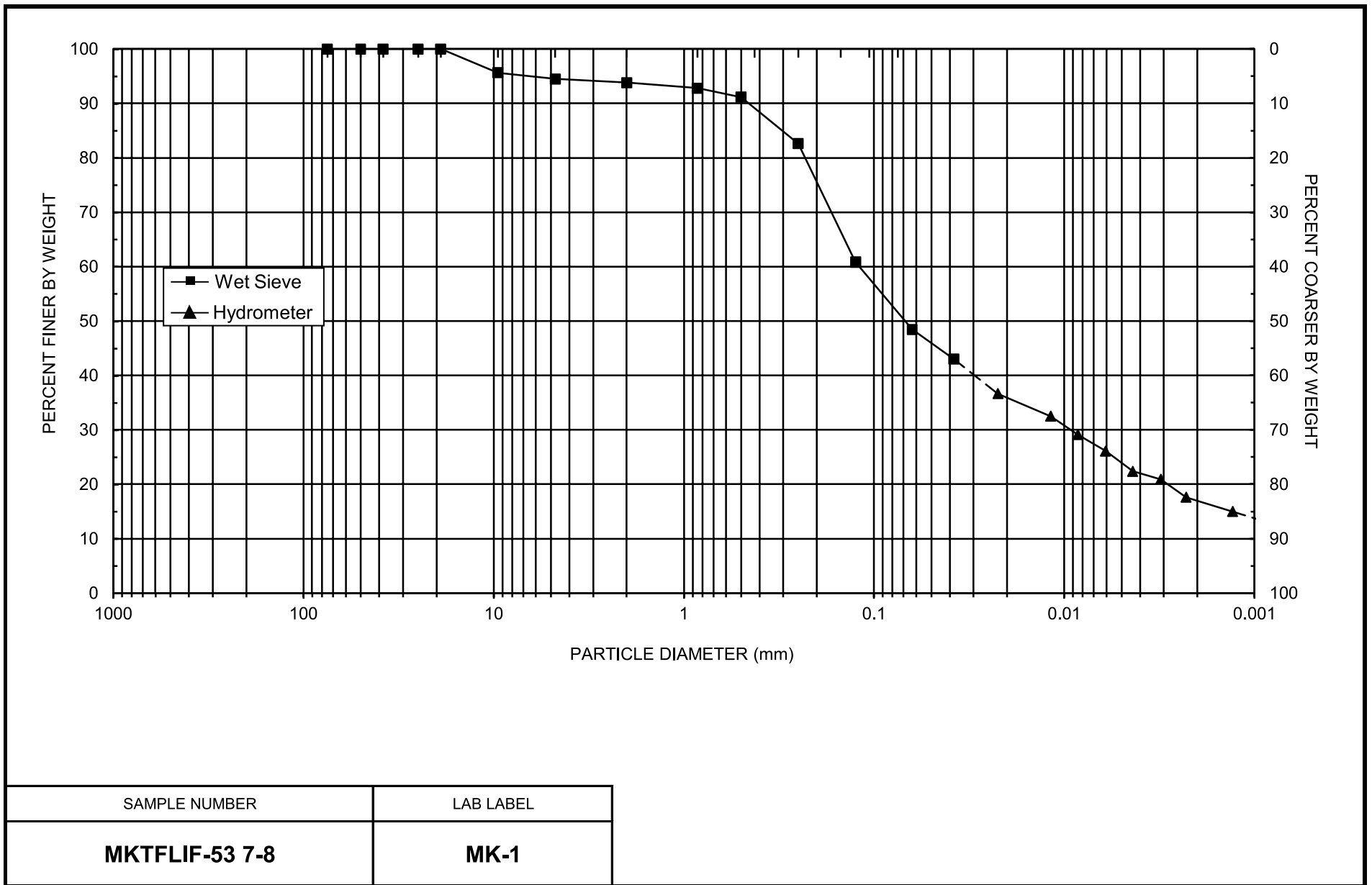
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 62.19
 Total Sample Wt. (g): 132.91
 Wt. Passing #10 (g): 124.73

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.6	31.00	6.70	24.3	11	0.0223	39	36.7
	15	19.6	28.25	6.70	21.5	11	0.0118	35	32.5
	30	19.7	26.00	6.67	19.3	12	0.0085	31	29.2
	60	19.7	24.00	6.67	17.3	12	0.0061	28	26.2
	120	19.8	21.50	6.64	14.9	12	0.0044	24	22.4
	240	19.8	20.50	6.64	13.9	12	0.0031	22	20.9
	458	20.0	18.25	6.57	11.7	13	0.0023	19	17.6
11-Dec-19	1434	18.5	17.00	7.05	10.0	13	0.0013	16	15.0

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-53 8-9
 HEAL ID: 1911C03-002B
 Lab Label: MK-2
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 412.72
 Weight Passing #10 (g): 234.41
 Weight Retained #10 (g): 178.31
 Weight of Hydrometer Sample (g): 55.87
 Calculated Weight of Sieve Sample (g): 98.37

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	412.72	100.00
	2"	50	0.00	0.00	412.72	100.00
	1.5"	38.1	0.00	0.00	412.72	100.00
	1"	25	0.00	0.00	412.72	100.00
	3/4"	19.0	11.38	11.38	401.34	97.24
	3/8"	9.5	70.61	81.99	330.73	80.13
	4	4.75	50.56	132.55	280.17	67.88
	10	2.00	45.76	178.31	234.41	56.80
-10	(Based on calculated sieve wt.)					
	20	0.85	9.97	52.47	45.90	46.66
	35	0.500	6.89	59.36	39.01	39.66
	60	0.250	10.17	69.53	28.84	29.32
	120	0.125	8.53	78.06	20.31	20.65
	230	0.063	3.35	81.41	16.96	17.24
	400	0.038	1.67	83.08	15.29	15.54
	dry pan		0.05	83.13	15.24	
	wet pan			15.24	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-53 8-9
 HEAL ID: 1911C03-002B
 Lab Label: MK-2
 Test Date: 10-Dec-19
 Start Time: 9:06

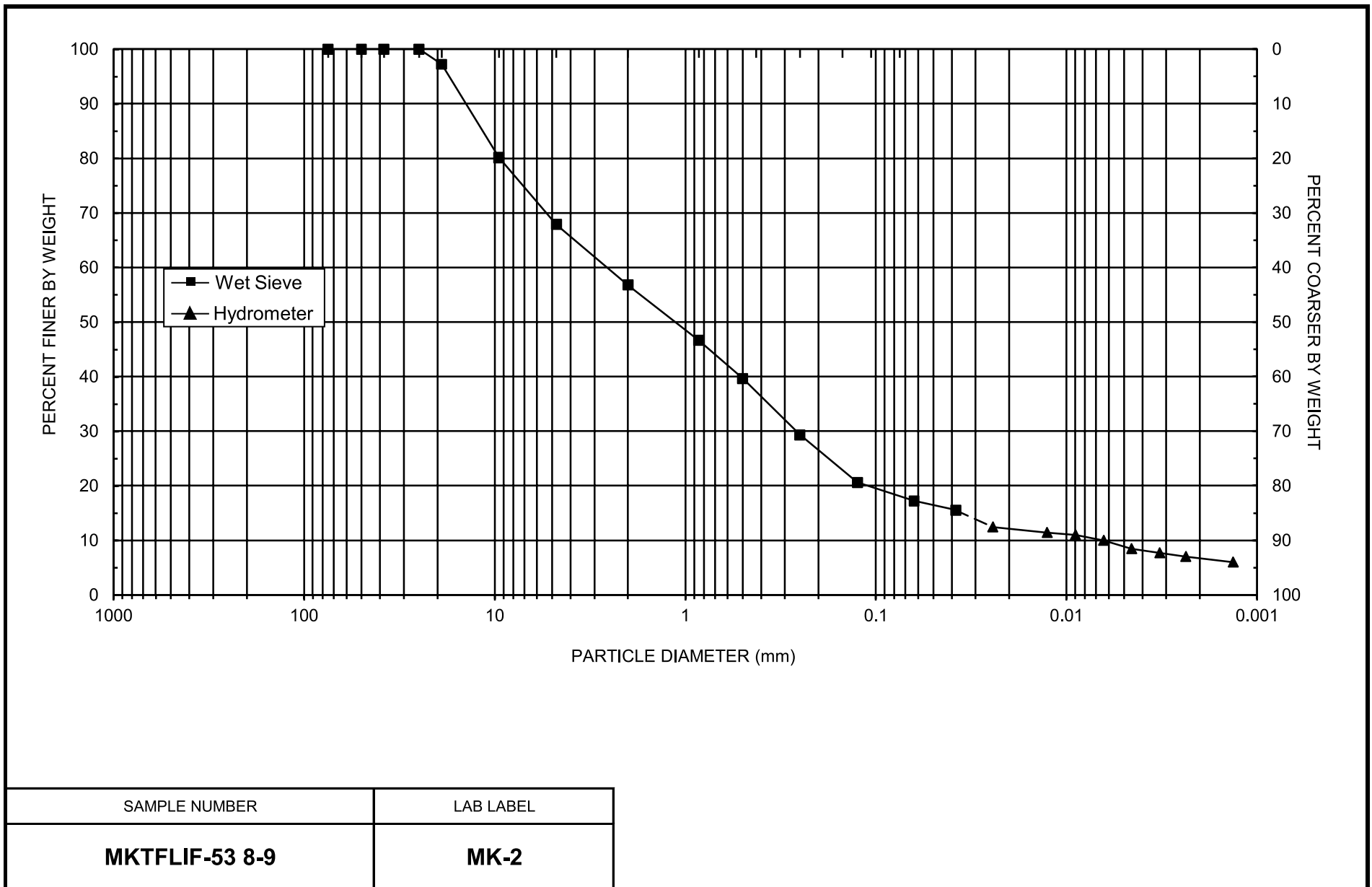
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 55.87
 Total Sample Wt. (g): 412.72
 Wt. Passing #10 (g): 234.41

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.6	19.00	6.70	12.3	13	0.0243	22	12.5
	15	19.6	18.00	6.70	11.3	13	0.0126	20	11.5
	30	19.7	17.50	6.67	10.8	13	0.0090	19	11.0
	60	19.8	16.50	6.64	9.9	13	0.0064	18	10.0
	120	19.8	15.00	6.64	8.4	13	0.0046	15	8.5
	240	19.8	14.25	6.64	7.6	14	0.0032	14	7.7
	454	20.0	13.50	6.57	6.9	14	0.0024	12	7.0
11-Dec-19	1430	18.5	13.00	7.05	6.0	14	0.0013	11	6.1

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-44 6-7
 HEAL ID: 1911C03-003B
 Lab Label: MK-3
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 268.10
 Weight Passing #10 (g): 128.63
 Weight Retained #10 (g): 139.47
 Weight of Hydrometer Sample (g): 74.08
 Calculated Weight of Sieve Sample (g): 154.40

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	268.10	100.00
	2"	50	0.00	0.00	268.10	100.00
	1.5"	38.1	0.00	0.00	268.10	100.00
	1"	25	0.00	0.00	268.10	100.00
	3/4"	19.0	0.00	0.00	268.10	100.00
	3/8"	9.5	29.56	29.56	238.54	88.97
	4	4.75	60.45	90.01	178.09	66.43
	10	2.00	49.46	139.47	128.63	47.98
-10	(Based on calculated sieve wt.)					
	20	0.85	17.20	97.52	56.88	36.84
	35	0.500	6.53	104.05	50.35	32.61
	60	0.250	8.88	112.93	41.47	26.86
	120	0.125	10.77	123.70	30.70	19.88
	230	0.063	5.88	129.58	24.82	16.07
	400	0.038	2.68	132.26	22.14	14.34
	dry pan		0.10	132.36	22.04	
	wet pan			22.04	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-44 6-7
 HEAL ID: 1911C03-003B
 Lab Label: MK-3
 Test Date: 10-Dec-19
 Start Time: 9:12

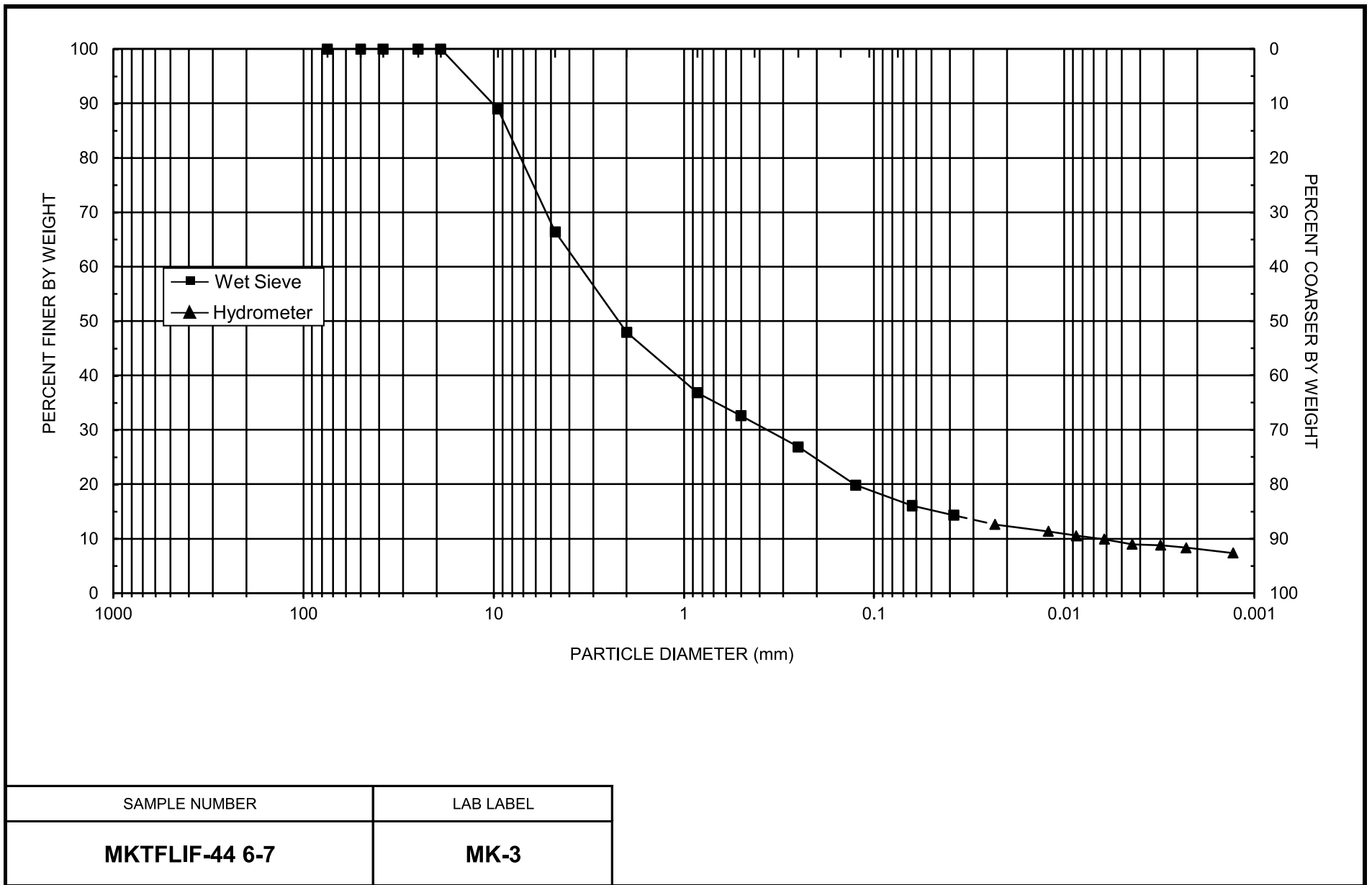
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 74.08
 Total Sample Wt. (g): 268.10
 Wt. Passing #10 (g): 128.63

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.6	26.25	6.70	19.5	12	0.0231	26	12.7
	15	19.7	24.25	6.67	17.6	12	0.0121	24	11.4
	30	19.7	23.00	6.67	16.3	12	0.0086	22	10.6
	60	19.8	22.00	6.64	15.4	12	0.0061	21	9.9
	120	19.8	20.50	6.64	13.9	12	0.0044	19	9.0
	240	19.8	20.25	6.64	13.6	13	0.0031	18	8.8
	449	20.0	19.50	6.57	12.9	13	0.0023	17	8.4
11-Dec-19	1425	18.5	18.50	7.05	11.5	13	0.0013	15	7.4

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-44 8-10
 HEAL ID: 1911C03-004B
 Lab Label: MK-4
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 580.93
 Weight Passing #10 (g): 365.48
 Weight Retained #10 (g): 215.45
 Weight of Hydrometer Sample (g): 59.02
 Calculated Weight of Sieve Sample (g): 93.81

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	580.93	100.00
	2"	50	0.00	0.00	580.93	100.00
	1.5"	38.1	0.00	0.00	580.93	100.00
	1"	25	26.62	26.62	554.31	95.42
	3/4"	19.0	19.10	45.72	535.21	92.13
	3/8"	9.5	61.27	106.99	473.94	81.58
	4	4.75	60.64	167.63	413.30	71.14
	10	2.00	47.82	215.45	365.48	62.91
-10	(Based on calculated sieve wt.)					
	20	0.85	5.71	40.50	53.31	56.83
	35	0.500	3.34	43.84	49.97	53.27
	60	0.250	9.63	53.47	40.34	43.00
	120	0.125	12.14	65.61	28.20	30.06
	230	0.063	4.74	70.35	23.46	25.01
	400	0.038	2.22	72.57	21.24	22.64
	dry pan		0.13	72.70	21.11	
	wet pan			21.11	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-44 8-10
 HEAL ID: 1911C03-004B
 Lab Label: MK-4
 Test Date: 10-Dec-19
 Start Time: 9:18

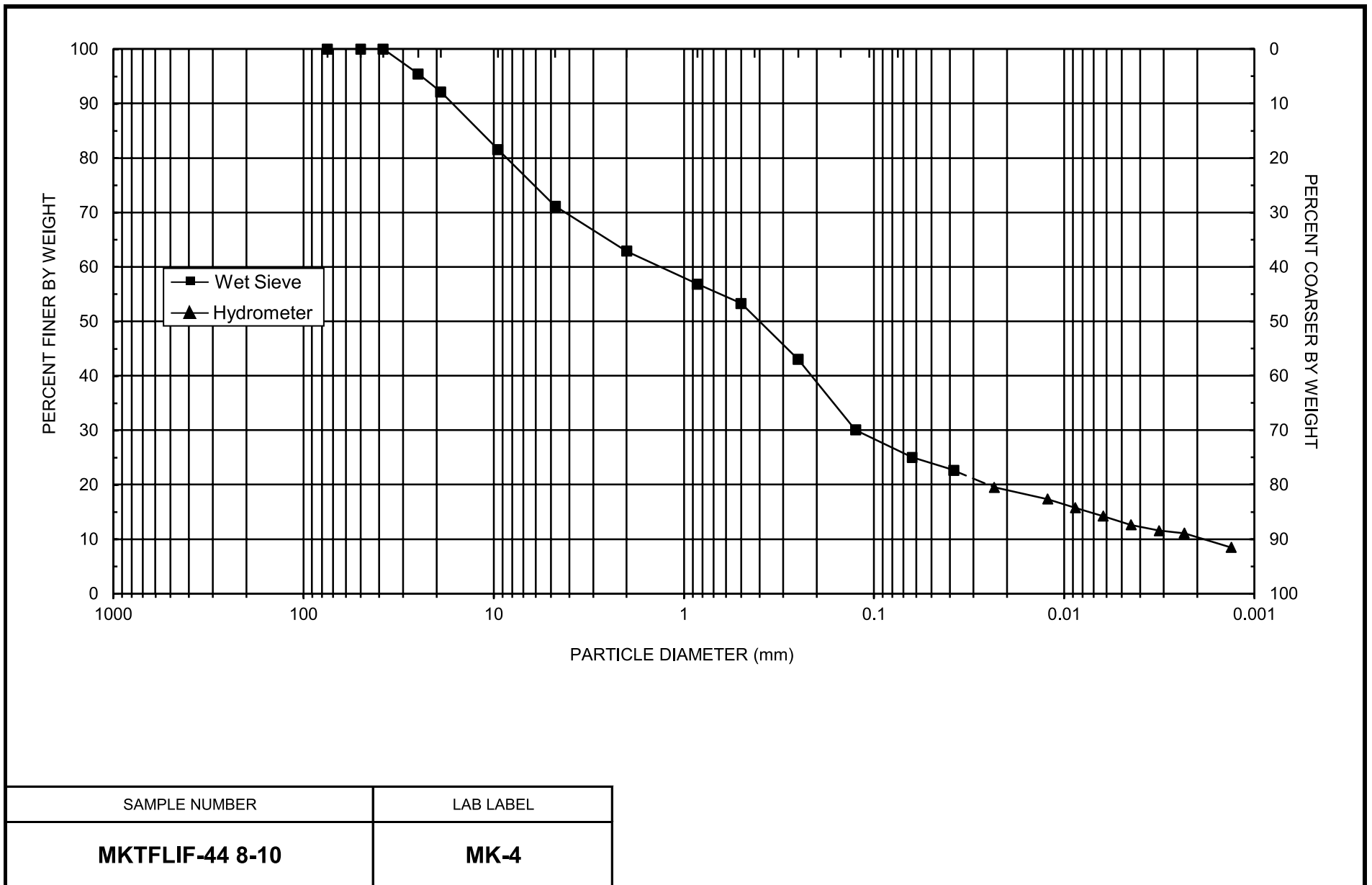
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 59.02
 Total Sample Wt. (g): 580.93
 Wt. Passing #10 (g): 365.48

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.7	25.00	6.67	18.3	12	0.0233	31	19.5
	15	19.7	23.00	6.67	16.3	12	0.0122	28	17.4
	30	19.7	21.50	6.67	14.8	12	0.0087	25	15.8
	60	19.8	20.00	6.64	13.4	13	0.0062	23	14.2
	120	19.8	18.50	6.64	11.9	13	0.0045	20	12.6
	240	19.8	17.50	6.64	10.9	13	0.0032	18	11.6
	444	20.0	17.00	6.57	10.4	13	0.0023	18	11.1
11-Dec-19	1420	18.5	15.00	7.05	8.0	13	0.0013	13	8.5

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-44 18-19
 HEAL ID: 1911C03-005B
 Lab Label: MK-5
 Test Date: 19-Dec-19

Initial Dry Weight of Sample (g): 283.00
 Weight Passing #10 (g): 281.84
 Weight Retained #10 (g): 1.16
 Weight of Hydrometer Sample (g): 55.94
 Calculated Weight of Sieve Sample (g): 56.17

Shape: Rounded
 Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	283.00	100.00
	2"	50	0.00	0.00	283.00	100.00
	1.5"	38.1	0.00	0.00	283.00	100.00
	1"	25	0.00	0.00	283.00	100.00
	3/4"	19.0	0.00	0.00	283.00	100.00
	3/8"	9.5	0.00	0.00	283.00	100.00
	4	4.75	0.33	0.33	282.67	99.88
	10	2.00	0.83	1.16	281.84	99.59
-10	(Based on calculated sieve wt.)					
	20	0.85	0.17	0.40	55.77	99.29
	35	0.500	0.28	0.68	55.49	98.79
	60	0.250	2.76	3.44	52.73	93.88
	120	0.125	9.52	12.96	43.21	76.93
	230	0.063	8.85	21.81	34.36	61.17
	400	0.038	3.58	25.39	30.78	54.80
	dry pan		0.33	25.72	30.45	
	wet pan			30.45	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: MKTFLIF-44 18-19
 HEAL ID: 1911C03-005B
 Lab Label: MK-5
 Test Date: 10-Dec-19
 Start Time: 9:24

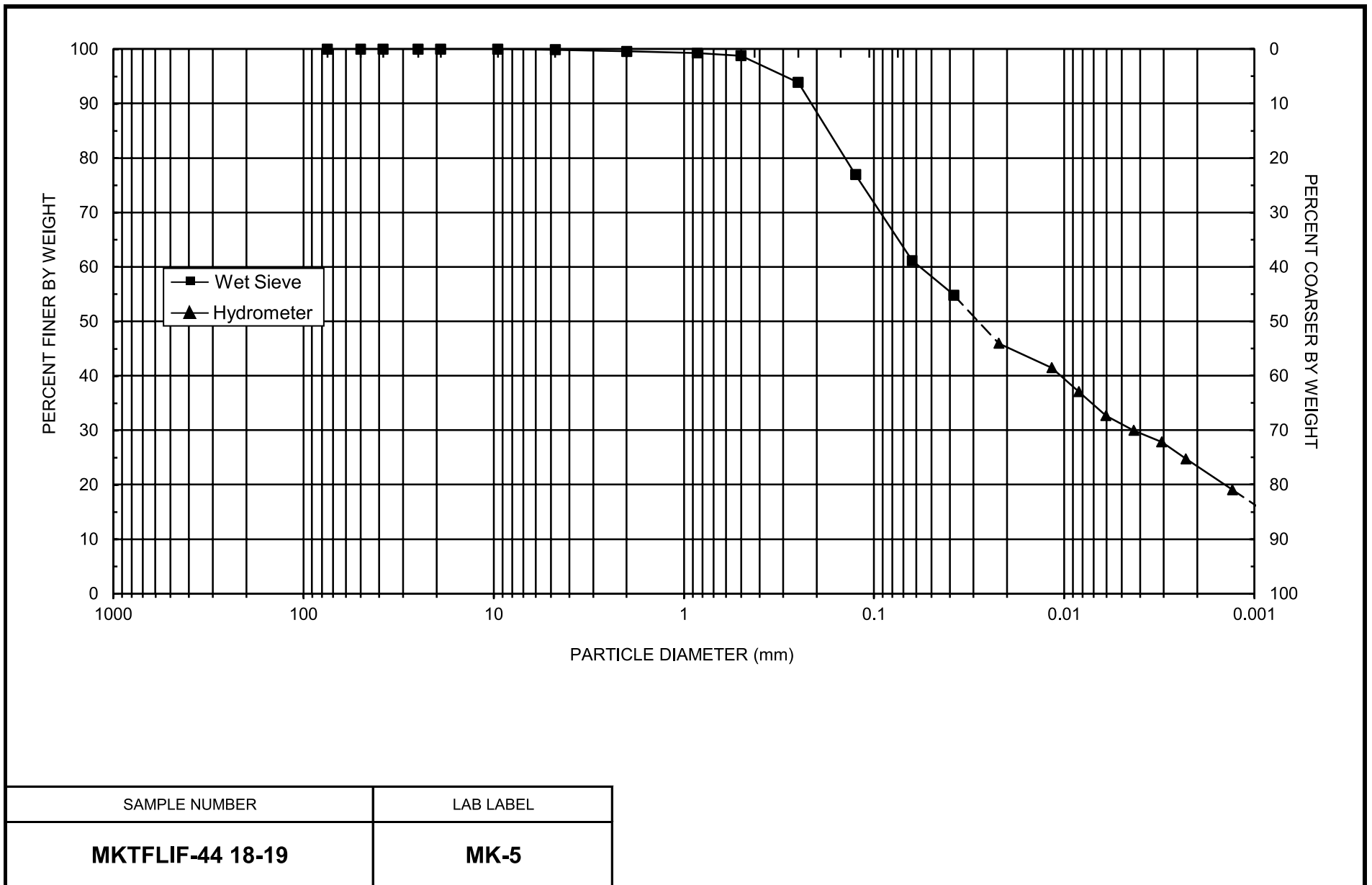
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 55.94
 Total Sample Wt. (g): 283.00
 Wt. Passing #10 (g): 281.84

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.7	32.50	6.67	25.8	10	0.0221	46	46.0
	15	19.7	30.00	6.67	23.3	11	0.0116	42	41.5
	30	19.7	27.50	6.67	20.8	11	0.0084	37	37.1
	60	19.8	25.00	6.64	18.4	12	0.0060	33	32.7
	120	19.8	23.50	6.64	16.9	12	0.0043	30	30.0
	240	19.9	22.25	6.60	15.6	12	0.0031	28	27.9
	441	20.0	20.50	6.57	13.9	12	0.0023	25	24.8
11-Dec-19	1415	18.5	17.75	7.05	10.7	13	0.0013	19	19.1

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines





Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-34 20-21
 HEAL ID: 1911C03-006B
 Lab Label: EB-1
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 366.17
 Weight Passing #10 (g): 348.06
 Weight Retained #10 (g): 18.11
 Weight of Hydrometer Sample (g): 55.83
 Calculated Weight of Sieve Sample (g): 58.73

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	366.17	100.00
	2"	50	0.00	0.00	366.17	100.00
	1.5"	38.1	0.00	0.00	366.17	100.00
	1"	25	0.00	0.00	366.17	100.00
	3/4"	19.0	0.00	0.00	366.17	100.00
	3/8"	9.5	5.04	5.04	361.13	98.62
	4	4.75	5.60	10.64	355.53	97.09
	10	2.00	7.47	18.11	348.06	95.05
-10	(Based on calculated sieve wt.)					
	20	0.85	1.30	4.20	54.53	92.84
	35	0.500	1.51	5.71	53.02	90.27
	60	0.250	6.26	11.97	46.76	79.61
	120	0.125	7.97	19.94	38.79	66.04
	230	0.063	8.56	28.50	30.23	51.47
	400	0.038	4.68	33.18	25.55	43.50
	dry pan		0.40	33.58	25.15	
	wet pan			25.15	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-34 20-21
 HEAL ID: 1911C03-006B
 Lab Label: EB-1
 Test Date: 12/10/19q
 Start Time: 9:30

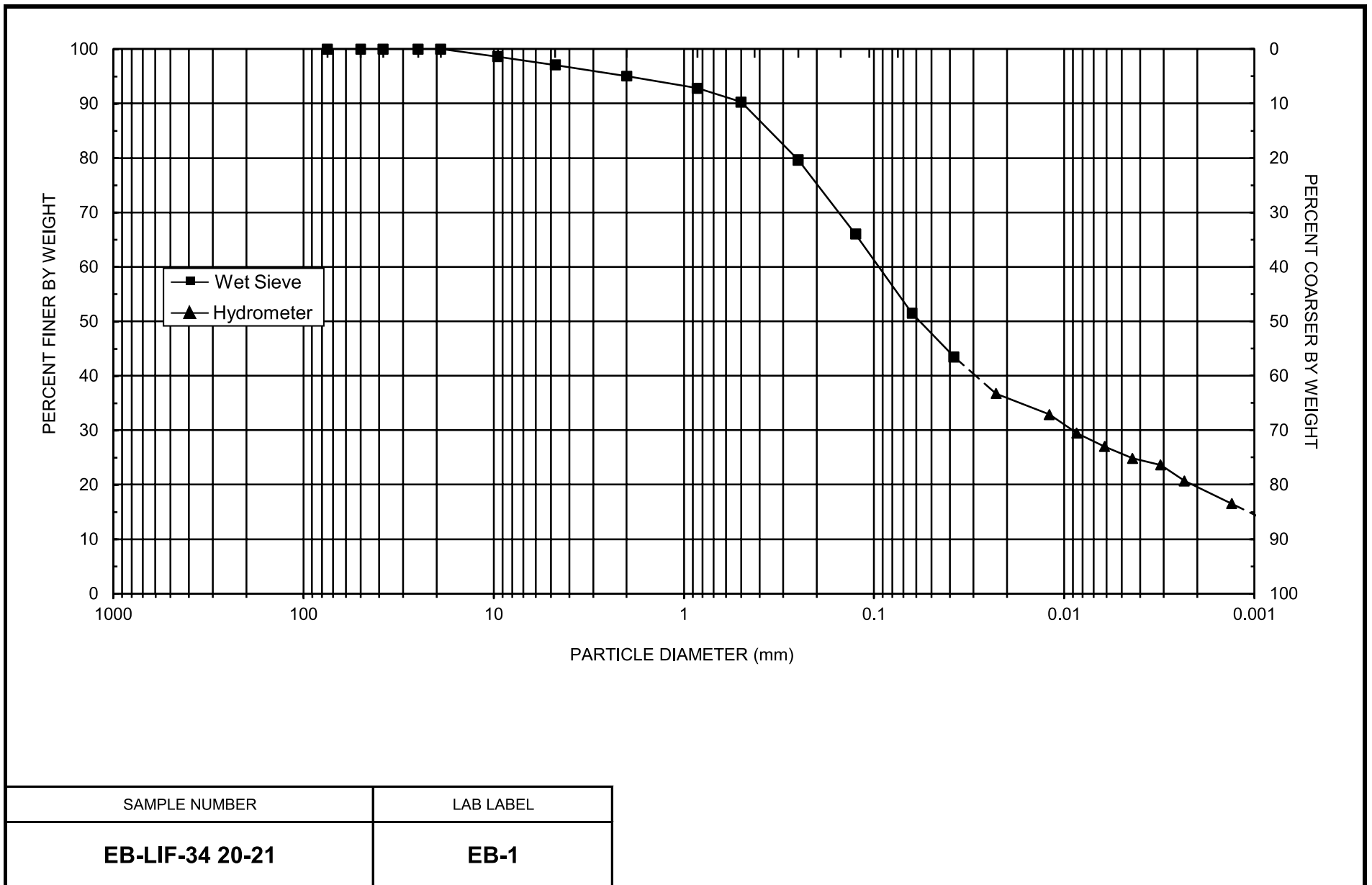
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 55.83
 Total Sample Wt. (g): 366.17
 Wt. Passing #10 (g): 348.06

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.7	28.25	6.67	21.6	11	0.0228	39	36.7
	15	19.7	26.00	6.67	19.3	12	0.0120	35	32.9
	30	19.7	24.00	6.67	17.3	12	0.0086	31	29.5
	60	19.8	22.50	6.64	15.9	12	0.0061	28	27.0
	120	19.8	21.25	6.64	14.6	12	0.0044	26	24.9
	240	19.9	20.50	6.60	13.9	13	0.0031	25	23.7
	436	20.0	18.75	6.57	12.2	13	0.0023	22	20.7
11-Dec-19	1410	18.5	16.75	7.05	9.7	13	0.0013	17	16.5

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-19 16-19
 HEAL ID: 1911C03-007B
 Lab Label: EB-2
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 539.36
 Weight Passing #10 (g): 539.01
 Weight Retained #10 (g): 0.35
 Weight of Hydrometer Sample (g): 57.81
 Calculated Weight of Sieve Sample (g): 57.85

Shape: Rounded
 Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	539.36	100.00
	2"	50	0.00	0.00	539.36	100.00
	1.5"	38.1	0.00	0.00	539.36	100.00
	1"	25	0.00	0.00	539.36	100.00
	3/4"	19.0	0.00	0.00	539.36	100.00
	3/8"	9.5	0.00	0.00	539.36	100.00
	4	4.75	0.00	0.00	539.36	100.00
	10	2.00	0.35	0.35	539.01	99.94
-10	(Based on calculated sieve wt.)					
	20	0.85	0.18	0.22	57.63	99.62
	35	0.500	1.29	1.51	56.34	97.39
	60	0.250	4.16	5.67	52.18	90.20
	120	0.125	5.28	10.95	46.90	81.08
	230	0.063	5.61	16.56	41.29	71.38
	400	0.038	4.11	20.67	37.18	64.27
	dry pan		0.45	21.12	36.73	
	wet pan			36.73	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-19 16-19
 HEAL ID: 1911C03-007B
 Lab Label: EB-2
 Test Date: 10-Dec-19
 Start Time: 9:36

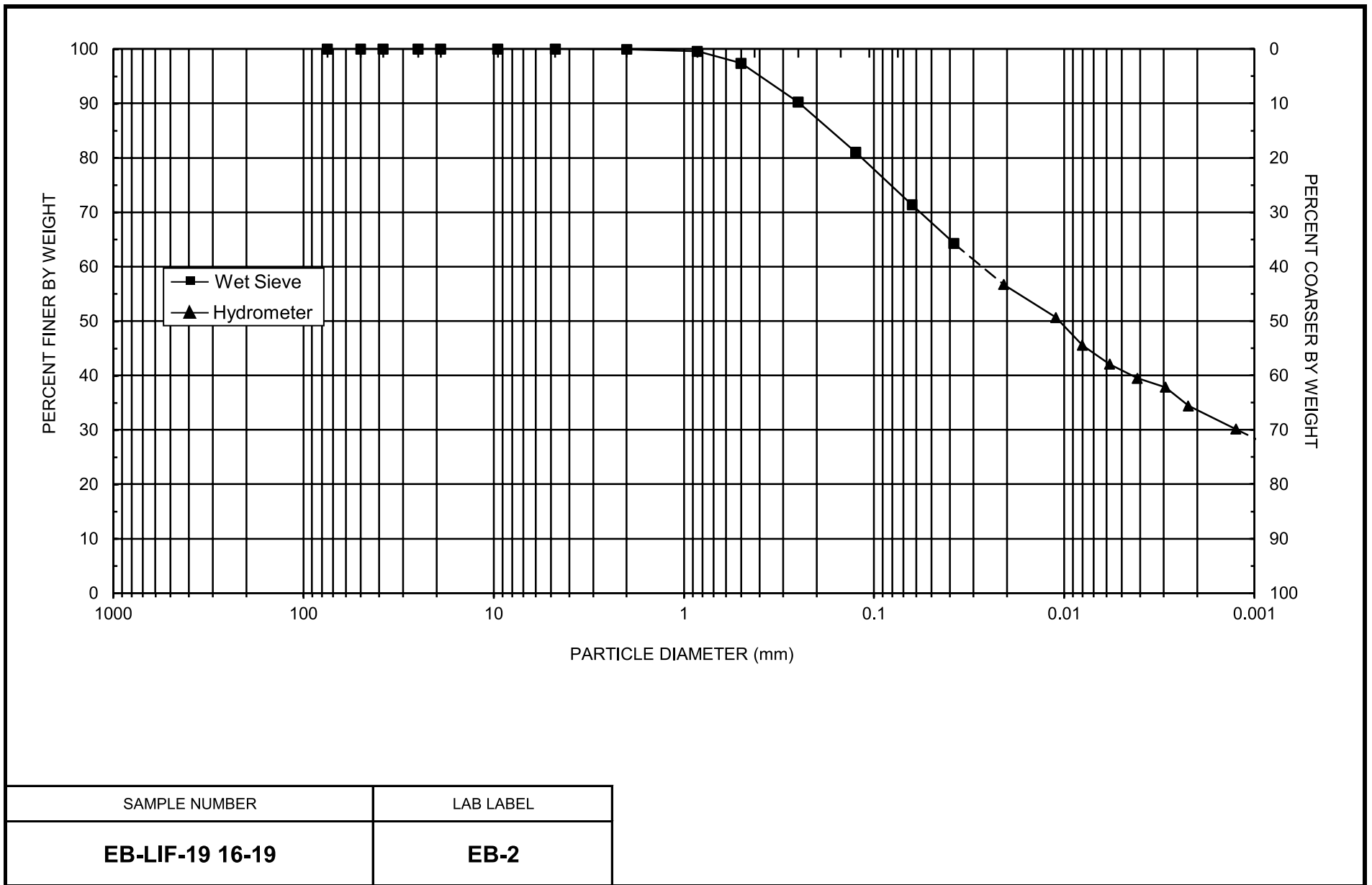
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 57.81
 Total Sample Wt. (g): 539.36
 Wt. Passing #10 (g): 539.01

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.7	39.50	6.67	32.8	9	0.0208	57	56.8
	15	19.7	36.00	6.67	29.3	10	0.0111	51	50.7
	30	19.8	33.00	6.64	26.4	10	0.0080	46	45.6
	60	19.8	31.00	6.64	24.4	11	0.0058	42	42.1
	120	19.8	29.50	6.64	22.9	11	0.0041	40	39.5
	240	19.9	28.50	6.60	21.9	11	0.0029	38	37.8
	431	20.0	26.50	6.57	19.9	11	0.0022	34	34.4
11-Dec-19	1406	18.5	24.50	7.05	17.5	12	0.0012	30	30.2

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-20 27-28
 HEAL ID: 1911C03-008B
 Lab Label: EB-3
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 29.70
 Weight Passing #10 (g): 27.06
 Weight Retained #10 (g): 2.64
 Weight of Hydrometer Sample (g): 26.91
 Calculated Weight of Sieve Sample (g): 29.54

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	29.70	100.00
	2"	50	0.00	0.00	29.70	100.00
	1.5"	38.1	0.00	0.00	29.70	100.00
	1"	25	0.00	0.00	29.70	100.00
	3/4"	19.0	0.00	0.00	29.70	100.00
	3/8"	9.5	0.00	0.00	29.70	100.00
	4	4.75	1.51	1.51	28.19	94.92
	10	2.00	1.13	2.64	27.06	91.11
-10	(Based on calculated sieve wt.)					
	20	0.85	1.52	4.15	25.39	85.96
	35	0.500	2.34	6.49	23.05	78.04
	60	0.250	7.95	14.44	15.10	51.13
	120	0.125	5.94	20.38	9.16	31.01
	230	0.063	2.62	23.00	6.54	22.14
	400	0.038	1.00	24.00	5.54	18.76
	dry pan		0.01	24.01	5.53	
	wet pan			5.53	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-20 27-28
 HEAL ID: 1911C03-008B
 Lab Label: EB-3
 Test Date: 10-Dec-19
 Start Time: 9:42

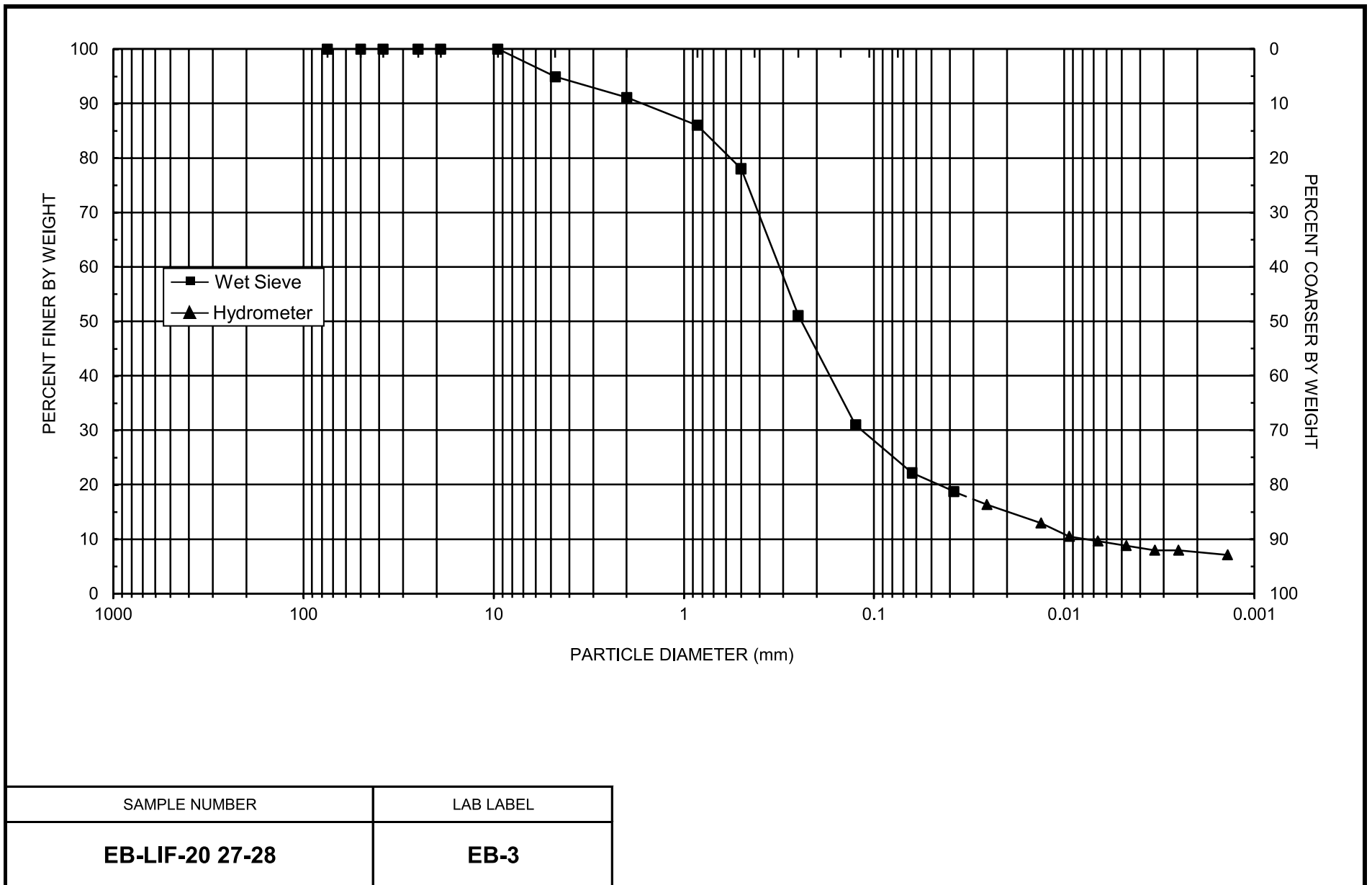
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 26.91
 Total Sample Wt. (g): 29.70
 Wt. Passing #10 (g): 27.06

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.7	11.50	6.67	4.8	14	0.0255	18	16.4
	15	19.7	10.50	6.67	3.8	14	0.0132	14	13.0
	30	19.8	9.75	6.64	3.1	14	0.0094	12	10.5
	60	19.8	9.50	6.64	2.9	14	0.0067	11	9.7
	120	19.8	9.25	6.64	2.6	14	0.0047	10	8.9
	240	19.8	9.00	6.64	2.4	14	0.0033	9	8.0
	427	19.8	9.00	6.64	2.4	14	0.0025	9	8.0
11-Dec-19	1401	19.8	8.75	6.64	2.1	14	0.0014	8	7.2

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Hines
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines





Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-28 20-21
 HEAL ID: 1911C03-009B
 Lab Label: EB-4
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 218.12
 Weight Passing #10 (g): 157.69
 Weight Retained #10 (g): 60.43
 Weight of Hydrometer Sample (g): 64.97
 Calculated Weight of Sieve Sample (g): 89.87

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	218.12	100.00
	2"	50	0.00	0.00	218.12	100.00
	1.5"	38.1	0.00	0.00	218.12	100.00
	1"	25	0.00	0.00	218.12	100.00
	3/4"	19.0	9.81	9.81	208.31	95.50
	3/8"	9.5	26.53	36.34	181.78	83.34
	4	4.75	14.00	50.34	167.78	76.92
	10	2.00	10.09	60.43	157.69	72.30
-10	(Based on calculated sieve wt.)					
	20	0.85	4.98	29.88	59.99	66.75
	35	0.500	5.37	35.25	54.62	60.78
	60	0.250	17.25	52.50	37.37	41.58
	120	0.125	12.98	65.48	24.39	27.14
	230	0.063	4.41	69.89	19.98	22.23
	400	0.038	2.10	71.99	17.88	19.90
	dry pan		0.20	72.19	17.68	
	wet pan			17.68	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-28 20-21
 HEAL ID: 1911C03-009B
 Lab Label: EB-4
 Test Date: 10-Dec-19
 Start Time: 9:48

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 64.97
 Total Sample Wt. (g): 218.12
 Wt. Passing #10 (g): 157.69

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Dec-19	4	19.7	22.50	6.67	15.8	12	0.0238	24	17.6
	15	19.7	20.50	6.67	13.8	13	0.0124	21	15.4
	30	19.8	18.75	6.64	12.1	13	0.0089	19	13.5
	60	19.8	17.75	6.64	11.1	13	0.0063	17	12.4
	120	19.8	17.00	6.64	10.4	13	0.0045	16	11.5
	240	19.9	16.50	6.60	9.9	13	0.0032	15	11.0
	422	20.0	15.75	6.57	9.2	13	0.0024	14	10.2
11-Dec-19	1396	18.6	14.00	7.02	7.0	14	0.0013	11	7.8

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines





Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Wet Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-28 21-23
 HEAL ID: 1911C03-010B
 Lab Label: EB-5
 Test Date: 12-Dec-19

Initial Dry Weight of Sample (g): 391.02
 Weight Passing #10 (g): 252.36
 Weight Retained #10 (g): 138.66
 Weight of Hydrometer Sample (g): 70.05
 Calculated Weight of Sieve Sample (g): 108.54

Shape: Rounded
 Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	391.02	100.00
	2"	50	0.00	0.00	391.02	100.00
	1.5"	38.1	0.00	0.00	391.02	100.00
	1"	25	0.00	0.00	391.02	100.00
	3/4"	19.0	0.00	0.00	391.02	100.00
	3/8"	9.5	45.46	45.46	345.56	88.37
	4	4.75	46.79	92.25	298.77	76.41
	10	2.00	46.41	138.66	252.36	64.54
-10	(Based on calculated sieve wt.)					
	20	0.85	11.47	49.96	58.58	53.97
	35	0.500	9.73	59.69	48.85	45.01
	60	0.250	15.63	75.32	33.22	30.61
	120	0.125	9.44	84.76	23.78	21.91
	230	0.063	4.35	89.11	19.43	17.90
	400	0.038	2.11	91.22	17.32	15.96
	dry pan		0.14	91.36	17.18	
	wet pan			17.18	0.00	

Laboratory analysis by: A. Albay-Yenney
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB19.1446.00
 Sample Number: EB-LIF-28 21-23
 HEAL ID: 1911C03-010B
 Lab Label: EB-5
 Test Date: 11-Dec-19
 Start Time: 9:54

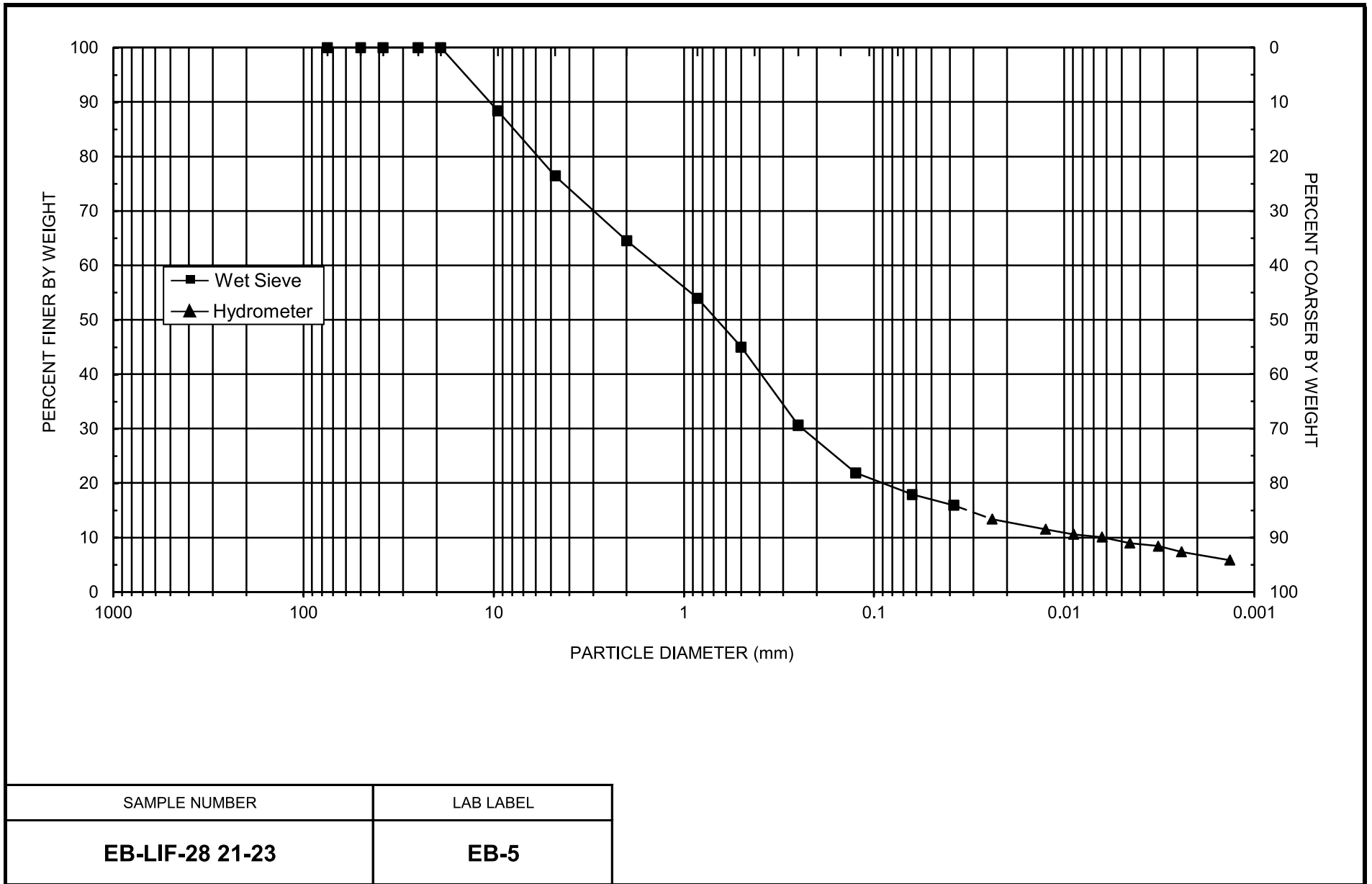
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 70.05
 Total Sample Wt. (g): 391.02
 Wt. Passing #10 (g): 252.36

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
11-Dec-19	4	18.8	21.50	6.96	14.5	12	0.0239	21	13.4
	15	18.8	19.50	6.96	12.5	13	0.0125	18	11.6
	30	18.8	18.50	6.96	11.5	13	0.0089	16	10.6
	60	19.3	17.75	6.80	11.0	13	0.0063	16	10.1
	120	19.6	16.50	6.70	9.8	13	0.0045	14	9.0
	240	20.0	15.75	6.57	9.2	13	0.0032	13	8.5
	430	20.2	14.50	6.50	8.0	13	0.0024	11	7.4
12-Dec-19	1407	19.1	13.25	6.86	6.4	14	0.0013	9	5.9

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: J. Niedbala
 Data entered by: A. Albay-Yenney
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Laboratory Tests and Methods



Daniel B. Stephens & Associates, Inc.

Tests and Methods

Particle Size Analysis: ASTM D7928, ASTM D6913

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1911C03

17-Dec-19

Client: Marathon
Project: LIF Investigation

Sample ID: LCS-49056	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 49056	RunNo: 64856								
Prep Date: 11/27/2019	Analysis Date: 12/2/2019	SeqNo: 2223563 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	103	63.9	124			
Surr: DNOP	5.1		5.000		102	70	130			

Sample ID: MB-49056	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 49056	RunNo: 64856								
Prep Date: 11/27/2019	Analysis Date: 12/2/2019	SeqNo: 2223565 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.0		10.00		79.9	70	130			

Sample ID: LCS-49070	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 49070	RunNo: 64876								
Prep Date: 12/2/2019	Analysis Date: 12/3/2019	SeqNo: 2224173 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.8	63.9	124			
Surr: DNOP	4.0		5.000		79.0	70	130			

Sample ID: MB-49070	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 49070	RunNo: 64876								
Prep Date: 12/2/2019	Analysis Date: 12/3/2019	SeqNo: 2224174 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		105	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1911C03

17-Dec-19

Client: Marathon
Project: LIF Investigation

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: S64862	RunNo: 64862								
Prep Date:	Analysis Date: 12/2/2019	SeqNo: 2223727 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	820		1000		81.9	77.4	118			

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: S64862	RunNo: 64862								
Prep Date:	Analysis Date: 12/2/2019	SeqNo: 2223728 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.0	80	120			
Surr: BFB	920		1000		92.4	77.4	118			

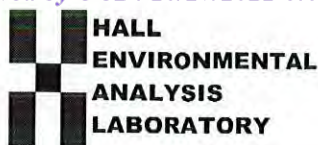
Sample ID: 1911c03-001ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: MKTF-LIF-53 7.8	Batch ID: S64862	RunNo: 64862								
Prep Date:	Analysis Date: 12/3/2019	SeqNo: 2223730 Units: mg/Kg-dry								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1700	29	145.4	1571	91.6	69.1	142			
Surr: BFB	13000		5818		216	77.4	118			S

Sample ID: 1911c03-001amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: MKTF-LIF-53 7.8	Batch ID: S64862	RunNo: 64862								
Prep Date:	Analysis Date: 12/3/2019	SeqNo: 2223731 Units: mg/Kg-dry								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1800	29	145.4	1571	129	69.1	142	3.14	20	
Surr: BFB	13000		5817		219	77.4	118	0	0	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: MARATHON GALLUP

Work Order Number: 1911C03

RcptNo: 1

Received By: Isaiah Ortiz 11/26/2019 12:20:00 PM

Completed By: Isaiah Ortiz 11/26/2019 12:59:02 PM

Reviewed By: *Is**11/26/19**ISOX**ISOX*

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
- # of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: *JP 11/26/19*

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date: By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In PersonRegarding: Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.1	Good	Not Present			

Chain-of-Custody Record

Client: Marathon Petroleum Company
Gallup Refining Division
 Mailing Address:

Phone #: 505-726-9745
 email or Fax#: B Moore | @ Marathon Petroleum, Com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Date	Time	Matrix	Sample Request ID
11/25/15	0903	Soil	EB-LIF-19 16-18
11/25/15	0903	Soil	EB-LIF-19 16-18
11/25/15	1320	Soil	EB-LIF-20 27-28
11/25/15	1326	Soil	EB-LIF-20 27-28
11/25/15	0940	Soil	EB-LIF-28 20-21
11/25/15	0940	Soil	EB-LIF-28 20-21
11/25/15	0930	Soil	EB-LIF-28 21-23
11/25/15	0930	Soil	EB-LIF-28 21-23

Date: 11/25/15 Time: 1445
 Relinquished by: Paul Spald

Date: 11/26/15 Time: 1220
 Relinquished by:

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:
LIF Investigation

Project #: 657-066-001

Project Manager:
Paul Hildebrandt
phildebrandt@trihydro.com

Sampler: P Hildebrandt

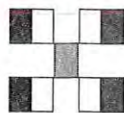
On Ice: ☒ Yes ☐ No
 Sample Temperature: 5.6-0.5 (C) / 5.1 (F)

Container Type and #
 Preservative Type
 HEAL No.

11/25/15	0903	Glass/3	MeOH	-007
11/25/15	0903	Ziploc/1	—	—
11/25/15	1320	Glass/3	MeOH	-008
11/25/15	1326	Ziploc/1	—	—
11/25/15	0940	Glass/3	MeOH	-009
11/25/15	0940	Ziploc/1	—	—
11/25/15	0930	Glass/3	MeOH	-010
11/25/15	0930	Ziploc/1	—	—

Received by: Paul Spald Date: 11/25/15 Time: 1445

Received by: Paul Spald Date: 11/26/15 Time: 1220



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TMB's (8021)
BTEX + MTBE + TPH (Gas only)	BTEX + MTBE + TPH (Gas only)
TPH 8015B (GRO / DRO / MRO)	TPH 8015B (GRO / DRO / MRO)
TPH (Method 418.1)	TPH (Method 418.1)
EDB (Method 504.1)	EDB (Method 504.1)
PAH's (8310 or 8270 SIMS)	PAH's (8310 or 8270 SIMS)
RCRA 8 Metals	RCRA 8 Metals
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
8081 Pesticides / 8082 PCB's	8081 Pesticides / 8082 PCB's
8260B (VOA)	8260B (VOA)
8270 (Semi-VOA)	8270 (Semi-VOA)
Green St 2c	Green St 2c
Moisture	Moisture
Air Bubbles (Y or N)	Air Bubbles (Y or N)

Remarks:



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

February 17, 2021

Paul Hildebrandt
Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX

RE: MPC MKTF LIF Investigation

OrderNo.: 2102373

Dear Paul Hildebrandt:

Hall Environmental Analysis Laboratory received 6 sample(s) on 2/6/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2102373

Date Reported: 2/17/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-74 2-3

Project: MPC MKTF LIF Investigation

Collection Date: 2/4/2021 9:45:00 AM

Lab ID: 2102373-001

Matrix: SOIL

Received Date: 2/6/2021 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	20	1.0		wt%	1	2/8/2021	R75175
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	1500	290		mg/Kg-dr	50	2/12/2021 5:10:33 AM	57986
Surr: BFB	99.6	70-130		%Rec	50	2/12/2021 5:10:33 AM	57986
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	490	12		mg/Kg-dr	1	2/11/2021 9:26:54 AM	58001
Motor Oil Range Organics (MRO)	ND	62		mg/Kg-dr	1	2/11/2021 9:26:54 AM	58001
Surr: DNOP	102	70-130		%Rec	1	2/11/2021 9:26:54 AM	58001

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2102373

Date Reported: 2/17/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-74 4-5

Project: MPC MKTF LIF Investigation

Collection Date: 2/4/2021 9:47:00 AM

Lab ID: 2102373-002

Matrix: SOIL

Received Date: 2/6/2021 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	19	1.0		wt%	1	2/8/2021	R75175
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	2300	290		mg/Kg-dr	50	2/12/2021 5:39:04 AM	57986
Surr: BFB	101	70-130		%Rec	50	2/12/2021 5:39:04 AM	57986
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	180	12		mg/Kg-dr	1	2/10/2021 8:45:58 PM	58001
Motor Oil Range Organics (MRO)	ND	59		mg/Kg-dr	1	2/10/2021 8:45:58 PM	58001
Surr: DNOP	118	70-130		%Rec	1	2/10/2021 8:45:58 PM	58001

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 2 of 8

Analytical Report

Lab Order 2102373

Date Reported: 2/17/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-74 5-6

Project: MPC MKTF LIF Investigation

Collection Date: 2/4/2021 9:49:00 AM

Lab ID: 2102373-003

Matrix: SOIL

Received Date: 2/6/2021 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	23	1.0		wt%	1	2/8/2021	R75175
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	630	65		mg/Kg-dr	10	2/12/2021 6:07:35 AM	57986
Surr: BFB	101	70-130		%Rec	10	2/12/2021 6:07:35 AM	57986
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	22	12		mg/Kg-dr	1	2/10/2021 8:55:44 PM	58001
Motor Oil Range Organics (MRO)	ND	62		mg/Kg-dr	1	2/10/2021 8:55:44 PM	58001
Surr: DNOP	113	70-130		%Rec	1	2/10/2021 8:55:44 PM	58001

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2102373

Date Reported: 2/17/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: MKTF-LIF-85 7-9

Project: MPC MKTF LIF Investigation

Collection Date: 2/5/2021 10:31:00 AM

Lab ID: 2102373-004

Matrix: SOIL

Received Date: 2/6/2021 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	25	1.0		wt%	1	2/8/2021	R75175
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	130	67		mg/Kg-dr	10	2/12/2021 6:36:12 AM	57986
Surr: BFB	103	70-130		%Rec	10	2/12/2021 6:36:12 AM	57986
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	13		mg/Kg-dr	1	2/11/2021 9:56:42 AM	58001
Motor Oil Range Organics (MRO)	ND	64		mg/Kg-dr	1	2/11/2021 9:56:42 AM	58001
Surr: DNOP	102	70-130		%Rec	1	2/11/2021 9:56:42 AM	58001

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2102373

Date Reported: 2/17/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: PA-LIF-07 11-13

Project: MPC MKTF LIF Investigation

Collection Date: 2/5/2021 1:31:00 PM

Lab ID: 2102373-005

Matrix: SOIL

Received Date: 2/6/2021 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	13	1.0		wt%	1	2/8/2021	R75175
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	300	110		mg/Kg-dr	20	2/12/2021 7:04:44 AM	57986
Surr: BFB	101	70-130		%Rec	20	2/12/2021 7:04:44 AM	57986
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	130	10		mg/Kg-dr	1	2/10/2021 9:15:11 PM	58001
Motor Oil Range Organics (MRO)	ND	50		mg/Kg-dr	1	2/10/2021 9:15:11 PM	58001
Surr: DNOP	103	70-130		%Rec	1	2/10/2021 9:15:11 PM	58001

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2102373

Date Reported: 2/17/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon

Client Sample ID: PA-LIF-07 13-14

Project: MPC MKTF LIF Investigation

Collection Date: 2/5/2021 1:32:00 PM

Lab ID: 2102373-006

Matrix: SOIL

Received Date: 2/6/2021 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
PERCENT MOISTURE							Analyst: JMR
Percent Moisture	13	1.0		wt%	1	2/8/2021	R75175
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	82	5.6		mg/Kg-dr	1	2/12/2021 7:33:18 AM	57986
Surr: BFB	102	70-130		%Rec	1	2/12/2021 7:33:18 AM	57986
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	11	11		mg/Kg-dr	1	2/11/2021 10:20:26 AM	58001
Motor Oil Range Organics (MRO)	ND	53		mg/Kg-dr	1	2/11/2021 10:20:26 AM	58001
Surr: DNOP	91.8	70-130		%Rec	1	2/11/2021 10:20:26 AM	58001

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Laboratory Report for Hall Environmental Analysis Laboratory

Project Number: 2102373

February 16, 2021



Daniel B. Stephens & Associates, Inc.

4400 Alameda Blvd. NE, Suite C • Albuquerque, New Mexico 87113



February 16, 2021

Andy Freeman
Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite D
Albuquerque, NM 87109
(505) 345-3975

Re: DBS&A Laboratory Report for the HEAL Project Number: 2102373 Sample Testing

Dear Mr. Freeman:

Enclosed is the report for the HEAL Project Number: 2102373 sample testing. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to HEAL and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Joleen Hines
Laboratory Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory

4400 Alameda Blvd. NE, Suite C
Albuquerque, NM 87113

505-889-7752
FAX 505-889-0258

Summaries



Daniel B. Stephens & Associates, Inc.

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties ¹			Saturated Hydraulic Conductivity ²			Moisture Characteristics ³								Particle Size ⁴			Specific Gravity ⁵		Air Perm- eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K _{unsat}	DS	WS	H	F	C			
2102373-001B/ MKTF-LIF-74 2-3																X	X					
2102373-002B/ MKTF-LIF-74 4-5																X	X					
2102373-004B/ MKTF-LIF-85 7-9																X	X					
2102373-005B/ PA-LIF-07 11-13																X	X					

¹ G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method² CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall³ HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, K_{unsat} = Calculated Unsaturated Hydraulic Conductivity⁴ DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer⁵ F = Fine (<4.75mm), C = Coarse (>4.75mm)



Daniel B. Stephens & Associates, Inc.

Notes

Sample Receipt:

Four samples, each as loose material in an 8-oz jar, were hand-delivered on February 8, 2021. The samples were delivered in a cooler with ice packs and were received in good order.

Sample Preparation and Testing Notes:

Each of the samples was subjected to particle size analysis testing.

Particle diameter calculations in the hydrometer portion of the particle size analysis testing are based on the use of an assumed specific gravity value of 2.65.



Daniel B. Stephens & Associates, Inc.

Summary of Particle Size Characteristics

Sample Number	d ₁₀ (mm)	d ₅₀ (mm)	d ₆₀ (mm)	C _u	C _c	Method	ASTM Classification	USDA Classification
2102373-001B/ MKTF-LIF-74 2-3	0.0018	0.11	0.17	94	3.3	WS/H	Classification by ASTM 2487 requires Atterberg test	Sandy Loam
2102373-002B/ MKTF-LIF-74 4-5	0.0010	0.041	0.057	57	1.2	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam (Est)
2102373-004B/ MKTF-LIF-85 7-9	0.00065	0.030	0.047	72	1.3	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam (Est)
2102373-005B/ PA-LIF-07 11-13	0.0039	0.29	0.40	103	7.8	WS/H	Classification by ASTM 2487 requires Atterberg test	Sandy Loam [†]

Est = Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

[†] Greater than 10% of sample is coarse materiald₅₀ = Median particle diameter



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Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
2102373-001B/ MKTF- LIF-74 2-3	0.9	54.9	33.2	11.0
2102373-002B/ MKTF- LIF-74 4-5	0.0	30.3	51.9	17.8
2102373-004B/ MKTF- LIF-85 7-9	0.0	23.5	55.9	20.6
2102373-005B/ PA-LIF- 07 11-13	13.5	59.0	19.4	8.1

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis



Daniel B. Stephens & Associates, Inc.

Summary of Particle Size Characteristics

Sample Number	d ₁₀ (mm)	d ₅₀ (mm)	d ₆₀ (mm)	C _u	C _c	Method	ASTM Classification	USDA Classification
2102373-001B/ MKTF-LIF-74 2-3	0.0018	0.11	0.17	94	3.3	WS/H	Classification by ASTM 2487 requires Atterberg test	Sandy Loam
2102373-002B/ MKTF-LIF-74 4-5	0.0010	0.041	0.057	57	1.2	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam (Est)
2102373-004B/ MKTF-LIF-85 7-9	0.00065	0.030	0.047	72	1.3	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam (Est)
2102373-005B/ PA-LIF-07 11-13	0.0039	0.29	0.40	103	7.8	WS/H	Classification by ASTM 2487 requires Atterberg test	Sandy Loam [†]

Est = Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

[†] Greater than 10% of sample is coarse materiald₅₀ = Median particle diameter



Daniel B. Stephens & Associates, Inc.

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
2102373-001B/ MKTF- LIF-74 2-3	0.9	54.9	33.2	11.0
2102373-002B/ MKTF- LIF-74 4-5	0.0	30.3	51.9	17.8
2102373-004B/ MKTF- LIF-85 7-9	0.0	23.5	55.9	20.6
2102373-005B/ PA-LIF- 07 11-13	13.5	59.0	19.4	8.1

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-001B/ MKTF-LIF-74 2-3
 Matrix: Soil
 Date/Time Sampled: 2/4/21 945
 Test Date: 9-Feb-21

Initial Dry Weight of Sample (g): 216.40
 Weight Passing #10 (g): 209.21
 Weight Retained #10 (g): 7.19
 Weight of -10 Sub-Sample (g): 49.88
 Calculated Weight of Sieve Sample (g): 51.59

Shape: Angular
 Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	216.40	100.00
	2"	50	0.00	0.00	216.40	100.00
	1.5"	38.1	0.00	0.00	216.40	100.00
	1"	25	0.00	0.00	216.40	100.00
	3/4"	19.0	0.00	0.00	216.40	100.00
	3/8"	9.5	0.00	0.00	216.40	100.00
	4	4.75	1.99	1.99	214.41	99.08
	10	2.00	5.20	7.19	209.21	96.68
-10						
			(Based on calculated sieve wt.)			
	20	0.85	1.37	3.08	48.51	94.02
	40	0.425	3.30	6.38	45.21	87.63
	60	0.250	7.29	13.67	37.92	73.50
	100	0.150	9.03	22.70	28.89	55.99
	140	0.106	3.50	26.20	25.39	49.21
	200	0.075	2.58	28.78	22.81	44.21
	dry pan		0.54	29.32	22.27	
	wet pan			22.27	0.00	

d₁₀ (mm): 0.0018 d₅₀ (mm): 0.11
 d₁₆ (mm): 0.0053 d₆₀ (mm): 0.17
 d₃₀ (mm): 0.032 d₈₄ (mm): 0.37

Median Particle Diameter --d₅₀ (mm): 0.11
 Uniformity Coefficient, Cu --[d₆₀/d₁₀] (mm): 94
 Coefficient of Curvature, Cc --[(d₃₀)²/(d₁₀*d₆₀)] (mm): 3.3
 Mean Particle Diameter --[(d₁₆+d₅₀+d₈₄)/3] (mm): 0.16

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test
 USDA Soil Classification: Sandy Loam

Laboratory analysis by: D. O'Dowd
 Data entered by: D. O'Dowd
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-001B/ MKTF-LIF-74 2-3
 Matrix: Soil
 Date/Time Sampled: 2/4/21 945
 Test Date: 10-Feb-21
 Start Time: 7:30

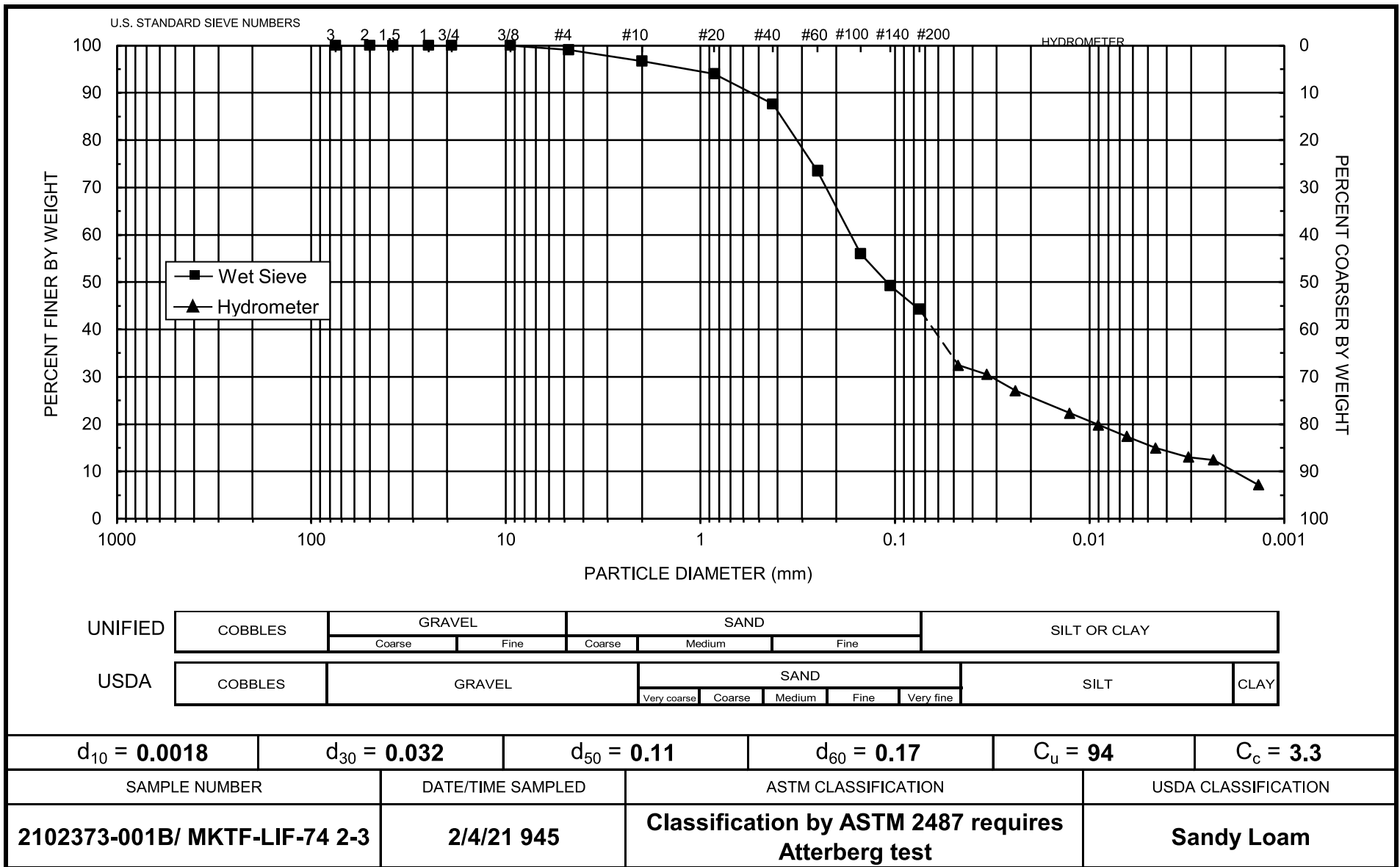
Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 49.88
 Total Sample Wt. (g): 216.40
 Wt. Passing #10 (g): 209.21

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Feb-21	1	20.1	23.25	6.54	16.7	12	0.0473	34	32.4
	2	20.1	22.25	6.54	15.7	12	0.0337	31	30.5
	4	20.1	20.50	6.54	14.0	12	0.0241	28	27.1
	15	20.2	18.00	6.52	11.5	13	0.0126	23	22.2
	30	20.2	16.75	6.52	10.2	13	0.0090	21	19.8
	60	20.2	15.50	6.52	9.0	13	0.0064	18	17.4
	120	20.1	14.25	6.54	7.7	14	0.0046	15	14.9
	265	20.1	13.25	6.55	6.7	14	0.0031	13	13.0
	480	19.9	13.00	6.60	6.4	14	0.0023	13	12.4
11-Feb-21	1440	20.1	10.25	6.55	3.7	14	0.0014	7	7.2

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: D. O'Dowd
 Data entered by: D. O'Dowd
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-002B/ MKTF-LIF-74 4-5
 Matrix: Soil
 Date/Time Sampled: 2/4/21 947
 Test Date: 9-Feb-21

Initial Dry Weight of Sample (g): 158.07
 Weight Passing #10 (g): 158.07
 Weight Retained #10 (g): 0.00
 Weight of -10 Sub-Sample (g): 48.87
 Calculated Weight of Sieve Sample (g): 48.87

Shape: Angular
 Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	158.07	100.00
	2"	50	0.00	0.00	158.07	100.00
	1.5"	38.1	0.00	0.00	158.07	100.00
	1"	25	0.00	0.00	158.07	100.00
	3/4"	19.0	0.00	0.00	158.07	100.00
	3/8"	9.5	0.00	0.00	158.07	100.00
	4	4.75	0.00	0.00	158.07	100.00
	10	2.00	0.00	0.00	158.07	100.00
-10			(Based on calculated sieve wt.)			
	20	0.85	0.28	0.28	48.59	99.43
	40	0.425	0.68	0.96	47.91	98.04
	60	0.250	1.72	2.68	46.19	94.52
	100	0.150	3.32	6.00	42.87	87.72
	140	0.106	3.91	9.91	38.96	79.72
	200	0.075	4.90	14.81	34.06	69.70
	dry pan		1.50	16.31	32.56	
	wet pan			32.56	0.00	

d₁₀ (mm): 0.0010d₅₀ (mm): 0.041d₁₆ (mm): 0.0017d₆₀ (mm): 0.057d₃₀ (mm): 0.0081d₈₄ (mm): 0.13Median Particle Diameter --d₅₀ (mm): 0.041Uniformity Coefficient, Cu --[d₆₀/d₁₀] (mm): 57Coefficient of Curvature, Cc --[(d₃₀)²/(d₁₀*d₆₀)] (mm): 1.2Mean Particle Diameter --[(d₁₆+d₅₀+d₈₄)/3] (mm): 0.058

Note: Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test

USDA Soil Classification: Loam

Laboratory analysis by: D. O'Dowd

Data entered by: D. O'Dowd

Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-002B/ MKTF-LIF-74 4-5
 Matrix: Soil
 Date/Time Sampled: 2/4/21 947
 Test Date: 10-Feb-21
 Start Time: 7:36

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 48.87
 Total Sample Wt. (g): 158.07
 Wt. Passing #10 (g): 158.07

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Feb-21	1	20.1	31.75	6.54	25.2	11	0.0444	52	51.6
	2	20.1	28.50	6.54	22.0	11	0.0322	45	44.9
	4	20.1	26.25	6.54	19.7	12	0.0232	40	40.3
	15	20.2	23.00	6.52	16.5	12	0.0122	34	33.7
	30	20.2	21.50	6.52	15.0	12	0.0087	31	30.6
	60	20.2	20.00	6.52	13.5	13	0.0062	28	27.6
	120	20.1	18.25	6.54	11.7	13	0.0045	24	24.0
	261	20.1	17.00	6.55	10.4	13	0.0031	21	21.4
	480	19.9	16.00	6.60	9.4	13	0.0023	19	19.2
11-Feb-21	1435	20.1	13.00	6.55	6.4	14	0.0013	13	13.2

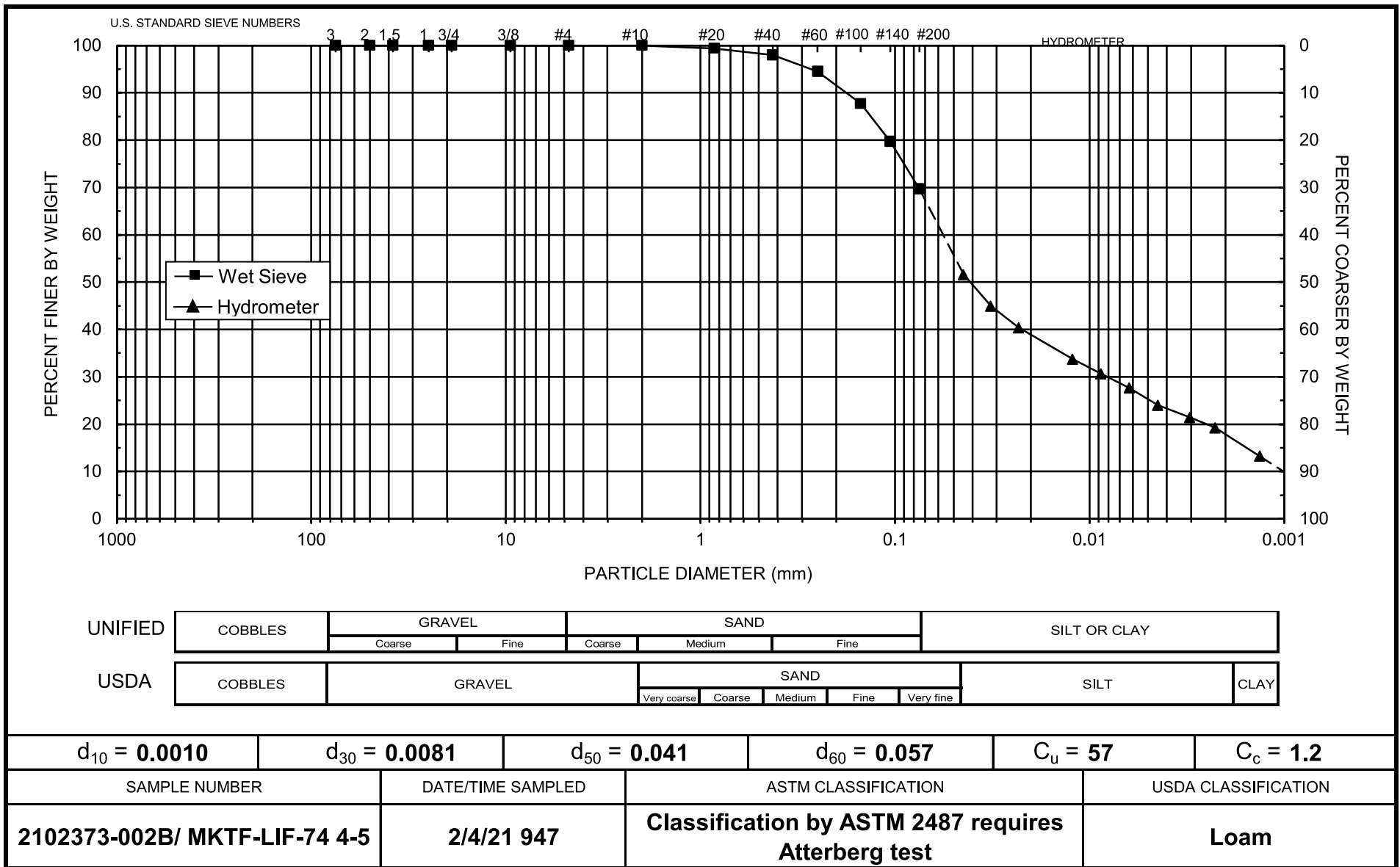
Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: D. O'Dowd

Data entered by: D. O'Dowd

Checked by: J. Hines



Note: Reported values for d_{10} , C_u , C_c , and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-004B/ MKTF-LIF-85 7-9
 Matrix: Soil
 Date/Time Sampled: 2/5/21 1031
 Test Date: 9-Feb-21

Initial Dry Weight of Sample (g): 268.61
 Weight Passing #10 (g): 268.61
 Weight Retained #10 (g): 0.00
 Weight of -10 Sub-Sample (g): 49.12
 Calculated Weight of Sieve Sample (g): 49.12

Shape: Angular
 Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	268.61	100.00
	2"	50	0.00	0.00	268.61	100.00
	1.5"	38.1	0.00	0.00	268.61	100.00
	1"	25	0.00	0.00	268.61	100.00
	3/4"	19.0	0.00	0.00	268.61	100.00
	3/8"	9.5	0.00	0.00	268.61	100.00
	4	4.75	0.00	0.00	268.61	100.00
	10	2.00	0.00	0.00	268.61	100.00
-10			(Based on calculated sieve wt.)			
	20	0.85	0.10	0.10	49.02	99.80
	40	0.425	0.45	0.55	48.57	98.88
	60	0.250	1.19	1.74	47.38	96.46
	100	0.150	2.79	4.53	44.59	90.78
	140	0.106	2.98	7.51	41.61	84.71
	200	0.075	4.02	11.53	37.59	76.53
	dry pan		1.65	13.18	35.94	
	wet pan			35.94	0.00	

d_{10} (mm): 0.00065 d_{50} (mm): 0.030
 d_{16} (mm): 0.0012 d_{60} (mm): 0.047
 d_{30} (mm): 0.0062 d_{84} (mm): 0.10

Median Particle Diameter -- d_{50} (mm): 0.030
 Uniformity Coefficient, C_u -- $[d_{60}/d_{10}]$ (mm): 72
 Coefficient of Curvature, C_c -- $[(d_{30})^2/(d_{10} \cdot d_{60})]$ (mm): 1.3
 Mean Particle Diameter -- $[(d_{16} + d_{50} + d_{84})/3]$ (mm): 0.044

Note: Reported values for d_{10} , C_u , C_c , and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test
 USDA Soil Classification: Loam

Laboratory analysis by: D. O'Dowd
 Data entered by: D. O'Dowd
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-004B/ MKTF-LIF-85 7-9
 Matrix: Soil
 Date/Time Sampled: 2/5/21 1031
 Test Date: 10-Feb-21
 Start Time: 7:42

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 49.12
 Total Sample Wt. (g): 268.61
 Wt. Passing #10 (g): 268.61

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Feb-21	1	20.2	34.50	6.52	28.0	10	0.0435	57	57.0
	2	20.2	31.50	6.52	25.0	11	0.0315	51	50.9
	4	20.2	29.00	6.52	22.5	11	0.0227	46	45.8
	15	20.2	25.00	6.52	18.5	12	0.0121	38	37.6
	30	20.2	23.00	6.52	16.5	12	0.0086	34	33.5
	60	20.2	21.25	6.52	14.7	12	0.0062	30	30.0
	120	20.1	20.00	6.54	13.5	13	0.0044	27	27.4
	255	20.1	18.25	6.55	11.7	13	0.0031	24	23.8
	480	19.9	17.25	6.60	10.6	13	0.0022	22	21.7
11-Feb-21	1430	20.1	14.75	6.55	8.2	13	0.0013	17	16.7

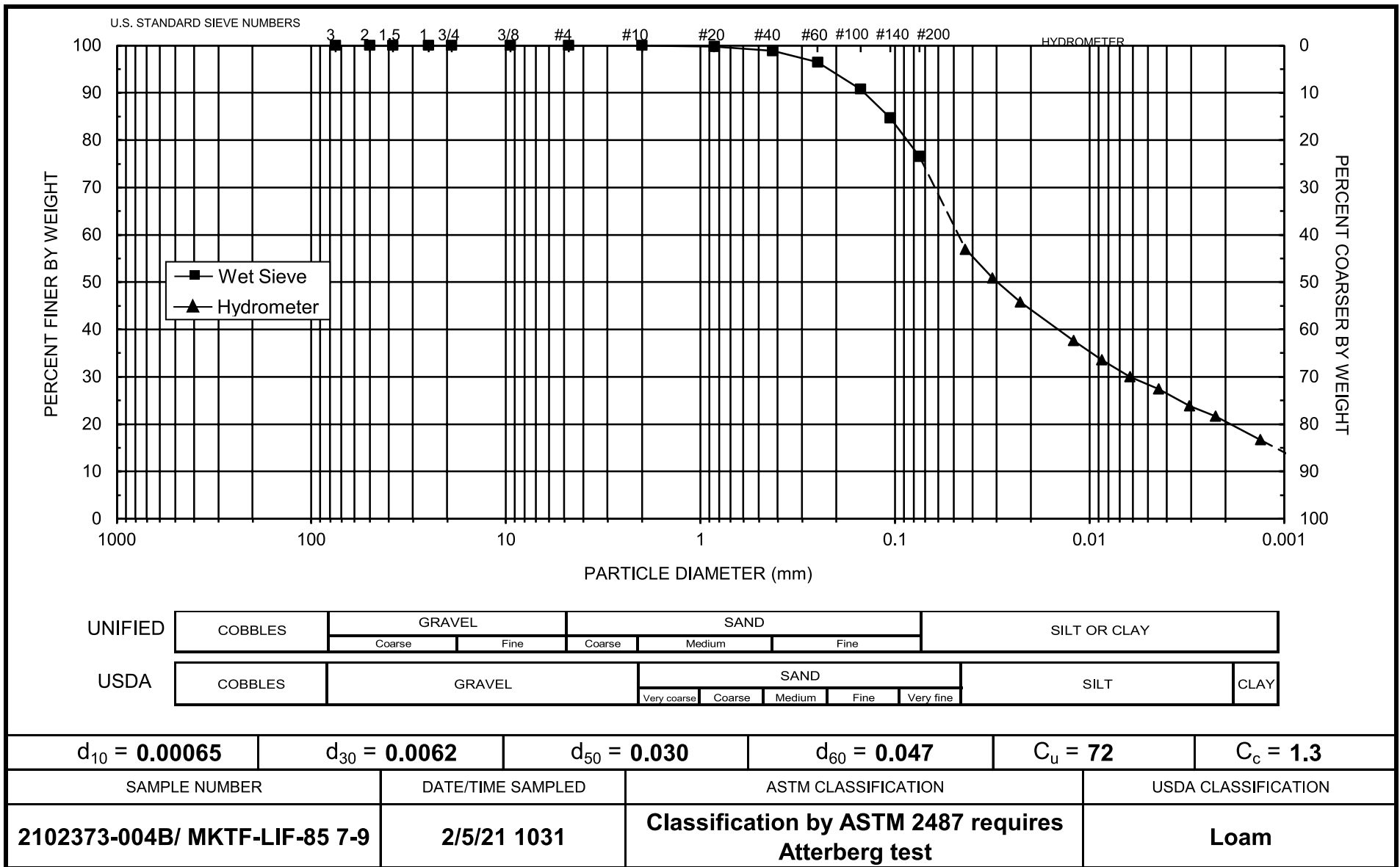
Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: D. O'Dowd

Data entered by: D. O'Dowd

Checked by: J. Hines



Note: Reported values for d_{10} , C_u , C_c , and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-005B/ PA-LIF-07 11-13
 Matrix: Soil
 Date/Time Sampled: 2/5/21 131
 Test Date: 9-Feb-21

Initial Dry Weight of Sample (g): 333.99
 Weight Passing #10 (g): 256.64
 Weight Retained #10 (g): 77.35
 Weight of -10 Sub-Sample (g): 50.74
 Calculated Weight of Sieve Sample (g): 66.03

Shape: Angular
 Hardness: Soft

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	333.99	100.00
	2"	50	0.00	0.00	333.99	100.00
	1.5"	38.1	0.00	0.00	333.99	100.00
	1"	25	0.00	0.00	333.99	100.00
	3/4"	19.0	0.00	0.00	333.99	100.00
	3/8"	9.5	17.38	17.38	316.61	94.80
	4	4.75	27.77	45.15	288.84	86.48
	10	2.00	32.20	77.35	256.64	76.84
-10			(Based on calculated sieve wt.)			
	20	0.85	3.56	18.85	47.18	71.45
	40	0.425	6.41	25.26	40.77	61.74
	60	0.250	10.96	36.22	29.81	45.14
	100	0.150	7.63	43.85	22.18	33.59
	140	0.106	2.52	46.37	19.66	29.77
	200	0.075	1.53	47.90	18.13	27.46
	dry pan		0.35	48.25	17.78	
	wet pan			17.78	0.00	

d₁₀ (mm): 0.0039 d₅₀ (mm): 0.29
 d₁₆ (mm): 0.017 d₆₀ (mm): 0.40
 d₃₀ (mm): 0.11 d₈₄ (mm): 3.8

Median Particle Diameter --d₅₀ (mm): 0.29
 Uniformity Coefficient, Cu --[d₆₀/d₁₀] (mm): 103
 Coefficient of Curvature, Cc --[(d₃₀)²/(d₁₀*d₆₀)] (mm): 7.8
 Mean Particle Diameter --[(d₁₆+d₅₀+d₈₄)/3] (mm): 1.4

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test

USDA Soil Classification: Sandy Loam [†]

[†] Greater than 10% of sample is coarse material

Laboratory analysis by: D. O'Dowd

Data entered by: D. O'Dowd

Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2102373-005B/ PA-LIF-07 11-13
 Matrix: Soil
 Date/Time Sampled: 2/5/21 131
 Test Date: 10-Feb-21
 Start Time: 7:48

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 50.74
 Total Sample Wt. (g): 333.99
 Wt. Passing #10 (g): 256.64

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
10-Feb-21	1	20.2	20.00	6.52	13.5	13	0.0483	27	20.4
	2	20.2	19.00	6.52	12.5	13	0.0344	25	18.9
	4	20.2	18.25	6.52	11.7	13	0.0244	23	17.8
	15	20.2	16.25	6.52	9.7	13	0.0128	19	14.7
	30	20.2	15.25	6.52	8.7	13	0.0091	17	13.2
	60	20.2	14.25	6.52	7.7	14	0.0065	15	11.7
	120	20.1	13.50	6.54	7.0	14	0.0046	14	10.5
	250	20.1	12.75	6.55	6.2	14	0.0032	12	9.4
	480	19.9	12.25	6.60	5.6	14	0.0023	11	8.6
11-Feb-21	1426	20.1	11.00	6.55	4.4	14	0.0014	9	6.7

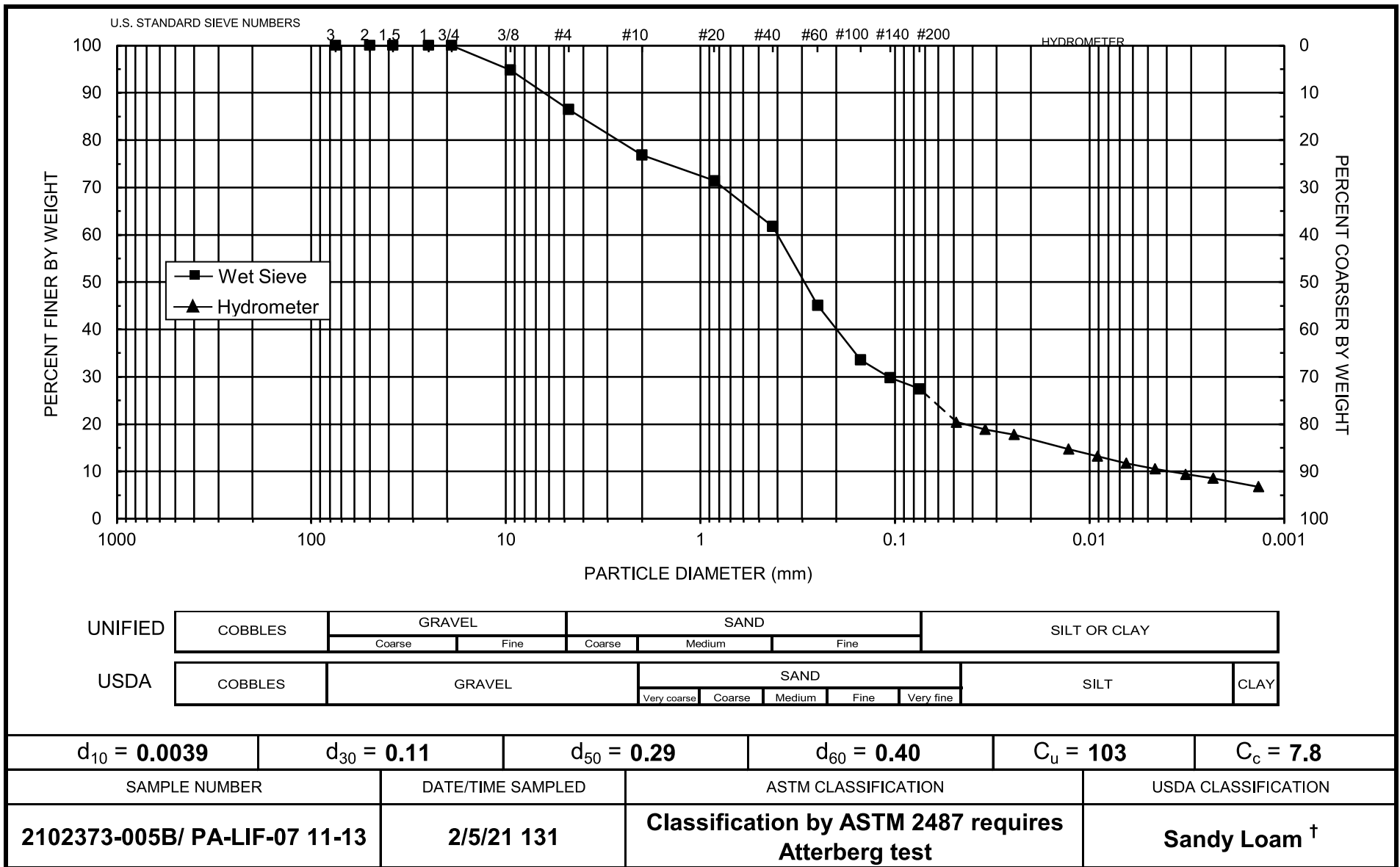
Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: D. O'Dowd

Data entered by: D. O'Dowd

Checked by: J. Hines



[†] Greater than 10% of sample is coarse material



Daniel B. Stephens & Associates, Inc.

Laboratory Tests and Methods



Daniel B. Stephens & Associates, Inc.

Tests and Methods

Particle Size Analysis: ASTM D7928, ASTM D6913

USCS (ASTM) Classification: ASTM D6913, ASTM D4318, ASTM D2487

USDA Classification: ASTM D7928, ASTM D6913, USDA Soil Textural Triangle

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102373

17-Feb-21

Client: Marathon
Project: MPC MKTF LIF Investigation

Sample ID: MB-58022	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 58022		RunNo: 75192							
Prep Date: 2/10/2021	Analysis Date: 2/10/2021		SeqNo: 2654980		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.6		10.00		95.9	70	130			

Sample ID: LCS-58022	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 58022		RunNo: 75192							
Prep Date: 2/10/2021	Analysis Date: 2/10/2021		SeqNo: 2654982		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		94.6	70	130			

Sample ID: MB-58001	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 58001		RunNo: 75192							
Prep Date: 2/9/2021	Analysis Date: 2/10/2021		SeqNo: 2655610		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.1		10.00		90.7	70	130			

Sample ID: LCS-58001	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 58001		RunNo: 75192							
Prep Date: 2/9/2021	Analysis Date: 2/10/2021		SeqNo: 2655612		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	68.9	141			
Surr: DNOP	4.5		5.000		89.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102373

17-Feb-21

Client: Marathon
Project: MPC MKTF LIF Investigation

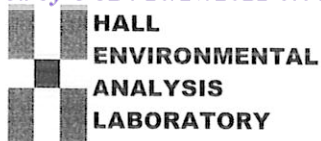
Sample ID: lcs-57986	SampType: LCS		TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID: LCSS	Batch ID: 57986		RunNo: 75251							
Prep Date: 2/8/2021	Analysis Date: 2/11/2021		SeqNo: 2657708		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.5	70	130			
Surr: BFB	490		500.0		98.2	70	130			

Sample ID: mb-57986	SampType: MBLK		TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID: PBS	Batch ID: 57986		RunNo: 75251							
Prep Date: 2/8/2021	Analysis Date: 2/11/2021		SeqNo: 2657709		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		96.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Marathon**Work Order Number: **2102373**RcptNo: **1**Received By: **Sean Livingston**

2/6/2021 10:30:00 AM

Completed By: **Cheyenne Cason**

2/8/2021 10:02:42 AM

Reviewed By: **DAD 2/8/21**

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 7/8/21
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good				



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

June 15, 2021

Lesli Alexander

Trihydro

2400 Midpoint Drive Suite 570

Fort Collins, CO 80525

TEL: (307) 745-7474

FAX

RE: Gallup Refinery LIF

OrderNo.: 2105803

Dear Lesli Alexander:

Hall Environmental Analysis Laboratory received 9 sample(s) on 5/19/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2105803

Date Reported: 6/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Trihydro

Client Sample ID: EB-LIF-99 19-20'

Project: Gallup Refinery LIF

Collection Date: 5/14/2021 2:20:00 PM

Lab ID: 2105803-001

Matrix: MEOH (SOIL)

Received Date: 5/19/2021 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/21/2021 11:54:03 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2021 11:54:03 AM
Surr: DNOP	92.8	70-130		%Rec	1	5/21/2021 11:54:03 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	7.6	3.4		mg/Kg	1	5/19/2021 11:58:00 AM
Surr: BFB	90.8	70-130		%Rec	1	5/19/2021 11:58:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 1 of 8

Analytical Report

Lab Order 2105803

Date Reported: 6/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Trihydro

Client Sample ID: EB-LIF-99 21-22'

Project: Gallup Refinery LIF

Collection Date: 5/14/2021 2:29:00 PM

Lab ID: 2105803-003

Matrix: MEOH (SOIL)

Received Date: 5/19/2021 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	3200	47		mg/Kg	5	5/22/2021 8:11:12 PM
Motor Oil Range Organics (MRO)	ND	240	D	mg/Kg	5	5/22/2021 8:11:12 PM
Surr: DNOP	96.2	70-130		%Rec	5	5/22/2021 8:11:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	2100	59		mg/Kg	20	5/19/2021 12:58:00 PM
Surr: BFB	254	70-130	S	%Rec	20	5/19/2021 12:58:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 2 of 8

Analytical Report

Lab Order 2105803

Date Reported: 6/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Trihydro

Client Sample ID: EB-LIF-109 11.5-12'

Project: Gallup Refinery LIF

Collection Date: 5/14/2021 3:08:00 PM

Lab ID: 2105803-004

Matrix: MEOH (SOIL)

Received Date: 5/19/2021 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	630	9.9		mg/Kg	1	5/21/2021 12:13:32 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2021 12:13:32 PM
Surr: DNOP	107	70-130		%Rec	1	5/21/2021 12:13:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	24	3.0		mg/Kg	1	5/19/2021 1:38:00 PM
Surr: BFB	191	70-130	S	%Rec	1	5/19/2021 1:38:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2105803

Date Reported: 6/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Trihydro

Client Sample ID: EB-LIF-109 15-15.5'

Project: Gallup Refinery LIF

Collection Date: 5/14/2021 3:24:00 PM

Lab ID: 2105803-006

Matrix: MEOH (SOIL)

Received Date: 5/19/2021 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	730	10		mg/Kg	1	5/21/2021 12:26:26 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/21/2021 12:26:26 PM
Surr: DNOP	119	70-130		%Rec	1	5/21/2021 12:26:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	17	15		mg/Kg	5	5/19/2021 1:57:00 PM
Surr: BFB	140	70-130	S	%Rec	5	5/19/2021 1:57:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2105803

Date Reported: 6/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Trihydro

Client Sample ID: EB-LIF-108 10-11'

Project: Gallup Refinery LIF

Collection Date: 5/14/2021 3:45:00 PM

Lab ID: 2105803-007

Matrix: MEOH (SOIL)

Received Date: 5/19/2021 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	2500	96		mg/Kg	10	5/21/2021 12:36:10 PM
Motor Oil Range Organics (MRO)	ND	480	D	mg/Kg	10	5/21/2021 12:36:10 PM
Surr: DNOP	0	70-130	S	%Rec	10	5/21/2021 12:36:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	110	14		mg/Kg	5	5/19/2021 2:17:00 PM
Surr: BFB	102	70-130		%Rec	5	5/19/2021 2:17:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2105803

Date Reported: 6/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Trihydro

Client Sample ID: MeOH Blank

Project: Gallup Refinery LIF

Collection Date:

Lab ID: 2105803-009

Matrix: MEOH BLAN

Received Date: 5/19/2021 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2021 2:57:00 PM
Surr: BFB	83.0	70-130		%Rec	1	5/19/2021 2:57:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 6 of 8

Laboratory Report for Hall Environmental Analysis Laboratory

Project Number: 2105803

June 15, 2021



Daniel B. Stephens & Associates, Inc.

4400 Alameda Blvd. NE, Suite C • Albuquerque, New Mexico 87113



June 15, 2021

Andy Freeman
Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite D
Albuquerque, NM 87109
(505) 345-3975

Re: DBS&A Laboratory Report for the HEAL Project Number: 2105803 Sample Testing

Dear Mr. Freeman:

Enclosed is the report for the HEAL Project Number: 2105803 sample testing. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to HEAL and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Joleen Hines
Laboratory Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory

4400 Alameda Blvd. NE, Suite C
Albuquerque, NM 87113

505-889-7752
FAX 505-889-0258

Summaries



Daniel B. Stephens & Associates, Inc.

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties ¹			Saturated Hydraulic Conductivity ²			Moisture Characteristics ³								Particle Size ⁴			Specific Gravity ⁵		Air Perm- eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K _{unsat}	DS	WS	H	F	C			
2105803-002A/ EB-LIF-99 18-19'																X	X					
2105803-005A/ EB-LIF-109 10.5-11.5'																X	X					
2105803-008A/ EB-LIF-108 12-13'																X	X					

¹ G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

² CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

³ HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, K_{unsat} = Calculated Unsaturated Hydraulic Conductivity

⁴ DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

⁵ F = Fine (<4.75mm), C = Coarse (>4.75mm)



Daniel B. Stephens & Associates, Inc.

Notes

Sample Receipt:

Three samples, each as loose material in a resealable quart bag, were hand-delivered on May 19, 2021. The samples were delivered in a cooler with ice packs and were received in good order.

Sample Preparation and Testing Notes:

Each of the samples was subjected to particle size analysis testing.

Particle diameter calculations in the hydrometer portion of the particle size analysis testing are based on the use of an assumed specific gravity value of 2.65.



Daniel B. Stephens & Associates, Inc.

Summary of Particle Size Characteristics

Sample Number	d ₁₀ (mm)	d ₅₀ (mm)	d ₆₀ (mm)	C _u	C _c	Method	ASTM Classification	USDA Classification	
2105803-002A/ EB-LIF-99 18-19'	0.0004	0.04	0.06	170	1.2	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam	(Est)
2105803-005A/ EB-LIF-109 10.5-11.5'	0.0003	0.009	0.019	73	0.6	WS/H	Classification by ASTM 2487 requires Atterberg test	Clay Loam	(Est)
2105803-008A/ EB-LIF-108 12-13'	0.00042	0.019	0.039	93	0.8	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam	(Est)

Est = Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

[†] Greater than 10% of sample is coarse material

d₅₀ = Median particle diameter



Daniel B. Stephens & Associates, Inc.

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
2105803-002A/ EB-LIF- 99 18-19'	1.3	33.3	42.0	23.4
2105803-005A/ EB-LIF- 109 10.5-11.5'	0.0	14.2	54.2	31.6
2105803-008A/ EB-LIF- 108 12-13'	1.6	18.7	56.0	23.8

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.

Particle Size Analysis



Daniel B. Stephens & Associates, Inc.

Summary of Particle Size Characteristics

Sample Number	d ₁₀ (mm)	d ₅₀ (mm)	d ₆₀ (mm)	C _u	C _c	Method	ASTM Classification	USDA Classification	
2105803-002A/ EB-LIF-99 18-19'	0.0004	0.04	0.06	170	1.2	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam	(Est)
2105803-005A/ EB-LIF-109 10.5-11.5'	0.0003	0.009	0.019	73	0.6	WS/H	Classification by ASTM 2487 requires Atterberg test	Clay Loam	(Est)
2105803-008A/ EB-LIF-108 12-13'	0.00042	0.019	0.039	93	0.8	WS/H	Classification by ASTM 2487 requires Atterberg test	Loam	(Est)

Est = Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

[†] Greater than 10% of sample is coarse material

d₅₀ = Median particle diameter



Daniel B. Stephens & Associates, Inc.

Percent Gravel, Sand, Silt and Clay*

Sample Number	% Gravel (>4.75mm)	% Sand (<4.75mm, >0.075mm)	% Silt (<0.075mm, >0.002mm)	% Clay (<0.002mm)
2105803-002A/ EB-LIF- 99 18-19'	1.3	33.3	42.0	23.4
2105803-005A/ EB-LIF- 109 10.5-11.5'	0.0	14.2	54.2	31.6
2105803-008A/ EB-LIF- 108 12-13'	1.6	18.7	56.0	23.8

*USCS classification does not classify clay fraction based on particle size. USDA definition of clay (<0.002mm) used in this table.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2105803-002A/ EB-LIF-99 18-19'
 Matrix: Soil
 Date/Time Sampled: 5/14/21 1420
 Test Date: 26-May-21

Initial Dry Weight of Sample (g): 311.56
 Weight Passing #10 (g): 307.22
 Weight Retained #10 (g): 4.34
 Weight of -10 Sub-Sample (g): 42.97
 Calculated Weight of Sieve Sample (g): 43.58

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	311.56	100.00
	2"	50	0.00	0.00	311.56	100.00
	1.5"	38.1	0.00	0.00	311.56	100.00
	1"	25	0.00	0.00	311.56	100.00
	3/4"	19.0	0.00	0.00	311.56	100.00
	3/8"	9.5	4.04	4.04	307.52	98.70
	4	4.75	0.00	4.04	307.52	98.70
	10	2.00	0.30	4.34	307.22	98.61
-10			(Based on calculated sieve wt.)			
	20	0.85	0.21	0.82	42.76	98.13
	40	0.425	0.87	1.69	41.89	96.13
	60	0.250	2.40	4.09	39.49	90.62
	100	0.150	3.99	8.08	35.50	81.46
	140	0.106	3.26	11.34	32.24	73.98
	200	0.075	3.76	15.10	28.48	65.36
	dry pan		0.89	15.99	27.59	
	wet pan			27.59	0.00	

d₁₀ (mm): 0.00037d₅₀ (mm): 0.044d₁₆ (mm): 0.00079d₆₀ (mm): 0.063d₃₀ (mm): 0.0052d₈₄ (mm): 0.17Median Particle Diameter --d₅₀ (mm): 0.044Uniformity Coefficient, Cu --[d₆₀/d₁₀] (mm): 170Coefficient of Curvature, Cc --[(d₃₀)²/(d₁₀*d₆₀)] (mm): 1.2Mean Particle Diameter --[(d₁₆+d₅₀+d₈₄)/3] (mm): 0.072

Note: Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test

USDA Soil Classification: Loam

Laboratory analysis by: B. Constand

Data entered by: J. Hines

Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2105803-002A/ EB-LIF-99 18-19'
 Matrix: Soil
 Date/Time Sampled: 5/14/21 1420
 Test Date: 24-May-21
 Start Time: 8:30

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 42.97
 Total Sample Wt. (g): 311.56
 Wt. Passing #10 (g): 307.22

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
24-May-21	1	22.30	27.00	4.57	22.4	13	0.0484	52	51.47
	2	22.30	25.00	4.57	20.4	13	0.0347	48	46.88
	4	22.30	23.25	4.57	18.7	13	0.0248	43	42.87
	15	22.40	20.75	4.53	16.2	14	0.0130	38	37.22
	30	22.35	19.50	4.55	15.0	14	0.0093	35	34.31
	60	22.40	18.25	4.53	13.7	14	0.0066	32	31.48
	120	22.55	17.25	4.48	12.8	14	0.0047	30	29.31
	240	22.50	16.25	4.49	11.8	14	0.0033	27	26.97
	492	22.50	15.25	4.49	10.8	15	0.0023	25	24.68
25-May-21	1428	22.30	13.50	4.57	8.9	15	0.0014	21	20.50

Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: B. Constand

Data entered by: J. Hines

Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2105803-005A/ EB-LIF-109 10.5-11.5'
 Matrix: Soil
 Date/Time Sampled: 5/14/21 1508
 Test Date: 27-May-21

Initial Dry Weight of Sample (g): 296.41
 Weight Passing #10 (g): 296.41
 Weight Retained #10 (g): 0.00
 Weight of -10 Sub-Sample (g): 42.19
 Calculated Weight of Sieve Sample (g): 42.19

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10	3"	75	0.00	0.00	296.41	100.00
	2"	50	0.00	0.00	296.41	100.00
	1.5"	38.1	0.00	0.00	296.41	100.00
	1"	25	0.00	0.00	296.41	100.00
	3/4"	19.0	0.00	0.00	296.41	100.00
	3/8"	9.5	0.00	0.00	296.41	100.00
	4	4.75	0.00	0.00	296.41	100.00
	10	2.00	0.00	0.00	296.41	100.00
-10	(Based on calculated sieve wt.)					
	20	0.85	0.26	0.26	41.93	99.38
	40	0.425	0.36	0.62	41.57	98.53
	60	0.250	0.83	1.45	40.74	96.56
	100	0.150	1.47	2.92	39.27	93.08
	140	0.106	1.42	4.34	37.85	89.71
	200	0.075	1.63	5.97	36.22	85.85
	dry pan		0.63	6.60	35.59	
	wet pan			35.59	0.00	

d₁₀ (mm): 0.00026d₅₀ (mm): 0.0094d₁₆ (mm): 0.00045d₆₀ (mm): 0.019d₃₀ (mm): 0.0017d₈₄ (mm): 0.070Median Particle Diameter --d₅₀ (mm): 0.0094Uniformity Coefficient, Cu --[d₆₀/d₁₀] (mm): 73Coefficient of Curvature, Cc --[(d₃₀)²/(d₁₀*d₆₀)] (mm): 0.59Mean Particle Diameter --[(d₁₆+d₅₀+d₈₄)/3] (mm): 0.027

Note: Reported values for d₁₀, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d₁₀ diameter

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test

USDA Soil Classification: Clay Loam

Laboratory analysis by: B. Constand

Data entered by: J. Hines

Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2105803-005A/ EB-LIF-109 10.5-11.5'
 Matrix: Soil
 Date/Time Sampled: 5/14/21 1508
 Test Date: 24-May-21
 Start Time: 8:36

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 42.19
 Total Sample Wt. (g): 296.41
 Wt. Passing #10 (g): 296.41

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
24-May-21	1	22.30	34.75	4.57	30.2	11	0.0459	72	71.53
	2	22.30	33.00	4.57	28.4	12	0.0329	67	67.39
	4	22.35	31.00	4.55	26.5	12	0.0236	63	62.69
	15	22.40	27.75	4.53	23.2	13	0.0125	55	55.03
	30	22.35	25.25	4.55	20.7	13	0.0090	49	49.06
	60	22.40	23.00	4.53	18.5	13	0.0064	44	43.77
	120	22.55	21.75	4.48	17.3	14	0.0046	41	40.94
	240	22.50	20.25	4.49	15.8	14	0.0033	37	37.34
	487	22.50	18.50	4.49	14.0	14	0.0023	33	33.19
25-May-21	1425	22.30	16.25	4.57	11.7	14	0.0014	28	27.69

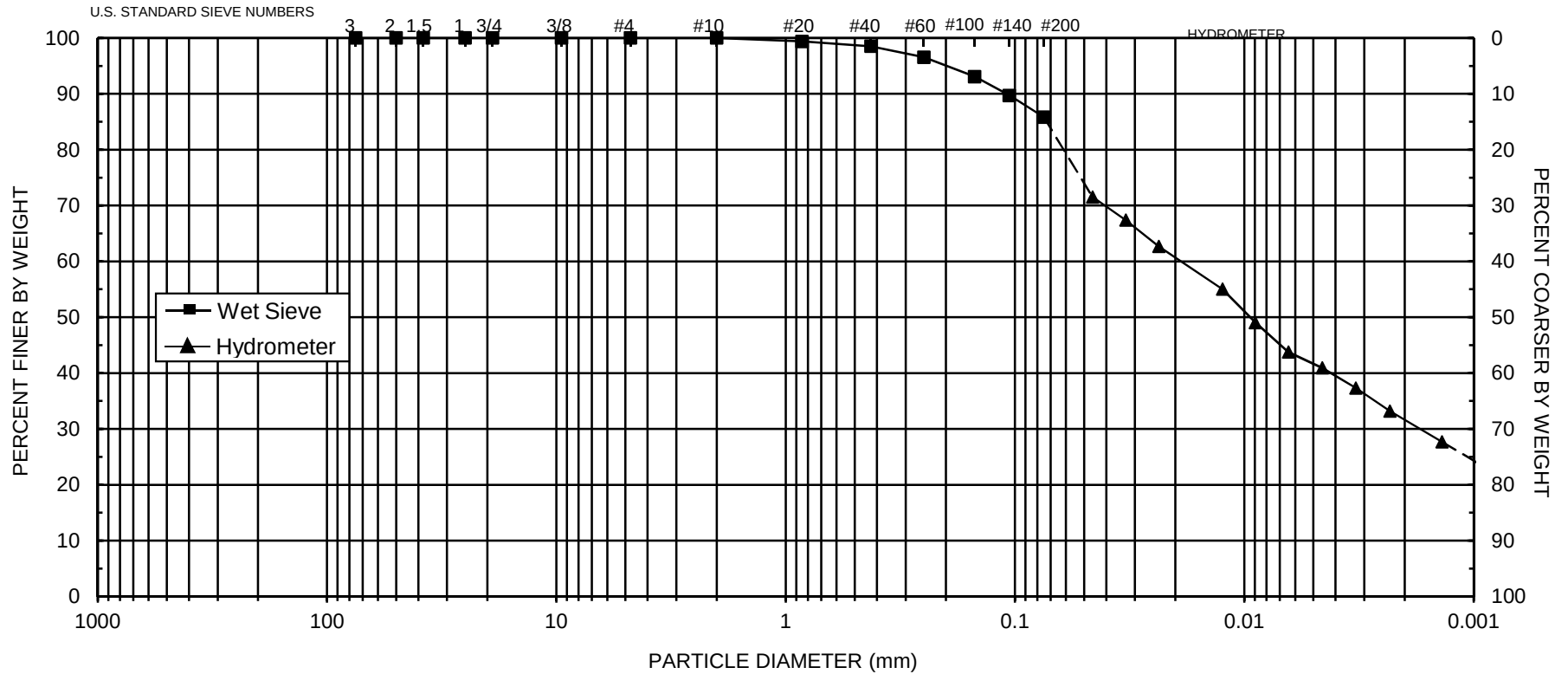
Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: B. Constand

Data entered by: J. Hines

Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		Coarse	Fine	Coarse	Medium	Fine				
USDA	COBBLES	GRAVEL		SAND					SILT	CLAY
				Very coarse	Coarse	Medium	Fine	Very fine		

$d_{10} = 0.00026$	$d_{30} = 0.0017$	$d_{50} = 0.0094$	$d_{60} = 0.019$	$C_u = 73$	$C_c = 0.59$
SAMPLE NUMBER		DATE/TIME SAMPLED	ASTM CLASSIFICATION		USDA CLASSIFICATION
2105803-005A/ EB-LIF-109 10.5-11.5'		5/14/21 1508	Classification by ASTM 2487 requires Atterberg test		Clay Loam



Note: Reported values for d_{10} , C_u , C_c , and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Sieve Data (#10 Split)

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2105803-008A/ EB-LIF-108 12-13'
 Matrix: Soil
 Date/Time Sampled: 5/14/21 1545
 Test Date: 26-May-21

Initial Dry Weight of Sample (g): 279.57
 Weight Passing #10 (g): 271.94
 Weight Retained #10 (g): 7.63
 Weight of -10 Sub-Sample (g): 43.28
 Calculated Weight of Sieve Sample (g): 44.49

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	279.57	100.00
	2"	50	0.00	0.00	279.57	100.00
	1.5"	38.1	0.00	0.00	279.57	100.00
	1"	25	0.00	0.00	279.57	100.00
	3/4"	19.0	0.00	0.00	279.57	100.00
	3/8"	9.5	1.80	1.80	277.77	99.36
	4	4.75	2.57	4.37	275.20	98.44
	10	2.00	3.26	7.63	271.94	97.27
-10						
			(Based on calculated sieve wt.)			
	20	0.85	0.53	1.74	42.75	96.08
	40	0.425	0.52	2.26	42.23	94.91
	60	0.250	1.13	3.39	41.10	92.37
	100	0.150	1.66	5.05	39.44	88.64
	140	0.106	1.50	6.55	37.94	85.27
	200	0.075	2.44	8.99	35.50	79.79
	dry pan		1.19	10.18	34.31	
	wet pan			34.31	0.00	

d_{10} (mm): 0.00042 d_{50} (mm): 0.019
 d_{16} (mm): 0.00083 d_{60} (mm): 0.039
 d_{30} (mm): 0.0037 d_{84} (mm): 0.098

Median Particle Diameter -- d_{50} (mm): 0.019
 Uniformity Coefficient, C_u -- $[d_{60}/d_{10}]$ (mm): 93
 Coefficient of Curvature, C_c -- $[(d_{30})^2/(d_{10} \cdot d_{60})]$ (mm): 0.84
 Mean Particle Diameter -- $[(d_{16} + d_{50} + d_{84})/3]$ (mm): 0.039

Note: Reported values for d_{10} , C_u , C_c , and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

ASTM Soil Classification: Classification by ASTM 2487 requires Atterberg test
 USDA Soil Classification: Loam

Laboratory analysis by: B. Constand
 Data entered by: J. Hines
 Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Particle Size Analysis Hydrometer Data

Job Name: Hall Environmental Analysis Laboratory
 Job Number: DB21.1064.00
 Sample Number: 2105803-008A/ EB-LIF-108 12-13'
 Matrix: Soil
 Date/Time Sampled: 5/14/21 1545
 Test Date: 24-May-21
 Start Time: 8:42

Type of Water Used: DISTILLED
 Reaction with H_2O_2 : NA
 Dispersant*: $(NaPO_3)_6$
 Assumed particle density: 2.65
 Initial Wt. (g): 43.28
 Total Sample Wt. (g): 279.57
 Wt. Passing #10 (g): 271.94

Date	Time (min)	Temp (°C)	R (g/L)	R _L (g/L)	R _{corr} (g/L)	H _m (cm)	D (mm)	P (%)	% Finer
24-May-21	1	22.35	32.75	4.55	28.2	12	0.0467	65	63.37
	2	22.35	30.00	4.55	25.5	12	0.0336	59	57.19
	4	22.40	28.25	4.53	23.7	12	0.0241	55	53.30
	15	22.40	24.25	4.53	19.7	13	0.0128	46	44.31
	30	22.35	22.25	4.55	17.7	13	0.0091	41	39.78
	60	22.40	20.50	4.53	16.0	14	0.0065	37	35.89
	120	22.50	19.00	4.49	14.5	14	0.0047	34	32.60
	240	22.50	17.25	4.49	12.8	14	0.0033	29	28.67
	483	22.50	15.75	4.49	11.3	15	0.0024	26	25.29
25-May-21	1421	22.30	13.75	4.57	9.2	15	0.0014	21	20.63

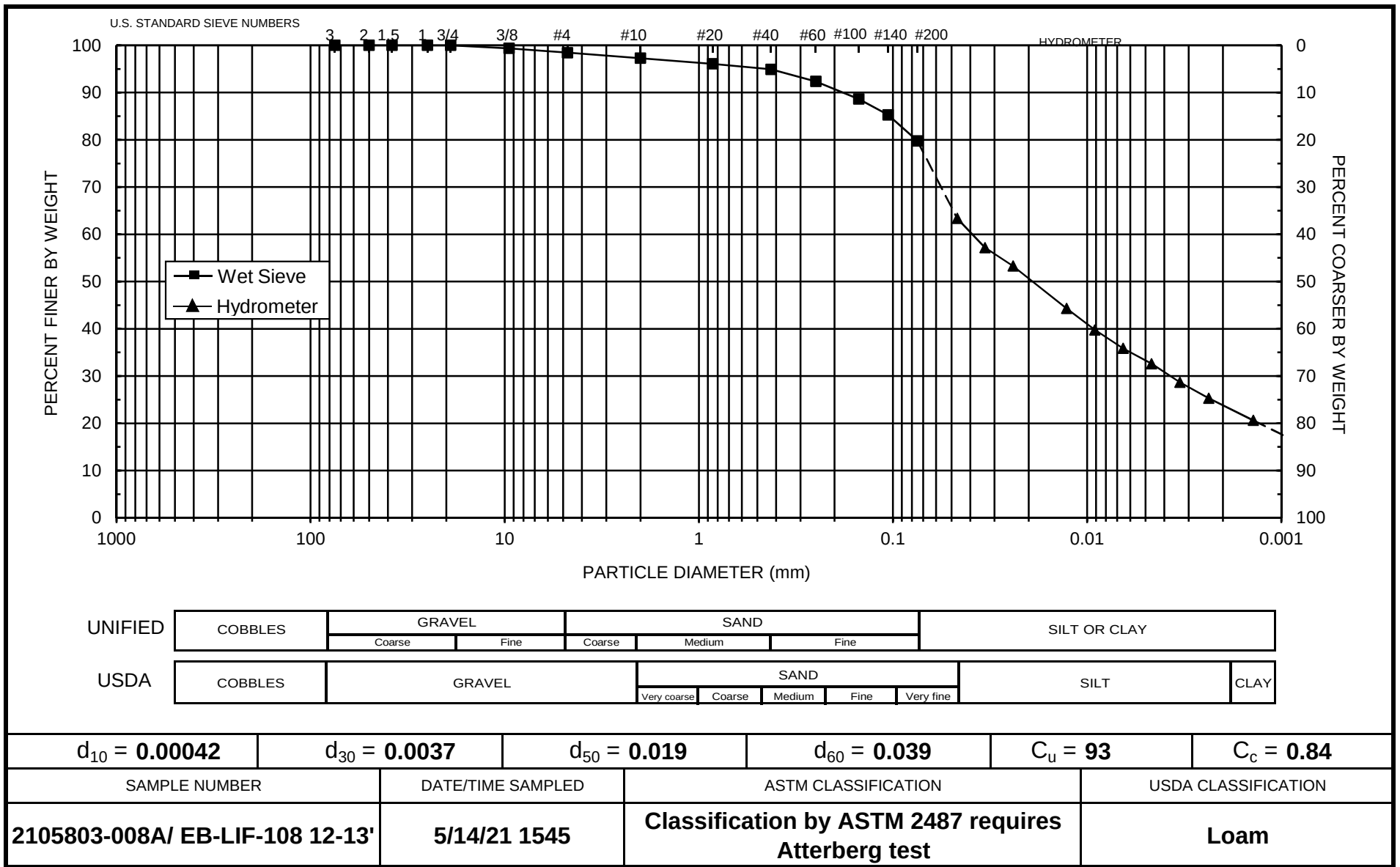
Comments:

* Dispersion device: mechanically operated stirring device

Laboratory analysis by: B. Constand

Data entered by: J. Hines

Checked by: J. Hines



Note: Reported values for d_{10} , C_u , C_c , and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.

Laboratory Tests and Methods



Daniel B. Stephens & Associates, Inc.

Tests and Methods

Particle Size Analysis: ASTM D7928, ASTM D6913

USCS (ASTM) Classification: ASTM D6913, ASTM D4318, ASTM D2487

USDA Classification: ASTM D7928, ASTM D6913, USDA Soil Textural Triangle

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2105803

15-Jun-21

Client: Trihydro
Project: Gallup Refinery LIF

Sample ID: MB-60148	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 60148	RunNo: 77563								
Prep Date: 5/19/2021	Analysis Date: 5/21/2021	SeqNo: 2752797 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		121	70	130			

Sample ID: LCS-60148	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 60148	RunNo: 77563								
Prep Date: 5/19/2021	Analysis Date: 5/21/2021	SeqNo: 2752798 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	111	68.9	141			
Surr: DNOP	5.8		5.000		116	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2105803

15-Jun-21

Client: Trihydro
Project: Gallup Refinery LIF

Sample ID: 2.5ug GRO lcs	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: R77497			RunNo: 77497						
Prep Date:	Analysis Date: 5/19/2021			SeqNo: 2750872		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.6	78.6	131			
Surr: BFB	1000		1000		104	70	130			

Sample ID: MB	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: R77497			RunNo: 77497						
Prep Date:	Analysis Date: 5/19/2021			SeqNo: 2750874		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.4	70	130			

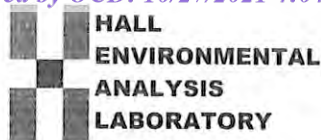
Sample ID: 2105803-001ams	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: EB-LIF-99 19-20'	Batch ID: R77497			RunNo: 77497						
Prep Date:	Analysis Date: 5/19/2021			SeqNo: 2750877		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	3.4	17.14	7.567	92.2	61.3	114			
Surr: BFB	730		685.4		107	70	130			

Sample ID: 2105803-001amsd	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: EB-LIF-99 19-20'	Batch ID: R77497			RunNo: 77497						
Prep Date:	Analysis Date: 5/19/2021			SeqNo: 2751135		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	3.4	17.14	7.567	89.1	61.3	114	2.29	20	
Surr: BFB	740		685.4		108	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Trihydro

Work Order Number: 2105803

RcptNo: 1

Received By: Juan Rojas

5/19/2021 7:28:00 AM

Juan Rojas

Completed By: Cheyenne Cason

5/19/2021 8:25:39 AM

Cason

Reviewed By:

*jr 5/19/21*Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by:

*SPA 5.19.21*Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail☐ Phone☐ Fax☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good				

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 58247

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 58247
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
jburdine	Accepted for Record Retention Purposes-Only	11/22/2022