**Western Refining Southwest LLC**
A subsidiary of Marathon Petroleum Corporation
I-40 Exit 39
Jamestown, NM 87347

September 30, 2021

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

**RE: Response to Approval with Modifications**
**French Drain Soil Sampling Investigation Work Plan**
**Western Refining Southwest LLC, Marathon Gallup Refinery**
**EPA ID# NMD000333211**
**HWB-WRG-20-022**

Dear Mr. Pierard:

Western Refining Southwest (dba Marathon Gallup Refinery) is submitting this response to comments for comments contained in the New Mexico Environment Department *Approval with Modifications, French Drain Soil Sampling Investigation Work Plan* (Work Plan) letter dated January 8, 2021. The response to comments is provided in Attachment A. This submittal also includes two copies of replacement pages and a CD with an electronic copy of the redlined report and the revised report. The electronic copies will also be submitted by email to NMED.

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 of 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 A. Cade

Ruth Cade
Vice-President

Enclosures

cc: D. Cobrain, NMED HWB
T. McDill, NMOCD
L. King, EPA Region 6
K. Luka, Marathon Petroleum Company
H. Jones, Trihydro
M. Suzuki, NMED HWB
L. Barr, NMOCD
G. McCartney, Marathon Petroleum Company
J. Moore, Marathon Gallup Refinery

**ATTACHMENT A – RESPONSE TO COMMENTS**

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| **Comment 1:** | **Response 1:** |
| In the *Background Section*, pages 5 and 6, the Permittee states, "[h]and excavations completed on the northwest sides of Tanks 569, 570, 571, and 572 showed no visible evidence of a release. Fluid levels were monitored in Tanks 570, 571, and 345 to determine if a potential leak was responsible for the release. A static level test of Tank 570 in 2019 showed a loss of product, which lead to the tank being taken out of service. There were no indications of leaks in Tanks 571 and 345." If the locations of the hand excavations are known, identify the locations in Figure 3, *Proposed Soil Boring Location*, and provide a replacement figure. In addition, Figure 3 does not depict any proposed soil borings in the vicinity of Tank 570 to investigate presence or absence of contamination associated with the leaks. Provide a justification for why soil borings are not proposed in the vicinity of Tank 570 or propose to investigate potential contamination associated with the leaks and provide replacement pages. Furthermore, explain whether some of these tanks are still in use under the current idle status in a response letter. | The locations of the hand excavations are not known. In the "Response to Approval with Modifications on 2017 Annual Groundwater Monitoring Report" (Comment No. 39 Response 7) dated December 9, 2019, "[t]he hand excavations were completed in a random manner as a quick check to see if hydrocarbon could be identified at shallow depths along the drainage pathway east of STP-1 and as such, the locations were not recorded." The text in the *Background Section*, pages 5 and 6, has been revised to state, "[h]and excavations completed on the northwest sides of Tanks 569, 570, 571, and 572 showed no visible evidence of a release. Locations of the hand excavations were not recorded as documented in the "Response to Approval with Modifications on 2017 Annual Groundwater Monitoring Report" (Comment No. 39 Response 7) dated December 9, 2019."<br><br>Figure 3, *Proposed Soil Boring Location,* does not depict any proposed soil borings in the vicinity of Tank 570 because the area was included in Sitewide LIF Investigation, completed during the week of May 10, 2021. The Sitewide LIF location figure is provided in Attachment C.<br><br>Page 6 in the *Background Section* has been revised to state, "[t]anks 569, 570, 571, 572, and 354 are drained and out of service due to the indefinite idle of the Refinery." |
| **Comment 2:** | **Response 2:** |
| In the Background Section, page 6, the Permittee states, "[o]n March 5, 2019, six deep soil borings were installed throughout the tank farm and north of STP-1: SB-FD-1, OW-61, OW-62, OW-63, OW-64, and OW-65. These locations are shown on Figure 2 of this report and boring/well logs can be found in Appendix A." | A boring log was not prepared for SB-FD-1; instead, the description was provided in the report text. The description of soil boring SB-FD-1 is provided on pages 4-2 and 4-3 of the "OW-61 Through OW-65 Well Installation Report" dated November 2019. The Installation Report states, "[o]n March 7, |

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| Appendix A, *Well Logs*, does not include a boring log for SB-FD-1. In addition, Figure 3 does not depict any proposed borings north of STP-1 to investigate presence or absence of contamination associated with the French Drain release. Provide a boring log for SB-FD-1 and discuss whether (1) hydrocarbons were detected at location SB-FD-l and (2) soil investigation is warranted north of STP-l in the response letter. | 2018 the drilling rig was set up on location SB-FD-l. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No discrete soil samples were retained for laboratory analysis since the field screening results did not indicate potential contamination and the focus of this effort was the identification of SPH. The lithology encountered consisted of the following:<br>▪ The 0 to 10 foot interval was not logged due to use of hydro excavation to clear the location;<br>▪ Silty Clay: 10 - 14 feet below ground level (bgl) (low plasticity, very stiff, dry to damp, reddish brown, calcareous at base no odor);<br>▪ Silty Clay: 14 - 24 feet bgl (low plasticity, firm/crumbly, damp, light reddish brown, very calcareous 15.75 — 16.0 feet, no odor, increase in silt lower 2 feet);<br>▪ Silty Clay: 24 - 38 feet bgl (low plasticity, very stiff, dry to damp, reddish brown with greenish gray color from 24 to 26 feet bgl, thin 1" sandstone lens at 25.75 feet and calcareous 34 to 36 feet bgl, no odor);<br><br>The boring was left open for two days but did not produce water and was plugged on March 9, 2018."<br><br>Figure 3, *Proposed Soil Boring Location,* does not depict any proposed soil borings north of STP-1 because the area was included in Sitewide LIF Investigation, completed during the week of May 10, 2021. The Sitewide LIF location figure is provided in Attachment C. |

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| **Comment 3:** | **Response 3:** |
| In the Background Section, page 6, the Permittee states, "[h]ydrocarbon impacts were identified at OW-61 at depths ranging from 10 to 26 ft bgs. Elevated photoionization detector (PID) readings were identified at OW-62 (18-20 ft bgs), OW-53 (18-24 ft bgs), OW-64 (10-24 ft bgs), and OW-65 (14-20 ft bgs) which could suggest hydrocarbon contamination in the area." Comment 4 in NMED's *Approval with Modifications OW-61 through OW-65 Well Installation Report*, dated January 29, 2020, states, "[t]here was no data to evaluate presence or absence of contamination above 10 feet bgs, because hydro-excavation was used during the installation of the soil boring." Hydrocarbons are likely present at depths less than ten feet below ground surface (bgs) in the vicinity of wells OW-61 and OW-64. Provide a justification for why borings are not proposed in the vicinity of the wells or propose to investigate potential contamination from the ground surface to ten feet bgs in the vicinity of wells OW-61 and OW-64 and provide replacement pages. | Figure 3, *Proposed Soil Boring Location,* does not depict any proposed soil borings in the vicinity of the well OW-61 because the area was included in Sitewide LIF Investigation, completed during the week of May 10, 2021. The Sitewide LIF location figure is provided in Attachment C. V-trenches installed during the Sitewide LIF Investigation allowed data collection in the 0 to 10 ft bgs interval that would be absent due to hydro-excavation. LIF logs for EB-LIF-34 and EB-LIF-27 (Attachment C) show less than 10% RE in the 0 to 10 ft bgs interval, indicating no to low SPH impact in the shallow zone.<br><br>Borings are also not proposed near the location of OW-64. Well OW-64 is located adjacent to the February 2018 excavation #4 (Figure 3) conducted to investigate a hydrocarbon release from the drain line of the STP-1 French Drain. Borehole depths were not recorded but are estimated to reach 6 to 8 ft bgs. Excavation #4 showed no visible sign of SPH impact. Discussion of the investigation and findings is provided on page 4 in the *Background* Section. |
| **Comment 4:** | **Response 4:** |
| In the Scope of Activities Section, page 7, the Permittee states, "[b]ased upon prior investigations completed by MPC, hydrocarbon impacts around the STP-1 French Drain area were observed at approximately 8 ft bgs," and "[a]nalytical results will be screened by comparison to NMED Industrial Soil Screening Levels (SSLs)." Since industrial soil screening levels (SSLs) are applicable to the exposure of soils ranging from the ground surface to one foot bgs and the contamination is expected to be found outside the range, it is more appropriate to use residential and/or construction worker SSLs for comparison. Revise the Work Plan accordingly and provide replacement pages. | The Scope of Activities section, page 7, has been revised to state, "[a]nalytical results will be screened by comparison to NMED Industrial, Residential, and Construction Worker Soil Screening Levels (SSLs)." |

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| **Comment 5:** | **Response 5:** |
| In the Scope of Activities Section, page 7, the Permittee states, "[a] Geoprobe drill rig will be used to advance soil borings and up to two discrete soil samples will be collected at each boring location," and "[t]o delineate vertical distribution, soil borings will be advanced to at least 5 ft below the deepest detected contamination based on PID field screening and field observation results." Comment 3 in the NMED's *Approval with Modifications OW-61 through 0W-65 Well Installation Report*, dated January 29, 2020, states, "[a] minimum of three soil samples should have been collected from each boring at the vadose zone with the highest PID reading, at the water table, and the boring termination depth." If the borings are advanced below the water table, collect soil samples from the vadose zone from the depth with the highest PID reading, at the water table, and from the boring termination depth; otherwise, collect soil samples at the vadose zone with the highest PID reading and the boring termination depth. Revise the Work Plan accordingly and provide replacement pages. | MPC evaluated the Sitewide LIF boring logs (Attachment C) for the locations that were co-located with the proposed French Drain sample locations (Figure 3, Attachment B). MPC proposes a modified sampling approach based on the preliminary LIF data results using the percent reference emitter (% RE) as a guide. The % RE is a comparison of the LIF response to that of a known reference standard. The response intensity is influenced by the quantity of hydrocarbons detected (additional information on the LIF technology is presented in the MPC March 31, 2021 "Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report"). The May 2021 LIF borings show the following % RE:<br>▪ EB-LIF-98: Diesel-type SPH 150% RE<br>▪ WB-LIF-100: Gas/Diesel-type SPH 20% RE<br>▪ WB-LIF-110: No LIF response<br>▪ WB-LIF-116: No LIF response<br>▪ WB-LIF-117: No LIF response<br>▪ WB-LIF-118: No LIF response<br>▪ WB-LIF-119: Gas/Diesel-type SPH 350% RE<br><br>MPC will collect three (3) soil samples from borings located near EB-LIF-98 and WB-LIF-119, i.e., those with the highest response. Soil samples will be collected at the water-table from the remainder boring locations.<br><br>The Scope of Activities section, page 7, has been revised to state, "[a] Geoprobe drill rig will be used to advance soil borings and soil samples will be collected at each boring location. The two proposed borings located west of Tanks 337/344 and east of evaporation pond 1 will be sampled at three intervals: the vadose zone interval with the highest PID reading, the water table, and the boring termination depth. The remaining four boring locations will be sampled at the water table. The proposed locations are shown on Figure 3." |

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| **Comment 6:** | **Response 6:** |
| in the Scope of Activities Section, page 7, the Permittee states, "[s]oil samples will be analyzed for hydrocarbon impacts via Method 8270 (semi-volatile organic compounds [SVOCs]), Method 8260 [volatile organic compounds [VOCs]), and Method 8015M (total petroleum hydrocarbons [TPH] gasoline range organics [GRO] and diesel range organics [DRO])." Provide an explanation for why soil samples are not proposed to be analyzed for TPH motor oil range organics (MRO) in the response letter or propose to include TPH-MRO analysis in the revised Work Plan and provide replacement pages. | The Scope of Activities section, Page 7, has been revised to include TPH motor oil range organics (MRO) and states, "[s]oil samples will be analyzed for hydrocarbon impacts via Method 8270 (semi-volatile organic compounds [SVOCS]), Method 8260 (volatile organic compounds [VOCs]), and Method 8015M (total petroleum hydrocarbons [TPH] gasoline range organics [GRO], diesel range organics [DRO], and motor oil range organics [MRO])."<br><br>In addition, the Sample Collection Procedures section, page 8, has been revised to add TPH-MRO and states, "2. Analyze soil samples for:<br>▪ pH<br>▪ SVOCs, Method 8270<br>▪ VOCs, Method 8260<br>▪ TPH GRO, DRO, and MRO, Method 8015M<br>▪ Density." |
| **Comment 7:** | **Response 7:** |
| In the Investigation Methods Section, page 7, the Permittee states, "[t]he proposed sampling locations are shown on Figure 3. The proposed locations include six boreholes around the STP-1 French Drain area." The proposed sampling locations shown on Figure 3 are anticipated to delineate the extent of hydrocarbon contamination detected at BH-1, BH-2, and Excavation #9; however, do not appear adequate to delineate the extent of hydrocarbon contamination detected at BH-3 and potential hydrocarbon contamination northwest of the French Drain. Two additional soil borings as shown in the figure below must be proposed in the revised Work Plan. The suggested boring locations below may be adjusted based on the accessibility of the site. Revise the figure accordingly.<br><br>[*Suggested additional boring locations were provided by NMED on a figure included with the comment.*] | Figure 3, *Proposed Soil Boring Location,* does not depict any proposed soil borings in the vicinity of BH-3 and potential impacts north west of the French Drain because the area was included in Sitewide LIF Investigation, completed during the week of May 10, 2021. The Sitewide LIF location figure is provided in Attachment C. The Sitewide LIF investigation provided adequate coverage of the area |

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| **Comment 8:** | **Response 8:** |
| In the Investigation Methods Section, *Sample Frequency*, page 8, the Permittee states, "[s]oil sample collection will be taken at a frequency in accordance with the RCRA Post-Closure Permit Section IV.J.2.d.ii (Soil and Rock Sampling) and will include the following applicable intervals and depths:<br>▪ At the surface of the proposed boring locations;<br>▪ At 2.5-ft intervals;<br>▪ At the maximum depth of each boring; and<br>▪ At intervals suspected of being source or contaminated zones."<br>The Scope of Activities Section, page 7, states, "[a] Geoprobe drill rig will be used to advance soil borings and up to two discrete soil samples will be collected at each boring location." Resolve the discrepancy in the revised Work Plan and provide replacement pages. The sampling frequency must follow the direction provided by Comment 5 above. In addition, if exceedances are detected in confirmation samples, additional step-out borings must be installed five feet from the original locations. Include the provision in the revised Work Plan and provide replacement pages. | In general, MPC follows the protocol provided in the RCRA Post-Closure permit. However, MPC is proposing a modified approach to sample collection because of the Sitewide LIF data (see MPC response to NMED Comment 5). Therefore, the Scope of Activities section, page 7, has been revised to state, "[a] Geoprobe drill rig will be used to advance soil borings and soil samples will be collected at each boring location. The two proposed borings located west of Tanks 337/344 and east of evaporation pond 1 will be sampled at up to three intervals: the vadose zone interval with the highest PID reading, the water table, and the boring termination depth, if water is not encountered. The remaining four boring locations will be sampled at the water table. The proposed locations are shown on Figure 3." and "[i]f exceedances are detected in confirmation samples, additional step-out borings will be installed 25 ft from the original boring location."<br><br>The soil sampling discrepancy in the Investigation Methods Section, Sample Frequency, pages 8 and 9, has been revised to state, "Soil sample collection will be conducted based on data collected from the Sitewide Laser-Induced Fluorescence/Hydraulic Profiling Investigation. Soil samples will be collected at up to three depths from the two borings located west of Tanks 337and 344 and east of evaporation pond 1: the vadose zone interval with the highest PID reading, the water table, and the boring termination depth. The remaining four borings will be sampled at the water table. Figure 3 shows the proposed locations." |

**New Mexico Environment Department (NMED) to Marathon Petroleum Company (MPC) Comment Letter "Approval with Modifications French Drain Soil Sampling Investigation Work Plan" (January 8, 2021)**

| NMED Comment | MPC Response |
|---|---|
| **Comment 9:** | **Response 9:** |
| In Appendix B, *Standard Operating Procedure - Soil Sampling*, Section 3, *Preparation*, page 1, states, "[f]or Soil sampling, the only field monitoring equipment used will be the Photoionization detection (PID) meter." However, Section 4, *Equipment*, page 2, lists Flame Ionization detection meter (FID) as an equipment to be used rather than PID meter. Resolve the discrepancy in the revised Work Plan and provide replacement pages. | Appendix B, Section 4, *Equipment*, has been updated on page 2 to list Photoionization detection (PID) meter rather than FID meter and page 3 revised to state, "[f]ield screening may involve the use of a PID probe, which will be inserted into the bag and the reading taken." |

**ATTACHMENT B – RED LINE STRIKE OUT REVISIONS**

# MARATHON PETROLEUM CORPORATION

# GALLUP REFINING DIVISION

# FRENCH DRAIN SOIL SAMPLING INVESTIGATION WORK PLAN

## HWB-WRG-18-014

## REVISED SEPTEMBER 30, 2021

## ~~Approval to Proceed~~

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.

~~Name: John Moore~~Kateri Luka ~~Date~~

~~Title: Environmental Supervisor~~Senior HSE ~~Professional~~



## Executive Summary

The Marathon Petroleum Company (MPC), Gallup Refining Division is submitting this Investigation Work Plan for the investigation of hydrocarbon impacts to soils in the Sanitary Treatment Pond (STP-1) French Drain area.

Hydrocarbon impacts were discovered in the drain line of the STP-1 French Drain on February 6, 2018. Subsequent investigation efforts were completed on February 8 and 10, 2018. This Investigation Work Plan was developed to investigate and sample the underlying soils to further delineate the potential impacts to the subsurface.

Initial investigation efforts included borehole installations and soil excavations in February 2018. As a result of the investigation, six deep soil boring locations were converted into groundwater monitoring wells and have been added to the annual groundwater sampling schedule since April 2018.

This Investigation Work Plan describes the proposed installation of soil borings and sample collection further ~~north,~~ east and west of the STP-1 French Drain and north of the wastewater treatment plant. This investigation is intended to reduce data gaps and will be utilized to determine if additional remediation or investigation is warranted.

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A. WELL LOGS
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## Introduction

The MPC, Gallup Refining Division (Refinery) is located approximately 17 miles east of Gallup, McKinley County, New Mexico along the north side of Interstate Highway I-40 (Figure 1). The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Refinery property covers approximately 810 acres.

Trihydro Corporation prepared this Investigation Work Plan for the investigation of soils contained in and around the STP-1 French Drain, located on the northwestern portion of the Refinery. The French Drain is located on the east side of STP-1 (Figure 2).

The Refinery is a petroleum oil refinery that processes crude oil received by pipeline or tanker truck from the Four Corners region. The Refinery is currently transitioning to idle mode. Various process units that have operated at the Refinery, and include 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.

## Background

As detailed in MPC's Response to Comment No. 39 on 2017 Annual Groundwater Monitoring Report (Marathon 2019a), a hydrocarbon release from the drain line of the STP-1 French Drain was discovered on February 6, 2018. Efforts to pinpoint the source of the hydrocarbon release included borehole installation and soil excavations conducted on February 8 and February 10, 2018, respectively. Investigation activities are detailed in the Second Response to Comments No. 39 on 2017 Annual Groundwater Monitoring Report from MPC (Marathon 2019b). Borehole and soil excavation locations of the February 2018 investigation are shown on Figure 3. Hydrocarbons were identified in the shallow subsurface in BH#1, #2, and #3 near the southeast corner of STP-1. Borehole depths were not recorded but are estimated to reach 6 to 8 feet below ground surface (ft bgs). Hydrocarbons were also visually identified in soil at excavation #9 located between the wastewater treatment plant and STP-1. Excavations #4, #5, #6, #7, #8, #10, and #11 showed no visible signs of hydrocarbon contamination.

Smaller hand excavations were also completed to the east of STP-1, where hydrocarbons were identified at approximately 3 ft bgs. Hand excavations completed on the northwest sides of Tanks 569, 570, 571, and 572 showed no visible evidence of a release. Locations of the hand excavations were not recorded as documented in the "Response to Approval with Modifications on 2017 Annual Groundwater Monitoring Report"

(Comment No. 39 Response 7) dated December 9, 2019. Fluid levels were monitored in Tanks 570, 571, and 345 to determine if a potential leak was responsible for the release. A static level test of Tank 570 in 2019 showed a loss of product, which lead to the tank being taken out of service. There were no indications of leaks in Tanks 571 and 345. Tanks 569, 570, 571, 572, and 354 are drained and out of service due to the indefinite idle of the Refinery.

On March 5, 2019, six deep soil borings were installed throughout the tank farm and north of STP-1: SB-FD-1, OW-61, OW-62, OW-63, OW-64, and OW-65. These locations are shown on Figure 2 of this report and boring/well logs can be found in Appendix A. Hydrocarbon impacts were identified at OW-61 at depths ranging from 10 to 26 ft bgs. Elevated photoionization detector (PID) readings were identified at OW-62 (18-20 ft bgs), OW-63 (18-24 ft bgs), OW-64 (10-24 ft bgs), and OW-65 (14-20 ft bgs), which could suggest hydrocarbon contamination in the area.

The purpose of this Investigation Work Plan is to further identify and delineate horizontal and vertical soil impacts from a potential hydrocarbon release near the STP-1 French Drain. This investigation will evaluate the need for any further investigation and/or remediation.

## Site Conditions

### Surface Conditions

Local 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. The area near STP-1 and the French Drain is approximately 6,910 ft above mean sea level.

### Subsurface Conditions

The shallow subsurface soil (alluvium) is comprised of clay and silt with some inter-bedded sand layers. Beneath the alluvium is the Petrified Forest Member of the Chinle Group, which primarily consists of interbedded mudstone, siltstone, and sandstone. The Alluvium/Chinle interface ranges from 15 ft bgs to more than 32 ft bgs.

## Scope of Activities

The investigative activities of the STP-1 French Drain will be initiated to further delineate horizontal and vertical hydrocarbon impacts to soil and to confirm data previously collected. The sampling activities will be conducted

per the Resource Conservation and Recovery Act (RCRA) Post-Closure Permit Section IV.J.2.ii. Pending New Mexico Environmental Department (NMED) approval, MPC anticipates investigation work to be completed in 2021.

A Geoprobe drill rig will be used to advance soil borings and ~~up to two discrete~~ soil samples will be collected at each boring location. The two proposed borings located west of Tanks 337/344 and east of evaporation pond 1 will be sampled at up to three intervals: the vadose zone interval with the highest PID reading, the water table, and the boring termination depth, if water is not encountered. The remaining four boring locations will be sampled at the water table. The proposed locations are shown on Figure 3. Based upon prior investigations completed by MPC, hydrocarbon impacts around the STP-1 French Drain area were observed at approximately 8 ft bgs. To delineate vertical distribution, soil borings will be advanced to at least 5 ft below the deepest detected contamination based on PID field screening and field observation results. If exceedances are detected in confirmation samples, additional step-out borings will be installed 25 ft from the original boring location.

Soil samples will be analyzed for hydrocarbon impacts via Method 8270 (semi-volatile organic compounds [SVOCS]), Method 8260 (volatile organic compounds [VOCs]), and Method 8015M (total petroleum hydrocarbons [TPH] gasoline range organics [GRO], ~~and~~ diesel range organics [DRO], and motor oil range organics [MRO]). Analytical results will be screened by comparison to NMED Industrial, Residential, and Construction Worker Soil Screening Levels (SSLs).

After the investigation has been completed, MPC will prepare an investigation report summarizing analytical results from the soil sampling. The investigation will be submitted to NMED.

## Investigation Methods

The proposed sampling locations are shown on Figure 3. The proposed locations include six boreholes around the STP-1 French Drain area.

Soils obtained will be visually inspected and classified in general accordance with ASTM D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils). Detailed soil boring logs will be completed in the field by qualified field staff. Soil samples will be field screened at regular intervals via PID for evidence of contaminants and will be recorded in the boring logs.

## Sample Collection Procedures

Samples will be collected in accordance with the soil sampling Standard Operating Procedure (Appendix B). Details related to sample collection will be documented on the confirmation sampling field forms. General observations recorded on the field forms for each soil sample location will include sampling start and end times, weather, site conditions, sampling team members, and other affiliations present. Sample-specific information will include: field sample identification, sample start and end depth, collection method, sample type (i.e., composite or aliquot), soil classification and characteristics, deviations or clarification of sampling procedures, and other observations. Field techniques will be applied consistently across the STP-1 French Drain area by a team of dedicated sampling personnel who may be assisted by site supervisors. A summary of the sampling activities is shown below:

1. Install six soil borings to observe and collect soil samples from the borings in order to delineate horizontal and vertical extent of hydrocarbon impacts.
2. Analyze soil samples for:
   - pH
   - SVOCs, Method 8270
   - VOCs, Method 8260
   - TPH GRO, ~~and~~ DRO, MRO, Method 8015M
   - Density
3. Screen analytical data by comparing with NMED SSLs.

Soil sampling equipment will be decontaminated before collecting each sample, and equipment decontamination will be noted on the field forms. Immediately after collection, soil samples will be placed into a clean, sealable plastic bag labeled with the field sample identification. Sample jars will be filled, labeled, and placed in a cooler. Before shipment, coolers will be packed with additional ice and one temperature blank per cooler. A chain of custody (CoC) form will accompany each sample shipment. Coolers will be sealed and shipped overnight to the Eurofins TestAmerica Analytical Laboratory in Pensacola, FL.

### Sample Frequency

Soil sample collection will be conducted based on data collected from the Sitewide Laser-Induced Fluorescence/Hydraulic Profiling Investigation. Soil samples will be collected at up to three depths from the two borings located west of Tanks 337/344 and east of evaporation pond 1. The remaining four borings will be sampled at the water table. Figure 3 shows the proposed locations. ~~Soil sample collection will be taken at a frequency in accordance with the RCRA Post-Closure Permit Section IV.J.2.d.ii (Soil and Rock Sampling) and will include the following applicable intervals and depths:~~

~~At the surface of the proposed boring locations;~~

~~At 2.5-ft intervals;~~

~~At the maximum depth of each boring; and~~

~~At intervals suspected of being source or contaminated zones.~~

### Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. Field duplicates will be collected at a rate of ten percent of all samples collected. Equipment blanks will be collected from re-usable equipment at a rate of ten percent; if disposable sampling equipment is used, the blanks shall be collected at a frequency of one per day. Field blank samples will also be collected once a day. The field duplicate and blank samples will be submitted to the laboratory along with the soil samples.

QA/QC samples will be recorded on the field forms and CoCs. All data will undergo Tier II data validation.

### Data Evaluation

Analytical results will be compared to NMED SSLs, and the chosen disposal facility's waste acceptance criteria. Soil recovered during sampling will be placed in containers within the area of the STP-1 French Drain and characterized prior to disposal.

## Monitoring and Sampling Program

Monitoring wells OW-61 through OW-65 were added to the routine quarterly groundwater sampling event beginning in April 2018 and have been sampled quarterly since that time.



## Schedule

Pending NMED approval, MPC anticipates the investigation to begin in early 2021. After the investigation has been completed, MPC will prepare an investigation report summarizing the sampling results.

## References

Marathon. 2019a. Response to Comment No. 39 on 2017 Annual Groundwater Monitoring Report (dated March 21, 2019), Marathon Petroleum Company LP, Gallup Refinery, (dba Western Refining Southwest, Inc.), EPA ID# NMD000333211, HWB-WRG-18-014. May 23, 2019.

Marathon. 2019b. Second Response to Comment No. 39 on 2017 Annual Groundwater Monitoring Report (dated March 21, 2019), Marathon Petroleum Company LP, Gallup Refinery, (dba Western Refining Southwest, Inc.), EPA ID# NMD000333211, HWB-WRG-18-014. August 23, 2019.

## Figures


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**EXPLANATION**

40 INTERSTATE HIGHWAY

N

0 2,000'

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

**FIGURE 1**

**FACILITY LOCATION**

**MARATHON PETROLEUM CORP.**
**GALLUP REFINING DIVISION**
**GALLUP, NEW MEXICO**

DRAFT

| Drawn By: REP | Checked By: JP | Scale: 1" = 2,000' | Date: 9/14/20 | File: 697-FD-FACILITYLOC_202009 |
|---|---|---|---|---|

M:\TON\MARATHON\CADD\GALLUP_REPORTS\TRENCHDRAIN\WP\697-FD-FACILITYLOC_202009


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**EXPLANATION**

- OW-65 MONITORING WELL AND DESIGNATION (APPROXIMATE)
- FRENCH DRAIN
- SD-2 STORM DRAIN AND DESIGNATION

N

0 200'

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www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

**FIGURE 2**

**FRENCH DRAIN LOCATION**

**MARATHON PETROLEUM CORP.**
**GALLUP REFINING DIVISION**
**GALLUP, NEW MEXICO**

DRAFT

| Drawn By: REP | Checked By: JP | Scale: 1" = 200' | Date: 9/14/20 | File: 697-FD-FRENCHDRAINLOC_202009 |
|---|---|---|---|---|

\\TRIHYDRO.COM\CLIENTS\VTON\MARATHON\CADD\GALLUP_REPORTS\FRENCHDRAIN\WP\697-FD-FRENCHDRAINLOC_202009


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## EXPLANATION

- PROPOSED SOIL BORING
- SOIL BORING WITH SAMPLE AT WATER TABLE
- BH-1 BORING AND DESIGNATION (INSTALLED FEBRUARY 2018)
- FRENCH DRAIN
- HYDROCARBON IMPACTS (EXCAVATION INSTALLED FEBRUARY 2018)
- HYDROCARBON ABSENT (EXCAVATION INSTALLED FEBRUARY 2018)

N

0 200'

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**FIGURE 3**

**PROPOSED SOIL BORING LOCATIONS**

**MARATHON PETROLEUM CORP.**
**GALLUP REFINING DIVISION**
**GALLUP, NEW MEXICO**



| Drawn By: REP | Checked By: JP | Scale: 1" = 200' | Date: 5/18/21 | File: 697-FD-PROPSOILLOC_202105 |
|---|---|---|---|---|

\\TRIHYDRO.COM\CLIENTS\TGN\MARATHON\CADD\GALLUP_REPORTS\FRENCHDRAIN\WP\697-FD-PROPSOILLOC_202105

# Appendix A
# Well Logs

DiSorbo Environmental Consulting Firm

Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Augers |
| Sampling Method | : Split Spoon 2' |
| Comments | : |
| Total Depth | : 32' |
| Ground Water | : 18' BGL |
| Start Date | : 3-13-2018 |
| Finish Date | : 3-13-2018 |

# WELL NO. OW-61

(Sheet 1 of 2)

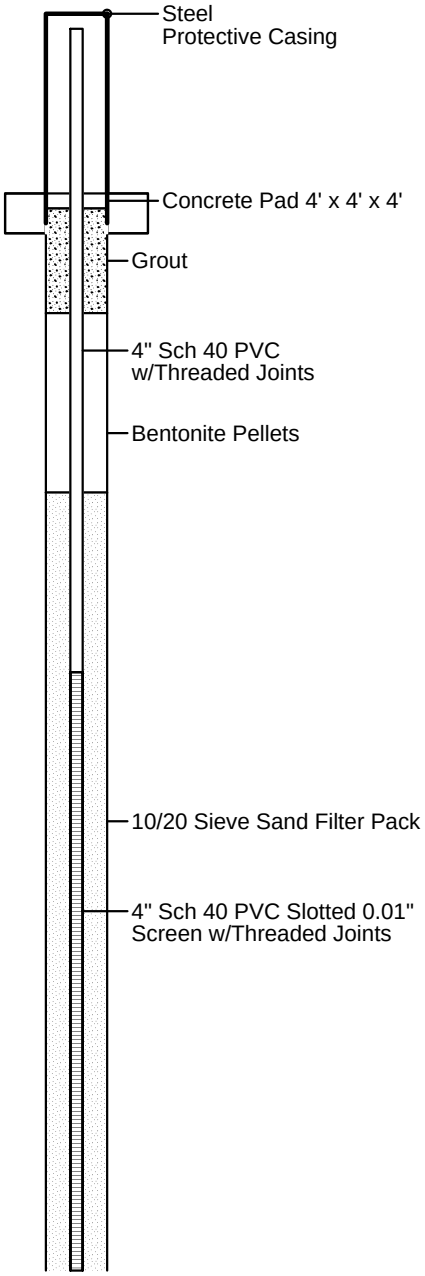
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6963.57 |
| Elev., PAD (ft. msl) | : 6960.91 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1633887.74 |
| E | : 2546702.36 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| -2 to 0 | | | | | | | |
| 0 to 10 | | | | | 0 | | Hydroexcavated Location - Borehole open to 10' - no water |
| 10 to 11 | 1563 | | | ML | 90 | | SANDY SILT, very fine, loose, moist, gravel present, brown, strong chemical odor, |
| 12 to 13 | 869 | | | SM | 80 | | GRAVELLY SILTY SAND, fine, loose, moist, 20 mm gravel present, brown, strong odor, |
| 14 to 15 | 1081 | | | SM | 70 | | GRAVELLY SILTY SAND, SIMILAR TO ABOVE (STA), very moist, tan and brown, strong odor, |
| 16 to 17 | 1115 | | | SM | 60 | | GRAVELLY SILTY SAND, STA, increase in gravel, large sandstone gravel in core, moist to very moist,very light tan, strong odor, |
| 18 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-61

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1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

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Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Augers |
| Sampling Method | : Split Spoon 2' |
| Comments | : |
| Total Depth | : 32' |
| Ground Water | : 18' BGL |
| Start Date | : 3-13-2018 |
| Finish Date | : 3-13-2018 |

# WELL NO. OW-61

(Sheet 2 of 2)

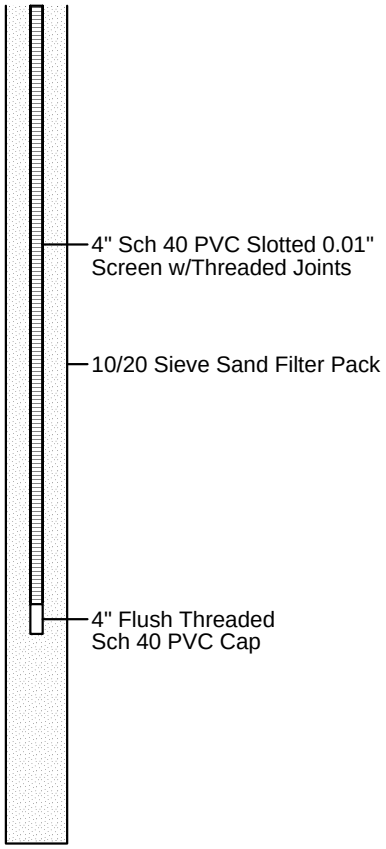
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6963.57 |
| Elev., PAD (ft. msl) | : 6960.91 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1633887.74 |
| E | : 2546702.36 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 18 | | | | | | | |
| 19 | 1702 | | | SC | 20 | | GRAVELLY CLAYEY SAND, fine to coarse grain sand with brown clay, soft, very damp gravel (10-20 mm), saturated at base, |
| 20 | | | | | | | |
| 21 | 1269 | | | SM | 60 | | SILTY SAND, medium, loose, trace clay and gravel, saturated, dark brown, strong odor, |
| 22 | | | | SM | 60 | | SILTY SAND, STA, saturated, |
| 23 | 1638 | | | CL | 60 | | GRAVELLY SANDY CLAY, low, soft, gravel throughout, damp to saturated in seams, brown, strong odor, |
| 24 | | | | | | | |
| 25 | 1538 | | | CL | 50 | | GRAVELLY CLAY, low, firm, damp, dark blueish grey, strong odor, |
| 26 | | | | | | | |
| 27 | 377 | | | CL | 40 | | GRAVELLY CLAY, STA, trace very fine grain sand, damp,very stiff, odor, |
| 28 | | | | | | | |
| 29 | 298 | | | CL | 60 | | SILTY CLAY, low, very stiff, trace sand and very small gravel, damp, grey to light grey, odor, |
| 30 | | | | | | | |
| 31 | 60.9 | | | CL | 70 | | SILTY CLAY, STA, damp, light grey and pink. |
| 32 | | | | | | | |
| 33 | | | | | | | |
| 34 | | | | | | | |
| 35 | | | | | | | |
| 36 | | | | | | | |
| 37 | | | | | | | |
| 38 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-61

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1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

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Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Augers |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 40' |
| Ground Water | : Not Encountered |
| Start Date | : 03/15/2018 |
| Finish Date | : 03/15/2018 |

# WELL NO. OW-62

(Sheet 1 of 3)

| | |
|---|---|
| Elev., TOC (ft.msl) | : 6937.36 |
| Elev., PAD (ft. msl) | : 6934.73 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634866.14 |
| E | : 2545914.00 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Rec overy (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | Hydroexcavated to 10' - Collapsed to 9' - no fluid, |
| 10 | 0 | | | ML | 50 | | CLAYEY SILT, very fine, stiff, dry, crumbly, no odor, light brown, |
| 12 | 0.1 | | | CL | 50 | | SILTY CLAY, SIMILAR TO ABOVE (STA), , increase in clay content, |
| 14 | 0.3 | | | CL | 60 | | SANDY SILTY CLAY, low, firm, damp, very fine grain sand seams, brown, no odor, |
| 16 | | | | CL | 80 | | SANDY CLAY, low, firm, damp,brown, no odor, |
| 17 | 0.3 | | | GW | 80 | | SANDY GRAVEL, 20 to10 mm gravel with coarse grain sand, loose, damp,brown, no odor, |

Saturation
▼ Saturation

## Completion Results

OW-62

- Steel Protective Casing
- Concrete Pad 4' x 4' x 4'
- Grout
- 4" Sch 40 PVC w/Threaded Joints
- Bentonite Pellets
- 10/20 Sieve Sand Filter Pack
- 4" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints

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713-955-1230

8501 N. MoPac Expy, Suite 300
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Andeavor
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WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Augers |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 40' |
| Ground Water | : Not Encountered |
| Start Date | : 03/15/2018 |
| Finish Date | : 03/15/2018 |

# WELL NO. OW-62

(Sheet 2 of 3)

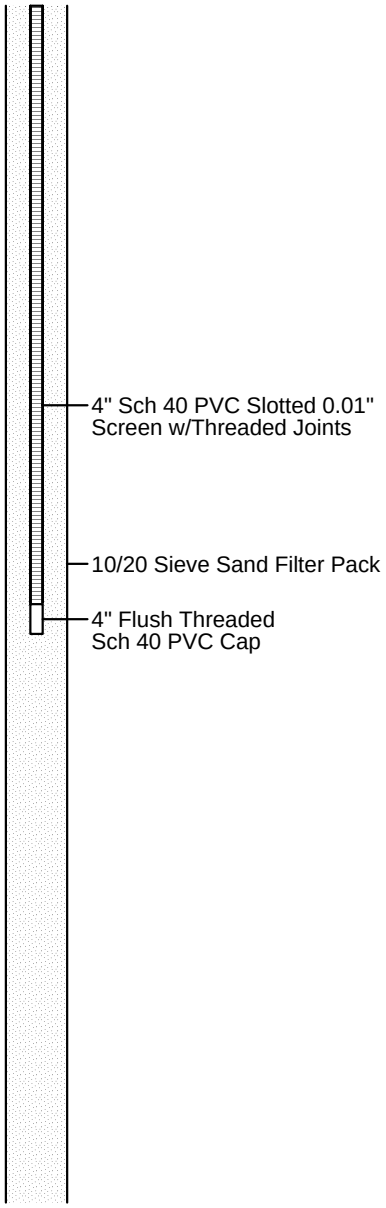
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6937.36 |
| Elev., PAD (ft. msl) | : 6934.73 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634866.14 |
| E | : 2545914.00 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Rec overy (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 18 | | | | | | | |
| 19 | 3380 | | | GC | 80 | | CLAYEY SANDY GRAVEL, STA except clay present, very moist, hydrocarbon (HC) odor, , |
| 20 | | | | | | | |
| 21 | 82.9 | | | GC | 70 | | CLAYEY SANDY GRAVEL, STA, damp to moist, HC odor, |
| 22 | | | | | | | |
| 23 | 33 | | | CL | 60 | | SILTY CLAY, low, soft, trace sand,calcareous, damp to moist, reddish brown, HC odor, |
| 24 | | | | | | | |
| 25 | 800 | | | CL | 70 | | SILTY CLAY, low, stiff, damp,reddish brown, HC odor, |
| 26 | | | | | | | |
| 27 | 555 | | | CL | 80 | | SILTY CLAY, STA, calcareous, odor, |
| 28 | | | | | | | |
| 29 | 56 | | | CH | 90 | | CLAY, high, very stiff, damp,reddish brown, faint odor, |
| 30 | | | | | | | |
| 31 | 351 | | | CL | 90 | | SILTY CLAY, low, firm/crumbly, damp,reddish brown, trace grey, no odor, |
| 32 | | | | | | | |
| 33 | 125 | | | CL | 90 | | SILTY CLAY, STA, |
| 34 | | | | | | | |
| 35 | 159 | | | CL | 90 | | SILTY CLAY, STA, |
| 36 | | | | | | | |
| 37 | 91 | | | CL | 90 | | SILTY CLAY, STA, |
| 38 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-62

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Austin, Texas 78759
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Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Augers |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 40' |
| Ground Water | : Not Encountered |
| Start Date | : 03/15/2018 |
| Finish Date | : 03/15/2018 |

# WELL NO. OW-62

(Sheet 3 of 3)

| | |
|---|---|
| Elev., TOC (ft.msl) | : 6937.36 |
| Elev., PAD (ft. msl) | : 6934.73 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634866.14 |
| E | : 2545914.00 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Rec overy (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 38 | | | | | | | |
| 39 | 44 | | | CL | 90 | | SILTY CLAY, STA. |
| 40 | | | | | | | |
| 41 | | | | | | | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |
| 51 | | | | | | | |
| 52 | | | | | | | |
| 53 | | | | | | | |
| 54 | | | | | | | |
| 55 | | | | | | | |
| 56 | | | | | | | |
| 57 | | | | | | | |
| 58 | | | | | | | |

Saturation
▼ Saturation

Completion Results

OW-62

10/20 Sieve Sand Filter Pack

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Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollw-Stem Auger |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 32 |
| Ground Water | : 16'/25' |
| Start Date | : 03/14/2018 |
| Finish Date | : 03/14/2018 |

# WELL NO. OW-63

(Sheet 1 of 2)

| | |
|---|---|
| Elev., TOC (ft.msl) | : 6935.06 |
| Elev., PAD (ft. msl) | : 6932.34 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634859.73 |
| E | : 2546756.41 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | Hydroexcavated to 10'-borehole open, no water |
| 11 | 1.2 | | | CL | 90 | | SILTY CLAY, low, firm, damp,brown with light tan silt in seams, |
| 13 | 0.9 | | | CL | 50 | | SILTY CLAY, SIMILAR TO ABOVE (STA), |
| 15 | 1.3 | | | CL | 60 | | SILTY CLAY, STA, trace fine sand in seams, |
| 17 | 2.5 | | | SM | 80 | | SILTY SAND, fine, compact, very moist to saturated, brown, |

Saturation
▼ Saturation

Completion Results

OW-63

- Steel Protective Casing
- Concrete Pad 4' x 4' x 4'
- Grout
- 4" Sch 40 PVC w/Threaded Joints
- Bentonite Pellets
- 10/20 Sieve Sand Filter Pack
- 4" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints

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713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
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WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollw-Stem Auger |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 32 |
| Ground Water | : 16'/25' |
| Start Date | : 03/14/2018 |
| Finish Date | : 03/14/2018 |

# WELL NO. OW-63

(Sheet 2 of 2)

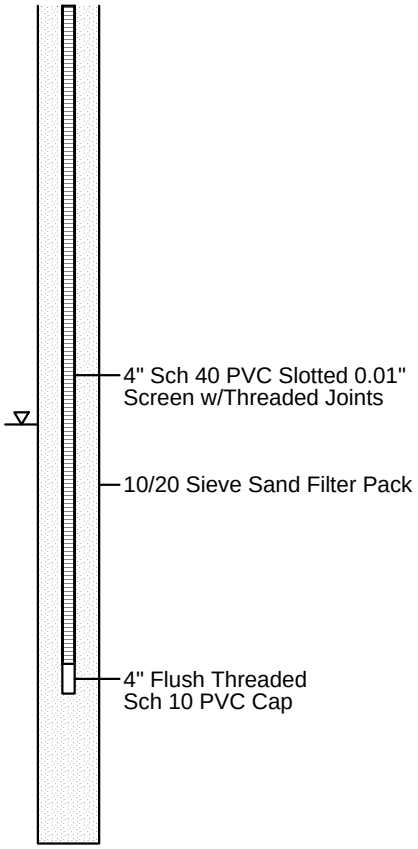
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6935.06 |
| Elev., PAD (ft. msl) | : 6932.34 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634859.73 |
| E | : 2546756.41 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 18 | | | | | | | |
| 19 | 428 | | | CL | 80 | | SANDY SILTY CLAY, low, firm, damp, occasional gravel, brown, odor, |
| 20 | | | | | | | |
| 21 | 652 | | | CL | 80 | | SILTY SANDY CLAY, STA, moist in sand seams at base, odor, |
| 22 | | | | | | | |
| 23 | 275 | | | CL | 70 | | SILTY SANDY CLAY, STA, odor, |
| 24 | | | | CH | 70 | | CLAY, high, soft to firm,damp,brown, odor, |
| | 39 | | | CH | 90 | | CLAY, STA, odor, |
| 25 | | | | | | | |
| | 28 | | | GC | 90 | | CLAYEY GRAVEL, sandstone gravel in pink/brown/olive green clay and silt, coarse sand present, saturated, odor, |
| 26 | | | | | | | |
| 27 | 150 | | | GC | 90 | | CLAYEY GRAVEL, STA, saturated, odor, |
| 28 | | | | | | | |
| 29 | 40 | | | | 90 | | WEATHERED SANDSTONE, very dense, dry, grey to light purple, faint odor, |
| 30 | | | | | | | |
| 31 | 10.9 | | | | 50 | | WEATHERED SANDSTONE, STA, grey and light purple. |
| 32 | | | | | | | |
| 33 | | | | | | | |
| 34 | | | | | | | |
| 35 | | | | | | | |
| 36 | | | | | | | |
| 37 | | | | | | | |
| 38 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-63

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8501 N. MoPac Expy, Suite 300
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Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Pilot Hole 7 1/4 HSA |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 44' BGL |
| Ground Water | : Not Encountered |
| Start Date | : 03/05/2018 |
| Finish Date | : 03/05/2018 |

# WELL NO. OW-64

(Sheet 1 of 3)

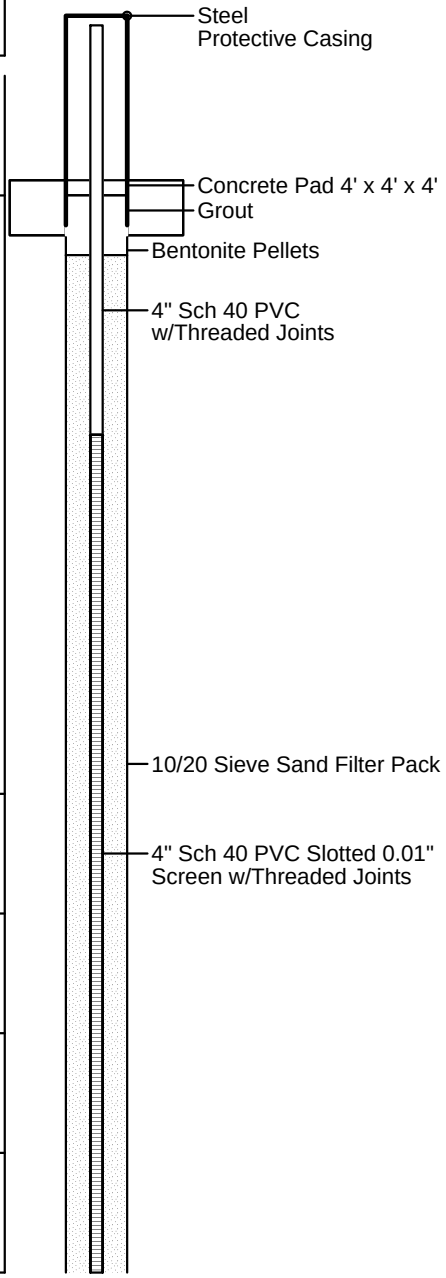
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6947.40 |
| Elev., PAD (ft. msl) | : 6945.07 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634301.36 |
| E | : 2546150.80 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | Hydroexcavated to 10' BGL, sloughed to 8' BGL, water in hole at 5.20' BGL, no separate phase hydrocarbon (SPH) detected, |
| 10 | | | | | | | |
| 11 | 280 | | | CL | 50 | | SILTY CLAY, low, firm, damp, brown and grey, faint hydrocarbon (HC) odor, |
| 12 | | | | | | | |
| 13 | 267 | | | CL | 70 | | SILTY CLAY, SIMILAR TO ABOVE (STA), faint HC odor, |
| 14 | | | | | | | |
| 15 | 308 | | | CL | 80 | | SILTY CLAY, low to moderate, stiff, calcareous near and at base, damp,brown, grey to greyish white, faint HC odor, |
| 16 | | | | | | | |
| 17 | 137 | | | CL | 50 | | SILTY CLAY, STA, increase in plasticity, mostly grey-trace brown,faint HC ordor, |
| 18 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-64

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Andeavor
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WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Pilot Hole 7 1/4 HSA |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 44' BGL |
| Ground Water | : Not Encountered |
| Start Date | : 03/05/2018 |
| Finish Date | : 03/05/2018 |

# WELL NO. OW-64

(Sheet 2 of 3)

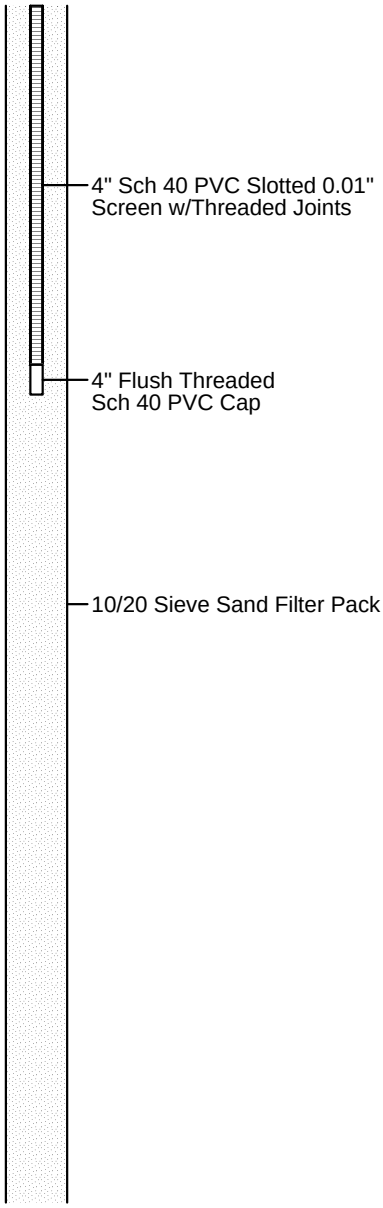
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6947.40 |
| Elev., PAD (ft. msl) | : 6945.07 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634301.36 |
| E | : 2546150.80 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 18 | | | | | | | |
| 19 | 47 | | | CL | 70 | | SILTY CLAY, moderate, firm, damp, brown-trace grey, faint odor, |
| 20 | | | | | | | |
| 21 | 133 | | | CL | 70 | | SILTY CLAY, STA, reddish brown to grey at 20.5', faint odor, |
| 22 | | | | | | | |
| 23 | 20 | | | CL | 60 | | SILTY CLAY, moderate, firm to stiff, damp,grey, faint odor, |
| 24 | | | | | | | |
| 25 | 17 | | | CL | 80 | | SILTY CLAY, STA, stiff, |
| 26 | | | | | | | |
| 27 | 75 | | | CL | 70 | | SILTY CLAY, STA, stiff, calcareous at base, reddish brown and grey, greenish grey, |
| 28 | | | | | | | |
| 29 | 74 | | | CL | 60 | | SILTY CLAY, low, stiff/crumbly, damp, dark reddish brown and grey, no odor, |
| 30 | | | | | | | |
| 31 | 35 | | | CL | 60 | | SILTY CLAY, STA, very stiff, no odor, |
| 32 | | | | | | | |
| 33 | 20 | | | CL | 40 | | SILTY CLAY, low, very stiff, damp, dark reddish brown, balck shale at base, no odor, |
| 34 | | | | | | | |
| 35 | 30 | | | ML | 40 | | CLAYEY SILT, sandstone gravel (cobble) at top of interval, low, firm/crumbly, dry/damp, brown, no odor, |
| 36 | | | | | | | |
| 37 | 8 | | | ML | 50 | | SILTY CLAY,low, very stiff, dry/damp, brown, no odor, |
| 38 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-64

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Austin, Texas 78759
512-693-4190

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Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Pilot Hole 7 1/4 HSA |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 44' BGL |
| Ground Water | : Not Encountered |
| Start Date | : 03/05/2018 |
| Finish Date | : 03/05/2018 |

# WELL NO. OW-64

(Sheet 3 of 3)

| | |
|---|---|
| Elev., TOC (ft.msl) | : 6947.40 |
| Elev., PAD (ft. msl) | : 6945.07 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634301.36 |
| E | : 2546150.80 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 38 | | | | | | | |
| 39 | 12 | | | ML | 70 | | SILTY CLAY, STA, |
| 40 | | | | | | | |
| 41 | 8 | | | ML | 60 | | SILTY CLAY, STA, |
| 42 | | | | | | | |
| 43 | 6 | | | ML | 60 | | SILTY CLAY, STA. |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |
| 49 | | | | | | | |
| 50 | | | | | | | |
| 51 | | | | | | | |
| 52 | | | | | | | |
| 53 | | | | | | | |
| 54 | | | | | | | |
| 55 | | | | | | | |
| 56 | | | | | | | |
| 57 | | | | | | | |
| 58 | | | | | | | |

Saturation
▼ Saturation

Completion Results

OW-64

10/20 Sieve Sand Filter Pack

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Austin, Texas 78759
512-693-4190

DiSorbo Environmental Consulting Firm

Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Auger |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 40' BGL |
| Ground Water | : 20' BGL |
| Start Date | : 03/09/2018 |
| Finish Date | : 03/09/2018 |

# WELL NO. OW-65

(Sheet 1 of 3)

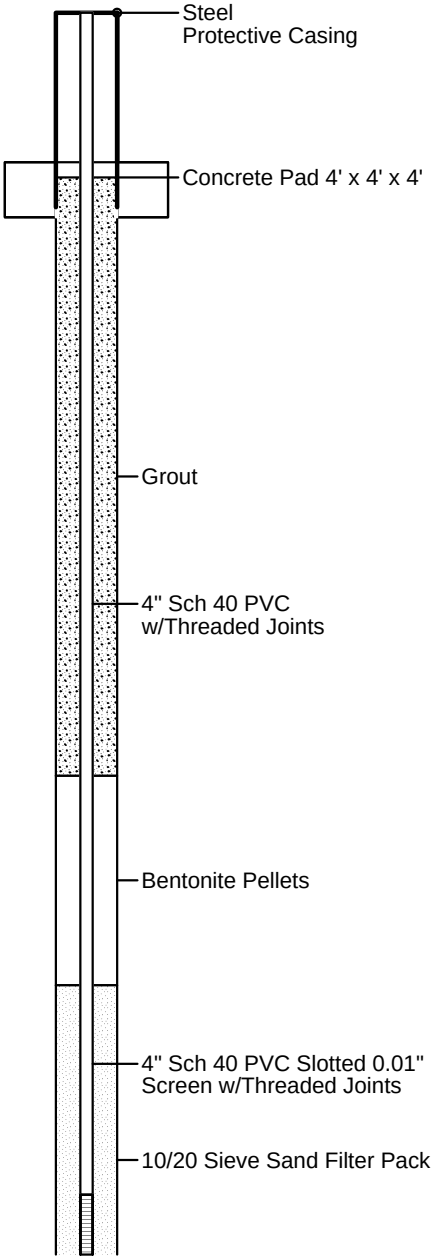
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6954.05 |
| Elev., PAD (ft. msl) | : 6951.62 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634238.38 |
| E | : 2546692.01 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | Cleared borehole to 5', 1" asphalt and base, SILTY CLAY, low, stiff, damp, mixed with gravelly sand, brown, no order, |
| 5 | 17.4 | | | SW | 100 | | GRAVELLY SAND, fine to coarse, loose, damp, gravel <10 mm, brown, no odor, |
| 6 | | | | | | | GRAVELLY SAND, SIMILAR TO ABOVE (STA), clayey sand at base, very damp, brown, odor, |
| 7 | 23 | | | SW | 80 | | |
| 8 | | | | | | | SILTY SAND, medium to coarse, loose, very damp, brown, odor, |
| 9 | 12 | | | SM | 90 | | |
| 10 | | | | | | | CLAYEY GRAVELLY SAND, fine to coarse, compact, gravelly clay lense 2" thick at 11', brown, odor, |
| 11 | 16 | | | SM | 80 | | |
| 12 | | | | | | | SILTY SAND, medium, loose, very damp, brown, odor, |
| 13 | 66 | | | SM | 70 | | |
| 14 | | | | | | | CLAYEY GRAVEL, <10 mm gravel in brown clay, coarse sand throughout, very damp, odor, |
| 15 | 822 | | | GC | 60 | | |
| 16 | | | | | | | SILTY SAND, fine, loose, very damp to moist, hydrocarbon (HC) odor, |
| 17 | 885 | | | SM | 60 | | |

Saturation
▼ Saturation

## Completion Results

OW-65

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Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Auger |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 40' BGL |
| Ground Water | : 20' BGL |
| Start Date | : 03/09/2018 |
| Finish Date | : 03/09/2018 |

# WELL NO. OW-65

(Sheet 2 of 3)

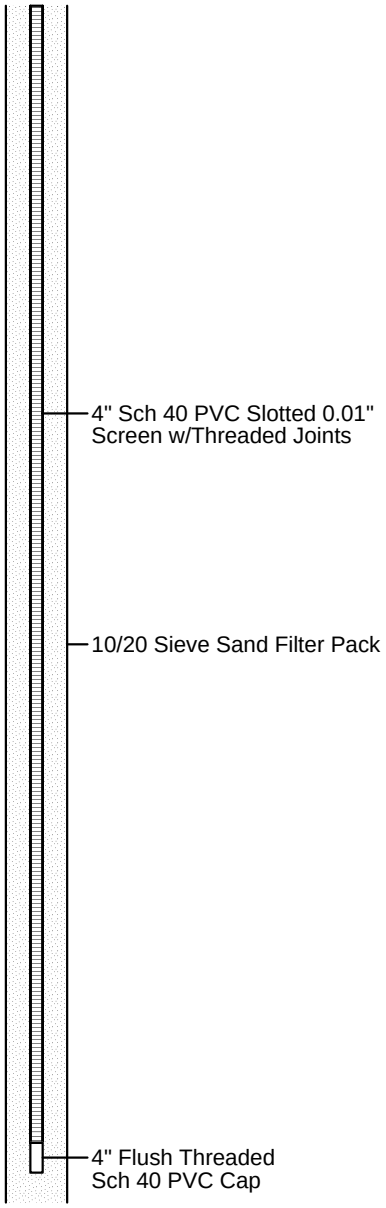
| | |
|---|---|
| Elev., TOC (ft.msl) | : 6954.05 |
| Elev., PAD (ft. msl) | : 6951.62 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634238.38 |
| E | : 2546692.01 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 18 | | | | | | | |
| 19 | 1195 | | | GC | 50 | | CLAYEY GRAVEL, 40 mm sandstone cobbles (tan and green) in brown clay, coarse sand throughout, damp,odor, |
| 20 | | ▼ | | | | | |
| 21 | | | | GC | 60 | | CLAYEY GRAVEL, STA, moist to saturated in sand, water in split spoon, |
| 22 | | | | | | | |
| 23 | | | | GC | 90 | | CLAYEY GRAVELLY SAND, coarse sand with 10 mm gravel, loose/soft, saturated, brown, HC odor, |
| 24 | | | | | | | |
| 25 | | | | SC | 80 | | CLAYEY SAND, coarse, loose, very soft, trace gravel, saturated, brown, odor, |
| 26 | | | | | | | |
| 27 | | | | SC | 80 | | CLAYEY SAND, fine to medium, compact, moist, dark brown, HC odor, |
| 28 | | | | CL | 80 | | SILTY CLAY, low, very soft, damp,dark brown, strong HC odor, |
| 29 | | | | SC | 80 | | CLAYEY SAND, fine, compact, saturated/oily, dark brown, saturated/oily, |
| 30 | | | | | | | |
| 31 | | | | SC | 60 | | CLAYEY SAND, STA, HC odor, |
| 32 | | | | | | | |
| 33 | | | | SC | 80 | | CLAYEY SAND, STA, increase in clay at base, becomes moist, |
| 34 | | | | | | | |
| 35 | | | | SM | 90 | | SILTY SAND, medium to coarse, loose, gravelly (<5 mm) at base, saturated, dark brown, HC odor, |
| 36 | | | | SW | 80 | | GRAVELLY SAND, coarse, loose, trace clay-gravel (10 mm), saturated, dark brown, HC odor, |
| 37 | | | | CL | 80 | | SANDY CLAY, low, firm, trace gravel, damp, dark brown, HC odor, |
| 38 | | | | | | | |

Saturation
▼ Saturation

## Completion Results

OW-65

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8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
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Andeavor
Gallup Refinery - French Drain Release
WEST18012

| | |
|---|---|
| Geologist | : Tracy Payne |
| Driller | : Enviro-Drill, Inc./Cohagan |
| Drilling Rig | : CME75 |
| Drilling Method | : Hollow-Stem Auger |
| Sampling Method | : 2' Split Spoon |
| Comments | : |
| Total Depth | : 40' BGL |
| Ground Water | : 20' BGL |
| Start Date | : 03/09/2018 |
| Finish Date | : 03/09/2018 |

# WELL NO. OW-65

(Sheet 3 of 3)

| | |
|---|---|
| Elev., TOC (ft.msl) | : 6954.05 |
| Elev., PAD (ft. msl) | : 6951.62 |
| Elev., GL (ft. msl) | : NS |
| Site Coordinates | : |
| N | : 1634238.38 |
| E | : 2546692.01 |

| Depth (ft.) | PID (ppm) | Saturation | Lithology | USCS | Recovery (%) | Sample | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 38 | | | | | | | |
| 39 | | | | CL | 40 | | SANDY CLAY, STA. |
| 40 | | | | | | | |
| 41 | | | | | | | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
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| 56 | | | | | | | |
| 57 | | | | | | | |
| 58 | | | | | | | |

Saturation
▼ Saturation

Completion Results

OW-65

10/20 Sieve Sand Filter Pack

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Austin, Texas 78759
512-693-4190

# Appendix B
# Standard Operating Procedure – Soil Sampling

# memorandum

**To:** Sampling Team Members
**From:** Project Manager
**Date:** ~~November 30, 2020~~Revised September 30, 2021
**Re:** Standard Operating Procedure – Soil Sampling

## 1.0 INTRODUCTION

Soil sampling related to site characterization and site clean-up is expected to involve source sampling of potentially contaminated Soils for characterization and profiling. Soil sampling is expected to occur in and around the STP-1 French drain.

All personnel involved in Soil sampling projects are required to review this Standard Operating Procedure (SOP) before sampling to ensure the continued generation of reliable data. This SOP is based on experience gained from collecting Soil samples and the latest information available in guidance manuals. This SOP may be updated as additional experience and information are acquired.

## 2.0 PRE-FIELD ACTIVITIES

Several activities will be conducted prior to departure for the project site. A project team will be assigned and the members will begin coordinating the sample collection event with Marathon Petroleum Company. Field equipment will be checked and organized. Access to the areas to be sampled will be checked, and provisions made to pack the necessary equipment for delivery to the project site.

## 3.0 PREPARATION

The Project Manager will review the current sampling and analysis plans and work plans to determine if any documents need to be brought to the site during monitoring. The Project Manager will also evaluate whether any changes have been made in the sampling and analytical procedures, and notify the appropriate personnel.

The Sampling Team Members will review available surface water level data before leaving for the sampling site. This preparation ensures that the proper equipment and personnel are available at the site. All field screening equipment will be inspected prior to departure, ensuring that it is in proper working order. For Soil sampling, the only field monitoring equipment used will be the Photoionization detection (PID) meter and it should be calibrated and operated and according to manufacturer's recommendations.



## 4.0 EQUIPMENT

The following equipment is recommended for Soil sampling:

- Required personal protective equipment (PPE), listed in the site-specific health and safety plan (HASP) (generally nitrile gloves, waders, life preserver, rope and safety glasses)
- Soil sampling devices (i.e., hand auger)
- Sampling beaker, bottles, labels, and preservatives
- Gloves
- Chain-of-custody/sample-analysis-request forms
- ~~Flame I~~Photoionization detection meter (~~FID~~PID)
- Opaque Cooler(s) and bagged ice or frozen Blue Ice
- Detergent or solvent for cleaning monitoring equipment
- Brushes dedicated for decontamination
- Decontamination containers dedicated for wash, rinse 1, and rinse 2
- Paper towels
- Trash bags
- Field logbook
- Wrist watch (with digital display)

## 5.0 SAMPLE COLLECTION

A critical aspect of any sampling program is selection and implementation of an appropriate sampling technique. Selection of equipment and technique should be appropriate for the volume of material required and the type of analysis to be performed. In general, the sampling equipment and technique will be chosen to minimize, to the extent possible, the amount of handling a sample will undergo prior to analysis. In many cases, the material to be sampled will be easy to access, and simple "grab" samples collected using a shovel, trowel, or drive sampler are appropriate. In other cases, such as underwater or heavily saturated samples, the Soils may be difficult to access, and sampling will involve the use of specialized Soil sampling equipment. Specific analytical requirements and sampling frequencies are specified in the work plan.

Soil samples located in dry areas will be collected from representative locations using a decontaminated drive sampler equipped with clean brass or stainless steel sampling rings, a thin-walled tube sampler or a shovel or hand trowel. The sampling device will be driven completely into the material manually or using

a manually operated auger, drive hammer, or mallet. The sampling device will then be extracted from the material using a shovel or trowel as needed. If used, filled sampling rings or the thin walled tube will then be removed from the sampling device and immediately sealed on both ends with teflon sheeting and plastic caps. Otherwise, the material will placed directly from the trowel or other appropriate sampling device into a clean glass jar. The jar will be filled completely to minimize headspace (by tamping during filling), and immediately sealed with a teflon-lined lid.

In accordance with the work plan saturated and underwater Soil samples will be collected using a hand auger, geoprobe, Soil sampler or a similar device. Samples will be collected from the shore or boat at each preselected sampling location. Underwater samples will be capped prior to breaking the surface of the water to prevent agitation of the sample and to assist in core characterization. In addition, care will be taken to prevent mixing when collecting saturated and underwater samples. Soil will be placed in sample containers provided by the laboratory and filled to the top to minimize headspace. If necessary, several cores may be collected from each location to provide adequate sample volume for the laboratory. The sample containers will be labeled with endelible ink. Filled sample containers should be wiped dry and placed in a cooler with ice (or equivalent) for storage at the time of collection. Enough ice and protective packing material should be used to cool the samples to 4° C and ensure that the container remains intact prior to final packing and shipment.

Field screening may involve the use of a ~~FID~~ PID probe~~.~~, which will be inserted into the bag and the reading taken. All samples shall be screened at as close to the same temperature as possible to obtain consistent results.

Sampling devices will be decontaminated between sampling locations using a four-stage decontamination system consisting of a two detergent/water washes and two deionized water rinses. Sample locations will be recorded with a GPS in order to accurately map the sampling locations.

Field logbooks, Soil Sampling Field Log, and photograph logs will provide a written record of field data gathered, field observations, field equipment calibrations, the samples collected for analysis, and sample custody. Color photographs will be used to substantiate and augment the field notes, if necessary.

697-078-001

# ATTACHMENT C – SITEWIDE LIF INVESTIGATION FIGURE AND LIF LOGS


## EXPLANATION

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

## NOTE:

-LIF - LASER-INDUCED FLORESCENCE

N

0 160 320'

Trihydro
12 2 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

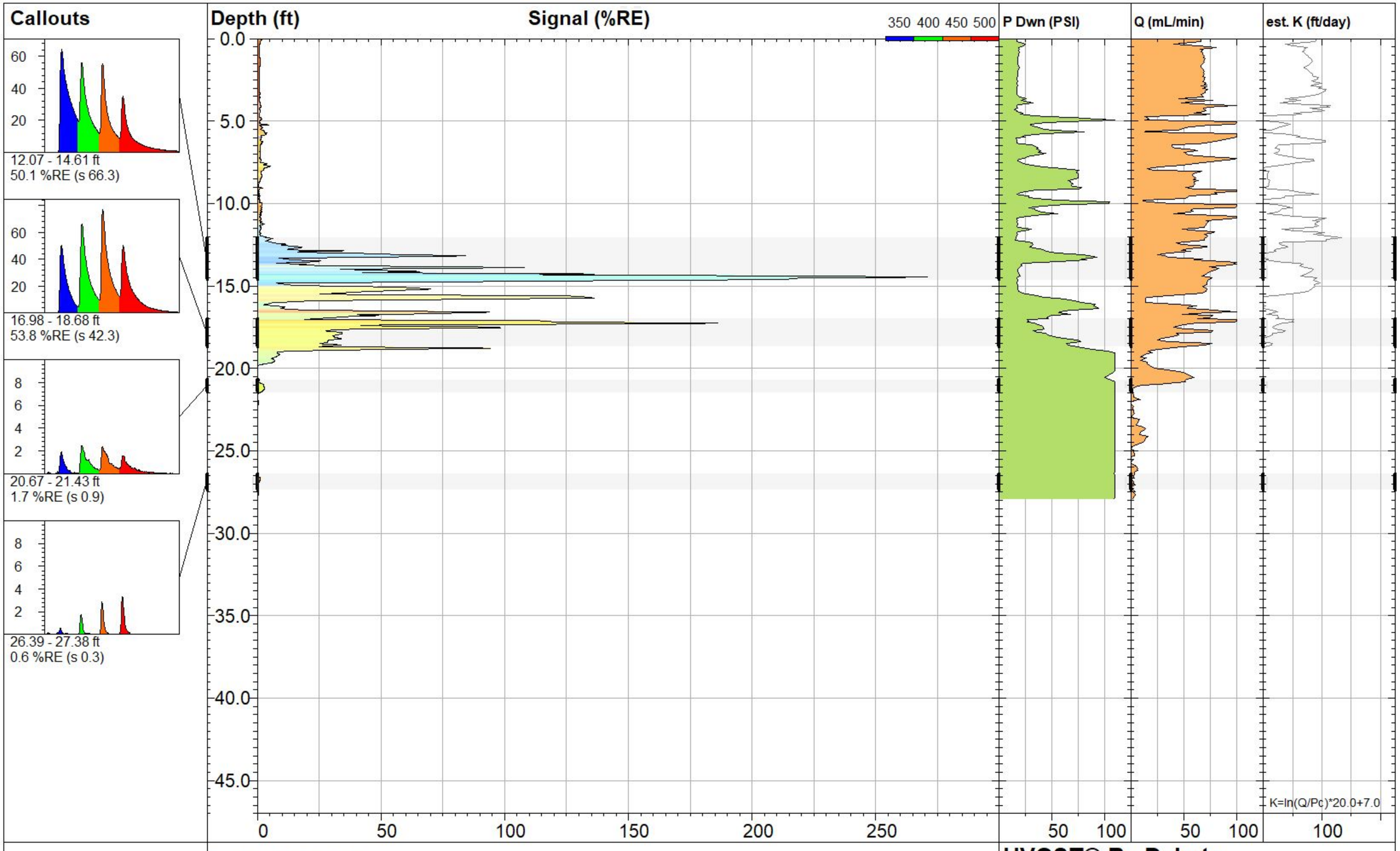


# ATTACHMENT C

## SITEWIDE LIF SAMPLE LOCATIONS

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

| Drawn By: KEJ | Checked By: MS | Scale: 1 " = 160 ' | Date: 9/2/21 | File: C_Sitewide_LIF_Attach_C_Dsize.mxd |
|---|---|---|---|---|

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# EB-LIF-27

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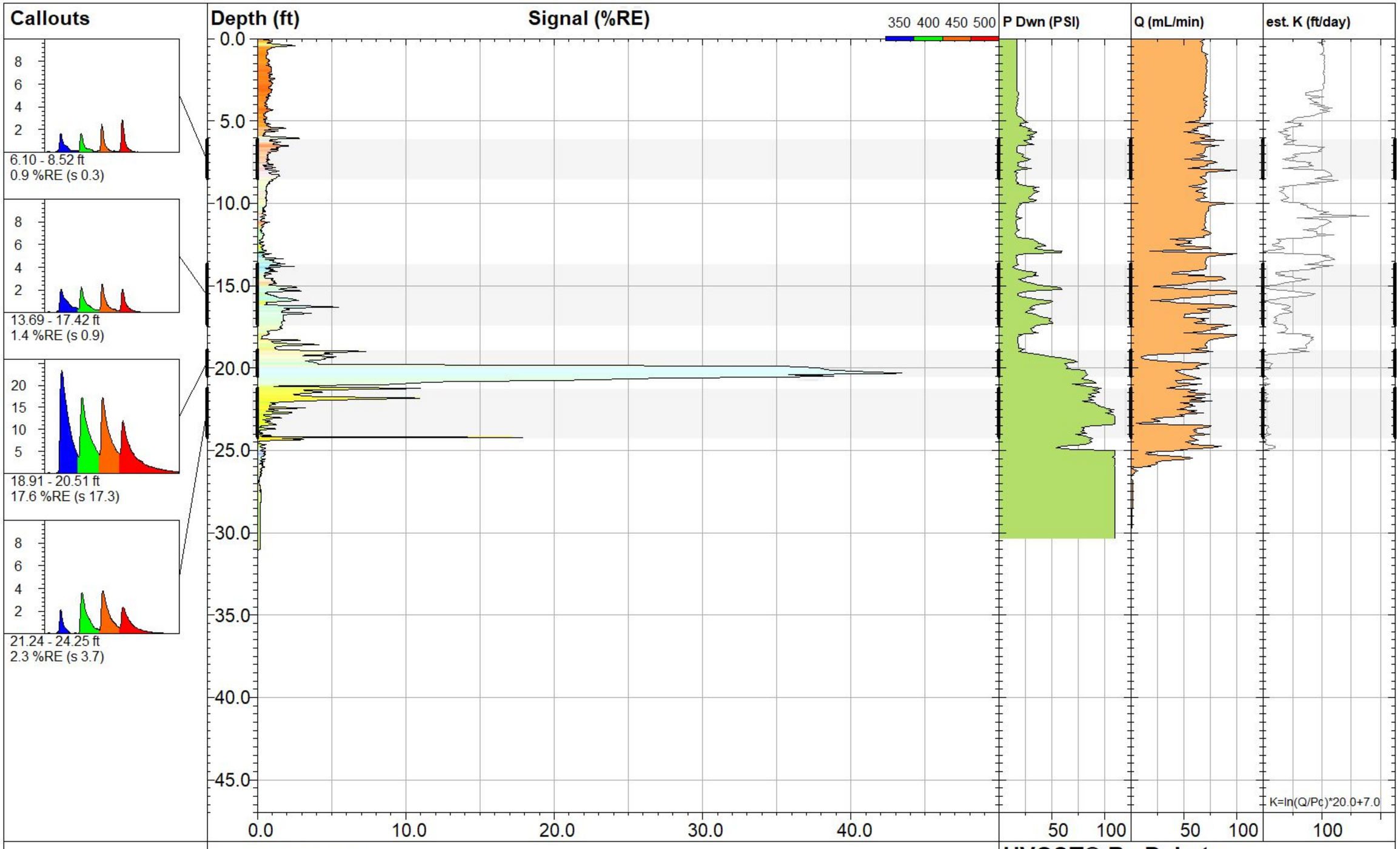
| | | |
|---|---|---|
| *Site:*<br>**Eastern Boundry LIF Investigation** | *Y Coord.(Lat-N) / System:*<br>**Unavailable / NA** | *Final depth:*<br>**28.65 ft** |
| *Client / Job:*<br>**Trihydro / 0408.19** | *X Coord.(Lng-E) / Fix:*<br>**Unavailable / NA** | *Max signal:*<br>**272.2 %RE @ 14.46 ft** |
| *Operator / Unit:*<br>**DS / CP / UVOST1003** | *Elevation:*<br>**Unavailable** | *Date & Time:*<br>**2019-11-22 16:28 MST** |

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# EB-LIF-34

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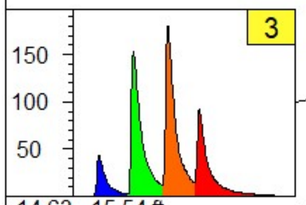
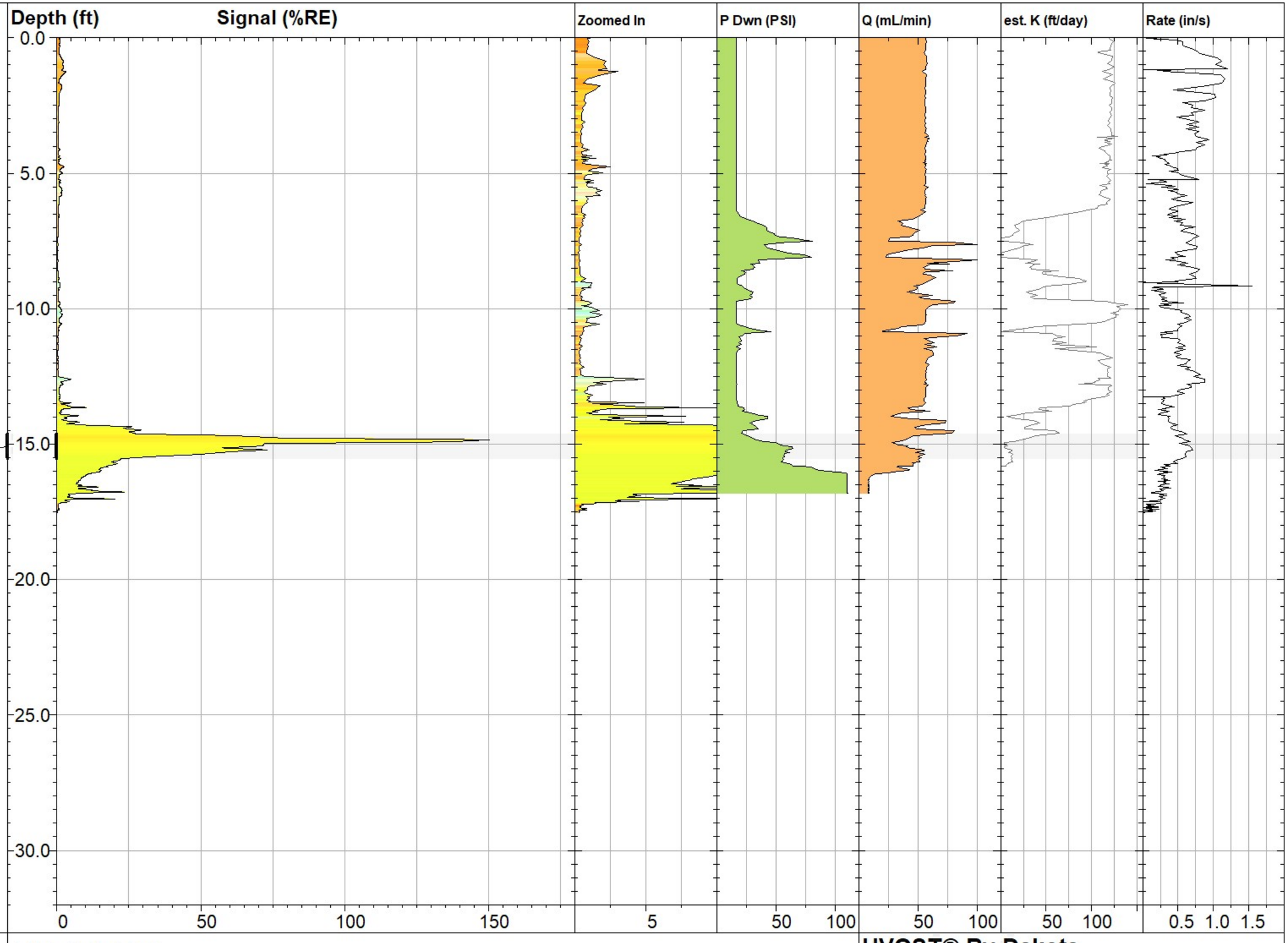
| | | |
|---|---|---|
| *Site:* **Eastern Boundry LIF Investigation** | *Y Coord.(Lat-N) / System:* **Unavailable / NA** | *Final depth:* **31.02 ft** |
| *Client / Job:* **Trihydro / 0408.19** | *X Coord.(Lng-E) / Fix:* **Unavailable / NA** | *Max signal:* **43.4 %RE @ 20.32 ft** |
| *Operator / Unit:* **DS / CP / UVOST1003** | *Elevation:* **Unavailable** | *Date & Time:* **2019-11-21 09:41 MST** |

**Callouts**

REFUSAL AT 17.53 FEET.




14.63 - 15.54 ft
68.7 %RE (s 37.7)

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# EB-LIF-98

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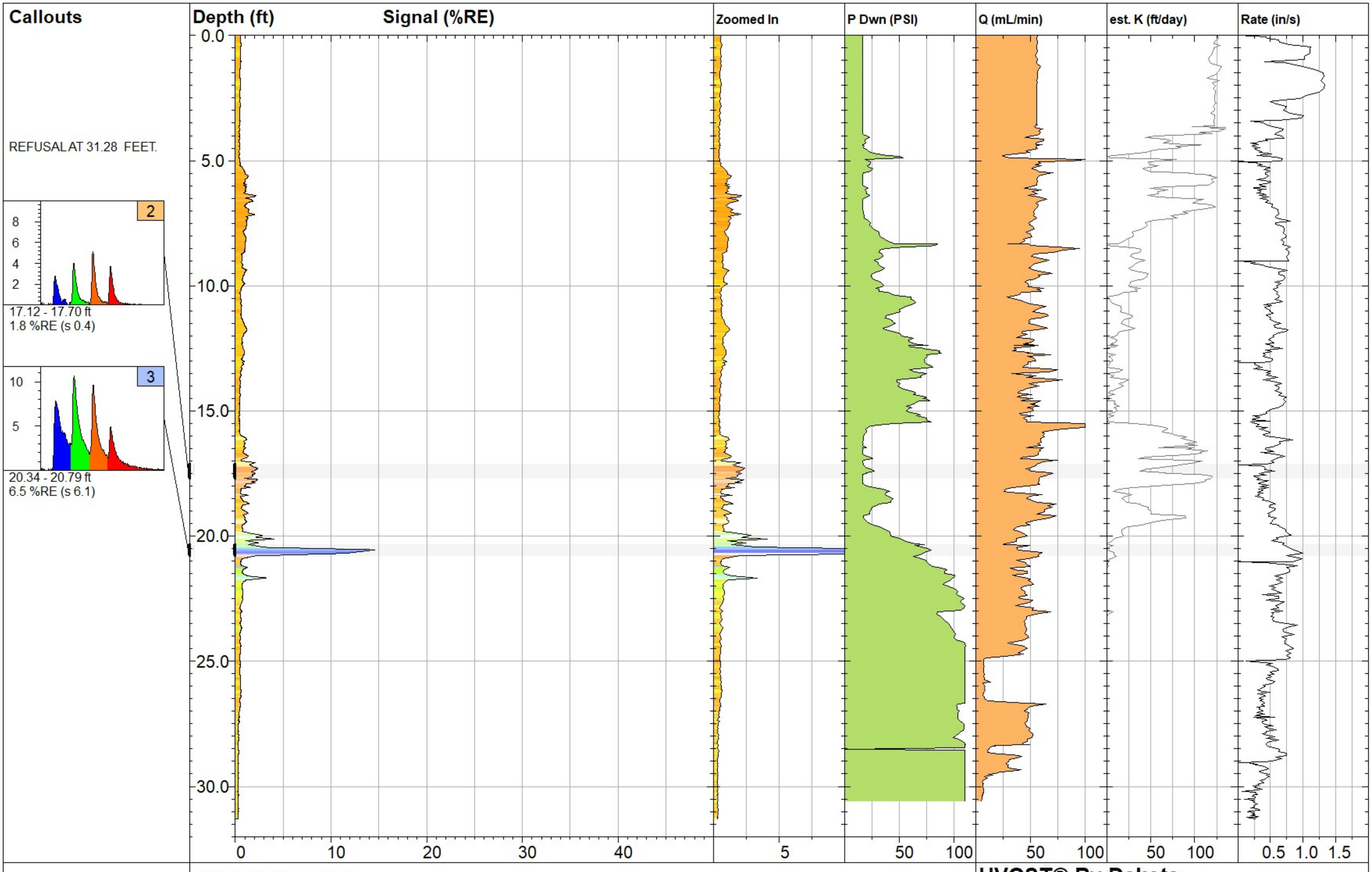
| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**17.53 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**150.5 %RE @ 14.84 ft** |
| Operator / Unit:<br>**BG / UVOST1612**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

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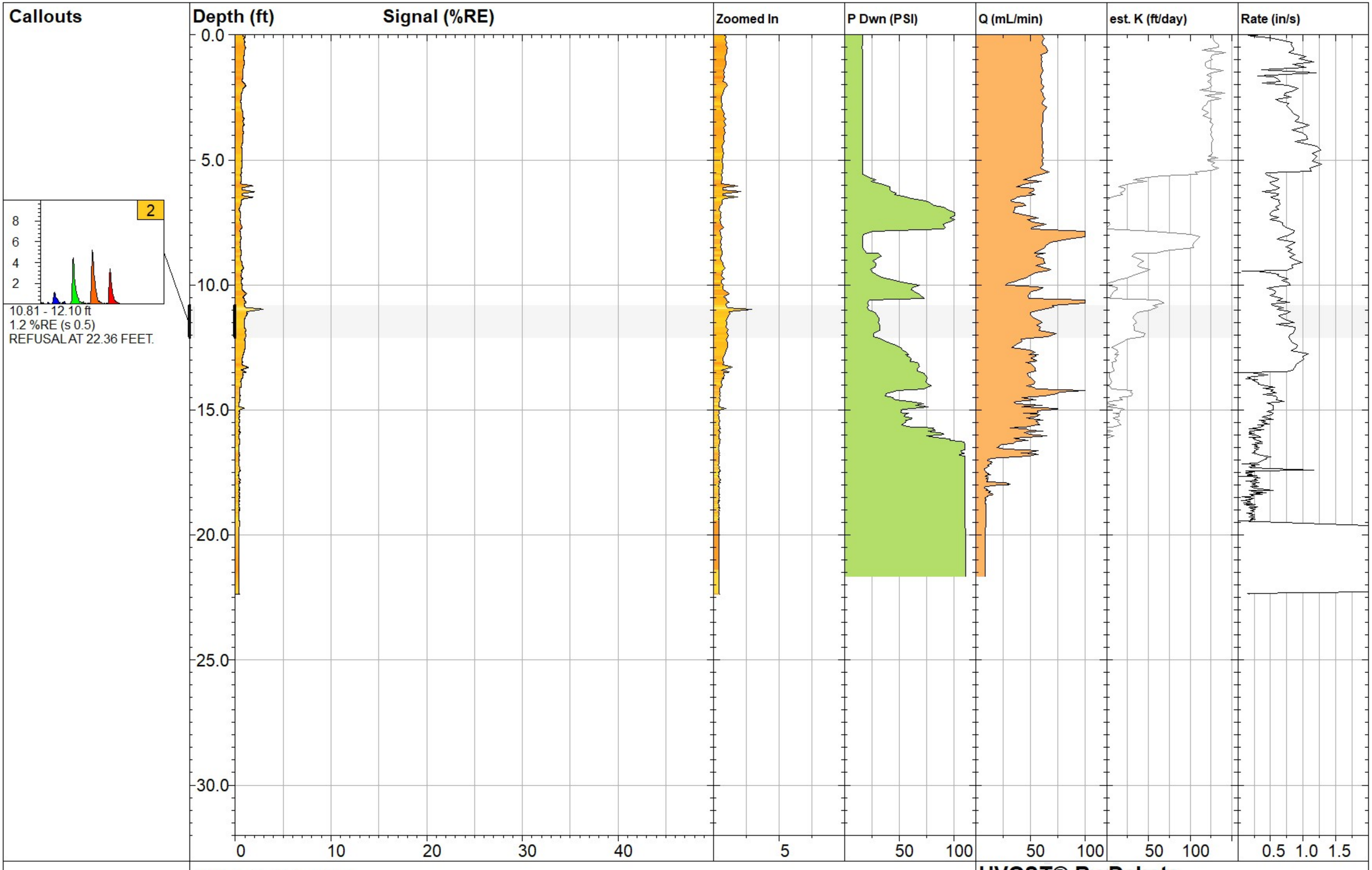
# WB-LIF-100

**UVOST® By Dakota**
www.DakotaTechnologies.com

| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**31.28 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**14.6 %RE @ 20.55 ft** |
| Operator / Unit:<br>**BG / UVOST1612** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-05-11 09:41 MDT** |

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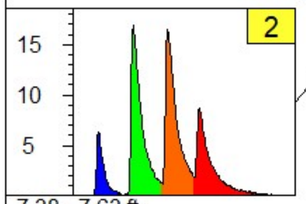
# WB-LIF-110

**UVOST® By Dakota**
www.DakotaTechnologies.com

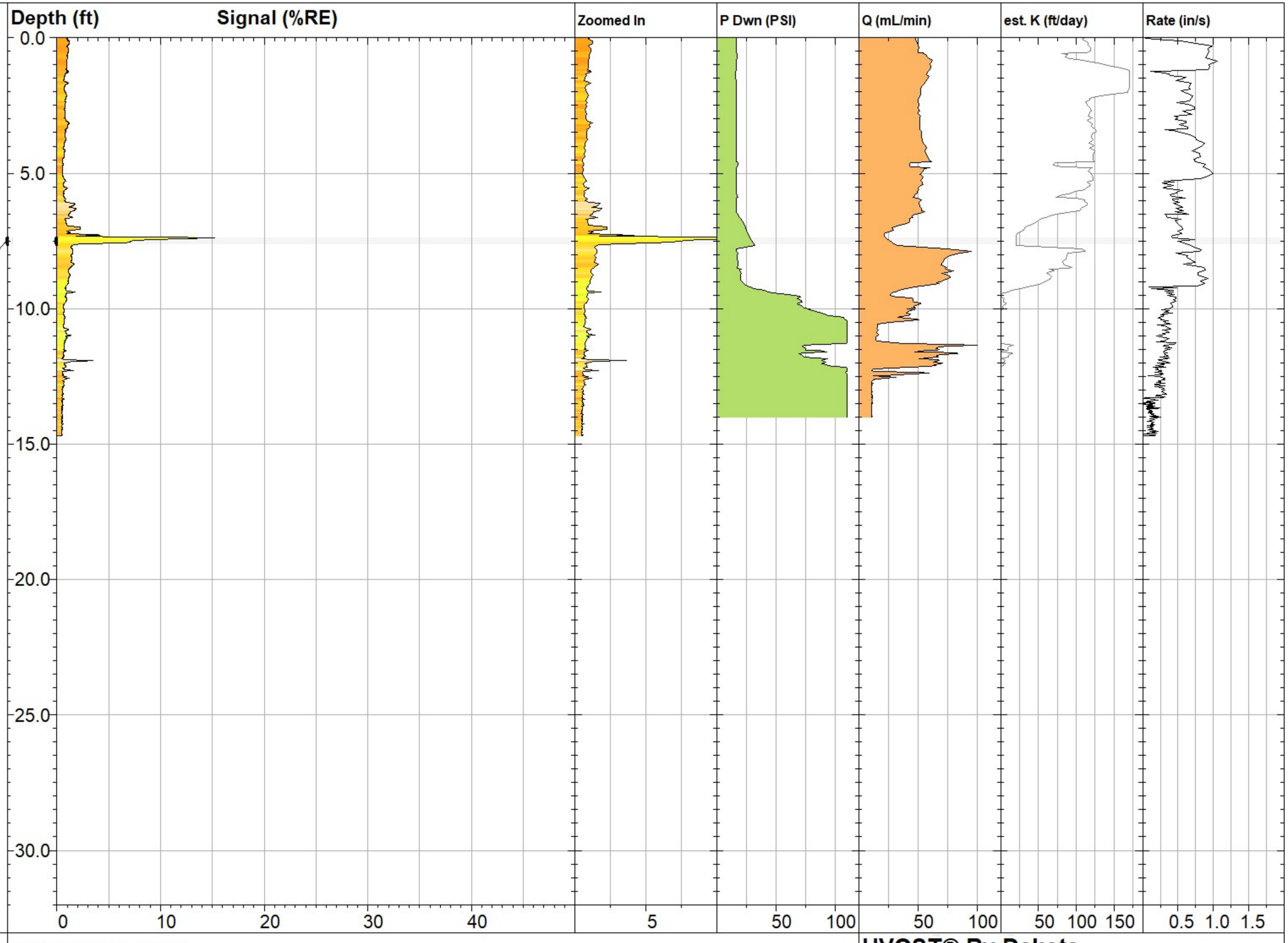
| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**22.36 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**2.9 %RE @ 10.97 ft** |
| Operator / Unit:<br>**BG / UVOST1612** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-05-11 14:57 MDT** |

**Callouts**

REFUSAL AT 14.70 FEET.




7.38 - 7.63 ft
8.0 %RE (s 5.0)

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# WB-LIF-116

**UVOST® By Dakota**
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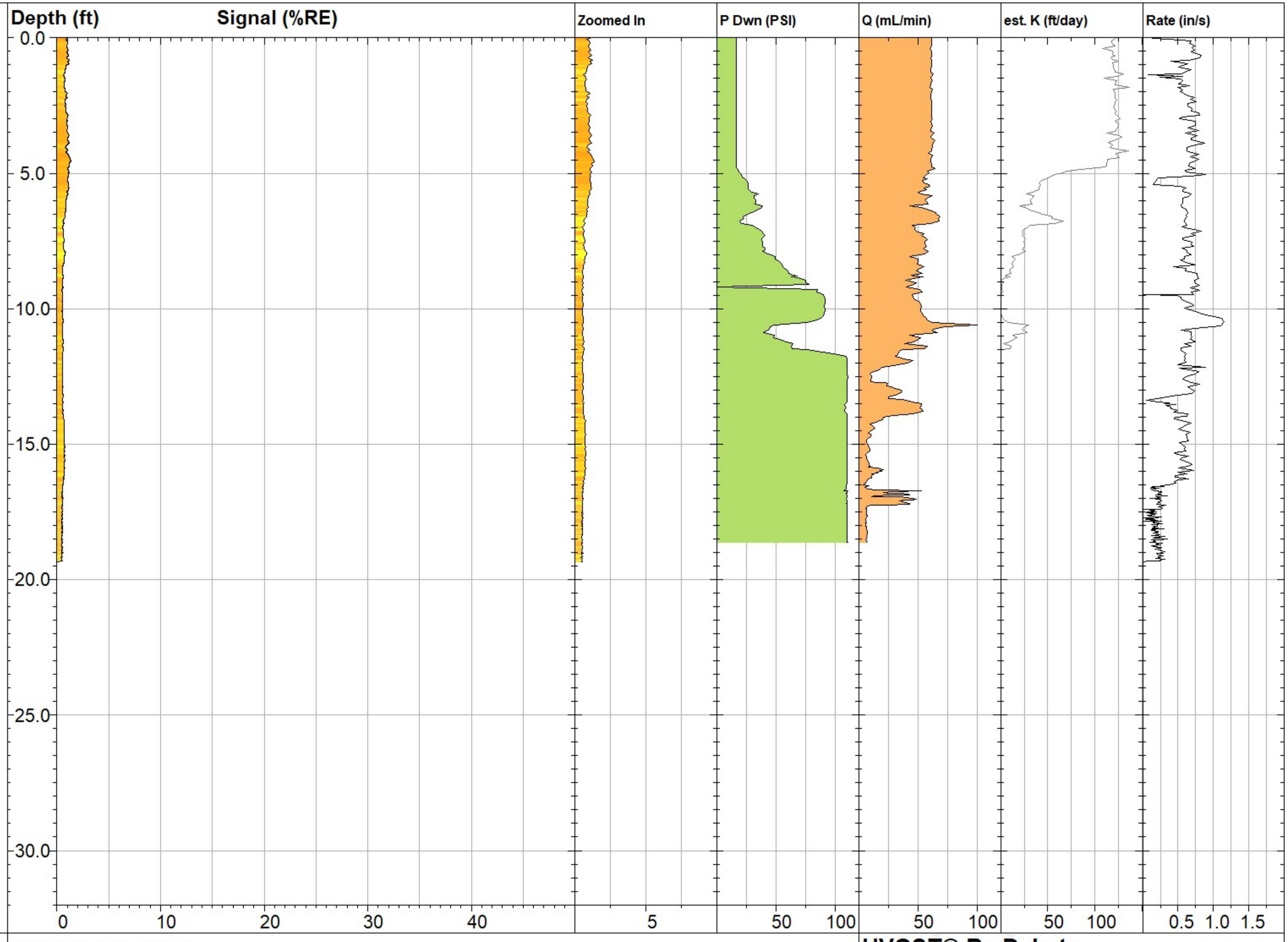
| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**14.70 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**15.4 %RE @ 7.38 ft** |
| Operator / Unit:<br>**BG / UVOST1612** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-05-11 14:17 MDT** |

**Callouts**

REFUSAL AT 19.33 FEET.

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# WB-LIF-117

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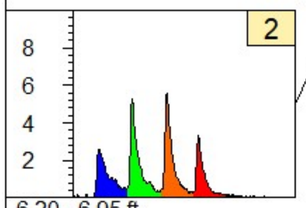
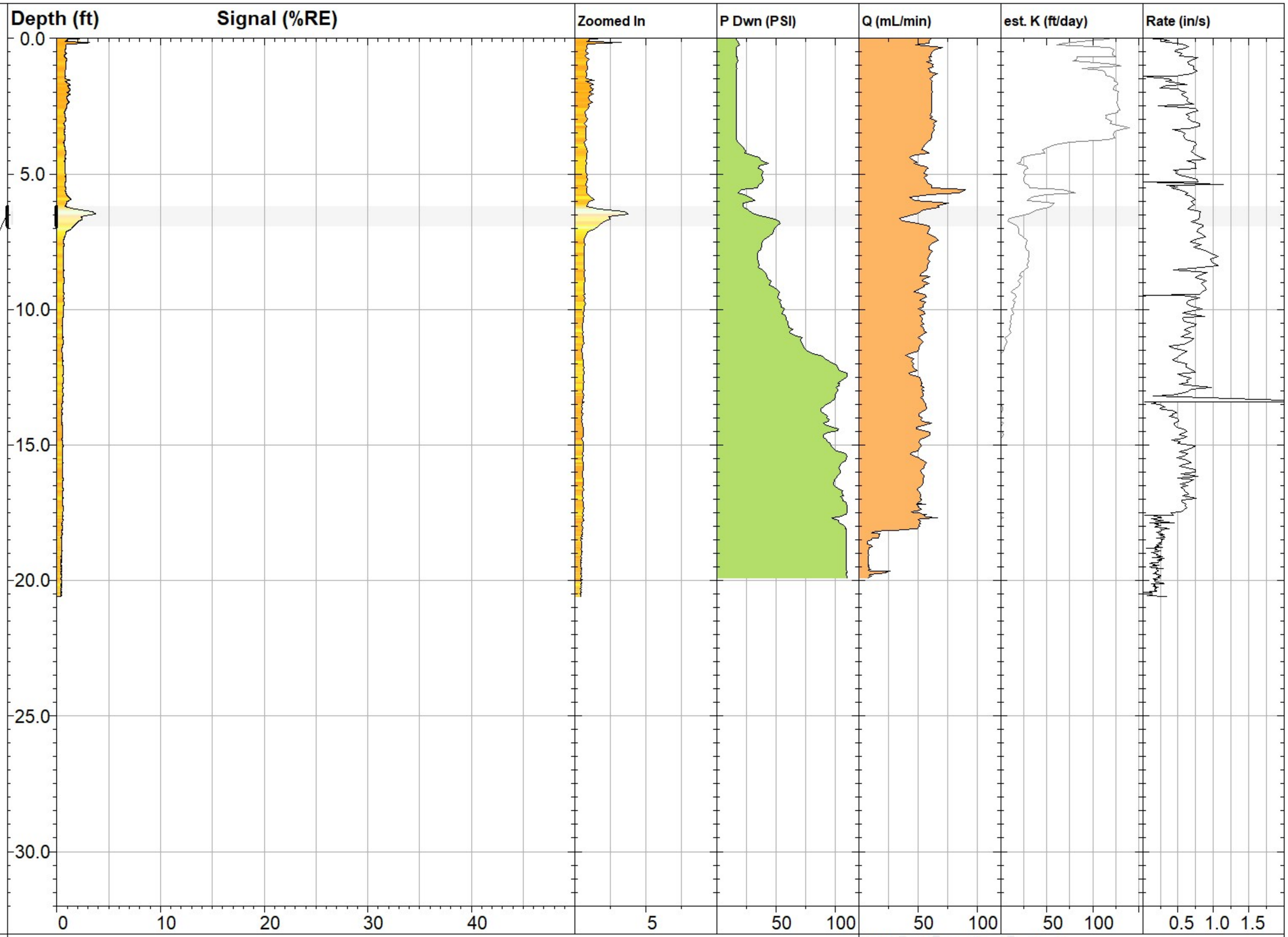
| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**19.33 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**1.3 %RE @ 4.57 ft** |
| Operator / Unit:<br>**BG / UVOST1612**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

**Callouts**

REFUSAL AT 20.60 FEET.




6.20 - 6.95 ft
2.2 %RE (s 0.9)

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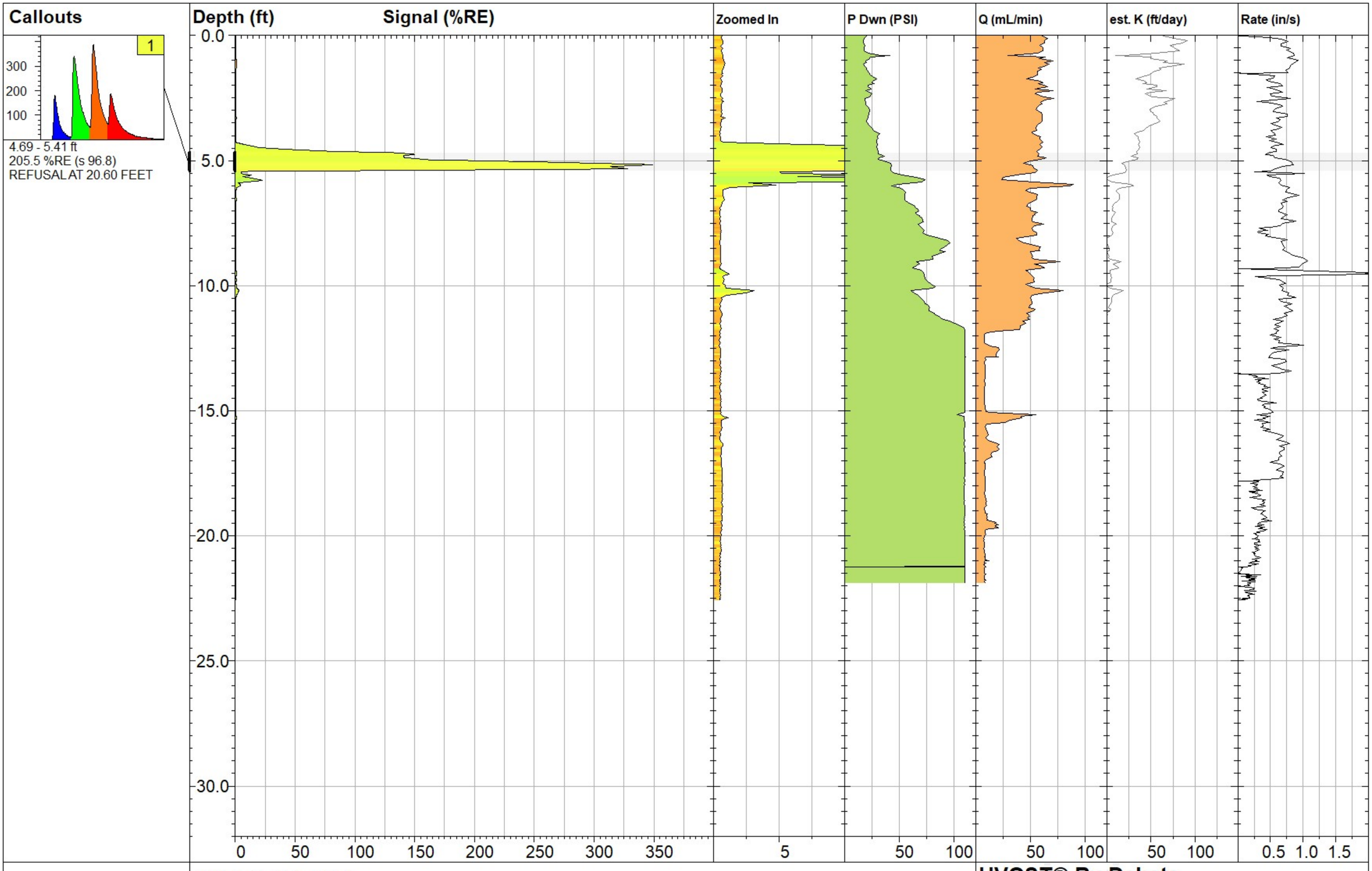
# WB-LIF-118

**UVOST® By Dakota**
www.DakotaTechnologies.com

| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**20.60 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**3.7 %RE @ 6.48 ft** |
| Operator / Unit:<br>**BG / UVOST1612** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-05-11 15:31 MDT** |

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# WB-LIF-119

**UVOST® By Dakota**
www.DakotaTechnologies.com

| | | |
|---|---|---|
| Site:<br>**Marathon Gallup Refinery** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**22.56 ft** |
| Client / Job:<br>**Trihydro / 0049B.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**350.5 %RE @ 5.16 ft** |
| Operator / Unit:<br>**BG / UVOST1612** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-05-11 16:00 MDT** |

**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

| | |
|---|---|
| Operator:<br>Western Refining Southwest LLC<br>539 South Main Street<br>Findlay, OH 45840 | OGRID:<br>267595 |
| | Action Number:<br>51831 |
| | Action Type:<br>[UF-DP] Discharge Permit (DISCHARGE PERMIT) |

**CONDITIONS**

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