**Western Refining Southwest LLC**
A subsidiary of Marathon Petroleum Corporation

I-40 Exit 39
Jamestown, NM 87347

March 30, 2022

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

**RE: Response to Disapproval**
**Revised Investigation Work Plan No. 2 Area of Concern 35**
**Western Refining Southwest Inc., Marathon Gallup Refinery**
**EPA ID #NMD000333211**
**HWB-WRG-20-009**

Dear Mr. Pierard:

Attached please find the response to comments contained in the New Mexico Environment Department (NMED) disapproval letter dated October 20, 2021. The updated version of the *Revised Investigation Work Plan No. 2* (Work Plan) for Area of Concern (AOC) 35 is also attached.

A timeline of the Work Plan development is presented below:

- Investigation Work Plan, submitted August 2018
- Disapproval, received January 31, 2019
- Response to Disapproval, submitted July 26, 2019
- Approval with Modifications, received September 12, 2019

Following the September 2019 approval with modifications, a leak was discovered within AOC-35 in the pipeline just north of the truck loading rack. The Refinery proposed modifying the existing Work Plan based on the location of the discovered leak. The timeline for the revised Work Plan is as follows:

- Revised Investigation Work Plan, submitted February 27, 2020
- Disapproval, received August 31, 2020
- Response to Disapproval, submitted January 4, 2021
- Approval with Modifications, received February 11, 2021
- Response to Approval with Modifications, submitted April 14, 2021

Following the February 2021 approval, a request was made to further modify the work plan due to the compilation of additional investigation results collected in the vicinity of AOC 35, primarily laser induced fluorescence (LIF). The LIF results provided additional information on the subsurface near AOC 35 and

**Western Refining Southwest LLC**
A subsidiary of Marathon Petroleum Corporation

I-40 Exit 39
Jamestown, NM 87347

results were consulted to selected appropriate locations for analytical sample collection. A timeline of the additional 2021 Work Plan revisions is as follows:

- Request for Extension, submitted August 3, 2021
- Extension Approval, received August 10, 2021
- Revised Investigation Work Plan, submitted August 31, 2021
- Disapproval, received October 20, 2021

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

Attachments

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

**ATTACHMENT A**

**RESPONSE TO COMMENTS**

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 1:** | **Response 1:** |
| In Section 2.3 (Additive Tank Farm Loading Rack), page 8 of 18, paragraph 1, the Permittee states,"[o]nly products (i.e., fuel additives), no wastes, were managed in this area; methyl tert butyl ether (MTBE) is not, and has not been, stored in these tanks." In the revised Work Plan, provide the following information: (1) the current status of the additive tanks, (2) the products currently stored in the tanks, if any, (3) the products historically stored in the tanks that are currently detected as contaminants of concern (e.g.,1, 2-dichloroethane?), and (4) the products known to have previously been released from the tanks, if any. | Section 2.3 has been revised to state, "The additive tanks were taken out of service and cleaned during the 2020/2021 calendar years. There are no products stored in any additive tanks at this time. The only recorded release from the additive tanks is a 2 to 3 gallon Power Service brand diesel additive release in 2017. The safety data sheets for the diesel additive are provided as Appendix A." |
| **Comment 2:** | **Response 2:** |
| In Section 2.5 (Historical AOC 35 Investigations), page 9 of 18, paragraph 2, the Permittee states, "[t]he distribution of these constituents, as shown on Figures 4a, 4b, 5a, and 5b, likely indicate a source of groundwater contamination from within AOC 35 ("a" and "b" in figure titles indicate before and after discovery of the leaking transfer line, respectively)." Since the isoconcentration contour lines for the constituents (benzene and MTBE) are not presented on the figures, the distribution of the constituents before and after the October 2019 gasoline release is not clearly depicted on the figures. Revise the figures to include the estimated isoconcentration contour lines for the constituents. In addition, the distribution of total petroleum hydrocarbons (TPH) before and after the release may also help demonstrate how the plumes have migrated and expanded. Include figures that present the distribution of TPH in the revised Work Plan. | It is known that the October 2019 gasoline leak contributed to subsurface impacts throughout Area of Concern (AOC) 35 and down gradient. The figures of interest (4a, 4b, 5a, and 5b), depicting concentrations before/after the gasoline release, were pertinent to the decision to conduct the Laser-Induced Fluorescence (LIF) investigation and were included in historical versions of this work plan. However, moving forward, the current depiction of concentrations in the area is more crucial in driving future investigation and remediation efforts. Therefore, the figures depicting concentrations before the 2019 gasoline release have been removed and all of the figures have been updated to depict the current status of constituent concentrations and presence of separate phase hydrocarbons (SPH) based on the most recent (and validated) 2021 fluid level and groundwater sampling results. Furthermore, as requested by New Mexico Environment Department (NMED), an additional figure depicting the total petroleum hydrocarbon (TPH) concentrations is now included (Figure 6). Given the interpretive inference required for creation of isoconcentration lines, especially in complex geologic formations, isoconcentration lines are not included at this time. |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 3:** | **Response 3:** |
| In Section 2.5 (Historical AOC 35 Investigations), page 10 of 18, paragraph 1, the Permittee states, "[t]he Refinery is indefinitely idled at this time and the sewer is currently not in operation and blocked off." Since the sewer line is known to be leaking, the Permittee must repair or replace the sewer lines, where applicable, prior to resuming the refining operations. No revisions are required. | The refinery has repaired and replaced portions of the process sewer line in the vicinity of AOC 35 since the 2013 dye tests were conducted. To expand upon the current state of the process sewer lines in the vicinity of AOC 35, a limited scope investigation is tentatively proposed; a work plan containing additional background information, figures, and associated text regarding the process sewer lines will be submitted to NMED by May 31, 2022. Section 2.5 now references the proposed process sewer investigation. |
| **Comment 4:** | **Response 4:** |
| In Section 2.6 (October 2019 Underground Transfer Line Release and Laser-Induced Fluorescence Investigation), page 10 of 18, paragraph 3, the Permittee states, "[a] report regarding LIF/HP results sitewide (i.e., including the May 2021 data) is currently in development and due to be submitted to NMED by October 31, 2021." NMED's June 2, 2021 Disapproval Marketing Tank Farm Laser-induced Fluorescence/Hydraulic Profiling Investigation Report states that "[t]he revised Report must be submitted to NMED no later than September 14, 2021. In addition, a work plan proposing to investigate the Process Area required by Comment 9 above must be submitted no later than November 30, 2021 and an interim measures report that summarizes the effectiveness of the remediation system required by Comment 37 above must be submitted no later than December 31, 2021." NMED received the revised LIF/HP Investigation Report on September 24, 2021. NMED is not aware of an additional sitewide investigation report that the Permittee is submitting by October 31, 2021. A work plan that proposes investigation of the Process Area must be submitted and approved prior to initiating the sitewide investigation, as directed by the NMED's June 2, 2021 Disapproval. If the sitewide investigation of the Process Area was already conducted, NMED will consider the work to have been conducted at-risk and may require the Permittee to conduct additional work, if any deficiency is found. Clarify which report is to be submitted by October 31, 2021. Also, state when NMED will be receiving a work plan for the investigation of the Process Area. | Section 2.6 has been modified to increase clarity surrounding the LIF/HP investigative efforts at the Refinery. In summary, there are two separate reports providing LIF/HP results, the *Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report* and the *Tank 570 Release and Additional Areas LIF/HP Investigation Report*. The Tank 570 report covers the additional LIF/HP investigation locations (outside of the Marketing Tank Farm Area) and is the referenced report that had a due date of October 31, 2021; the Tank 570 report was submitted on October 28, 2021.<br><br>The LIF/HP locations in the Process Area were added at the request of NMED in a January 22, 2021 conference call between Western Refining, Trihydro, and NMED. An investigation work plan for the Process Area, *Area of Concern 26-Process Units and Area of Concern 27-Boiler and Cooling Unit Area Investigation Work Pan,* was submitted to NMED on November 30, 2021. The environmental investigative work in the Process Area has not been conducted without appropriate communication with NMED; no Process Area environmental investigative work has been completed that would be considered as "conducted at-risk." |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 5:** | **Response 5:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 1, white bullet 1, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [g]asoline signatures [-] MKTF-LIF-47 - (31.20 ft-bgs)." According to the MKTF-LIF- 47 UVOST boring log included in Appendix D, elevated %RE signals are observed at a final depth of 31.20 feet bgs. However, the vertical extent of potential soil contamination at boring MKTF- LIF-47 was not delineated at the time of the LIF investigation. The proposed depth of the soil boring in the Work Plan must be deeper than the final depth of 31.2 feet bgs to identify the maximum depth of contamination. Headspace sampling may also be conducted using a PID/FID, as proposed, to determine the final depth of the boring and a confirmation sample must be collected from the bottom of the boring. Revise the Work Plan accordingly. | The LIF machine met refusal at the termination depth. Based on geologic logs from monitoring wells in the area, it is likely that the Chinle formation was encountered (local shallow aquitard). The potentiometric surface in the area indicates that groundwater is present at intervals above the termination depth of the LIF borings. Remedial objectives would likely target groundwater separately from soil. The intention of the proposed investigation is to correlate the %RE signals in soil, for the various identified product types/comingled plumes, with the analytical concentration for facility constituents of concern. Vertical delineation via soil sampling would not help accomplish the investigation objectives and could be discounted in the future as these vertical impacts would likely be assessed by their resultant influence on the local groundwater.<br><br>It is proposed to continue with the investigation as originally intended by collecting soil samples from depth intervals with various, corresponding, LIF %RE results. Groundwater will be assessed in a holistic nature and discussed in the Annual Groundwater Monitoring Reports. Section 4.0 (Scope of Services) of the work plan has been expanded upon to further clarify the intention of the proposed investigation activities. |
| **Comment 6:** | **Response 6:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 1, white bullet 2, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [g]asoline signatures [-] MKTF-LIF-66 - (18.58 ft-bgs)." According to the MKTF-LIF- 66 UVOST boring log included in Appendix D, %RE signals do not indicate gasoline signatures; the results appear to be diesel signatures. Figure 7 (LIF/HP Investigation Locations) also indicates that diesel signatures are observed at boring MKTF-LIF-66. Select an alternate sampling location where gasoline signatures are observed on a UVOST boring log as appropriate. Revise the Work Plan accordingly. | There was a typographical error on page 12 of 18; the locations originally listed as having "Gasoline" signatures (MKTF-LIF-47 and MKTF-LIF-66) have diesel signatures, and the locations originally listed as having "Diesel" signatures (MKTF-LIF-37 and MKTF-LIF-42) have gasoline signatures. The error has been corrected. |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 7:** | **Response 7:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 2, white bullet 1, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [d]iesel signatures [-] MKTF-LIF-37 - (29.24 ft-bgs)." According to the MKTF-LIF-37 UVOST boring log included in Appendix D, elevated %RE signals are observed at the final depth of 29.24 feet bgs. The vertical extent of potential soil contamination at boring MKTF-LIF-37 was not delineated at the time of the LIF investigation. The depth of the boring in the Work Plan at the proposed location must be deeper than the final depth of 29.24 feet bgs to identify the maximum depth of contamination (see also Comment 5). In addition, according to the boring log included in Appendix D, %RE signals do not indicate diesel signatures; the results appear to be gasoline signatures. Figure 7 also indicates that gasoline signatures are observed at boring MKTF-LIF-37. Select an alternate sampling location where diesel signatures are observed on a UVOST boring log, as appropriate (see also Comment 6). | Please see response to comment #5 regarding vertical delineation.<br><br>Regarding the apparent product signature of MKTF-LIF-37, please see comment #6. |
| **Comment 8:** | **Response 8:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 2, white bullet 2, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [d]iesel signatures [-] MKTF-LIF-42 - (31.51ft-bgs)." According to the MKTF-LIF-42 UVOST boring log included in Appendix D, %RE signals indicate gasoline, naphtha or gasoline/naphtha mixture signatures depending on the depth intervals; the results do not appear to be representative of the diesel signatures that are indicated by orange or red waveforms. Figure 7 indicates that gasoline signatures are observed at boring MKTF-LIF-42. Select an alternate sampling location where diesel signatures are observed on a UVOST boring log, as appropriate. Revise the Work Plan accordingly. | Please see comment #6. |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 9:** | **Response 9:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 3, white bullet 1, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [g]asoline/diesel mixture signatures [-] MKTF-LIF-36 - (27.04 ft-bgs)." According to the MKTF-LIF-36 UVOST boring log included in Appendix D, %RE signals mostly indicate diesel signatures; the results do not appear to be representative of gasoline/diesel mixture signatures. Select an alternate sampling location where gasoline/diesel mixture signatures are observed on a UVOST boring log, as appropriate. Revise the Work Plan accordingly. | Location MKTF-LIF-36 has an LIF signature indicative of a gasoline/diesel mixture, however, it is acknowledged that the signature indicates a stronger presence of diesel than gasoline. The location with a gasoline/diesel signature that most closely matches the signature observed at MKTF-LIF-46 (the other location chosen to investigate the gasoline/diesel mixture) is the bottom 10 feet of location MKTF-LIF-47. Location MKTF-LIF-36 has been removed as a proposed investigation location and replaced with MKTF-LIF-47. |
| **Comment 10:** | **Response 10:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 3, white bullet 2, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [g]asoline/diesel signatures [-] MKTF-LIF-46 - (34.66 ft-bgs)." According to the MKTF-LIF-46 UVOST boring log included in Appendix D, elevated %RE signals are observed at the final depth of 34.66 feet bgs. The vertical extent of potential soil contamination at boring MKTF-LIF-46 was not delineated at the time of the LIF investigation. The depth of the boring in the Work Plan at the proposed location must be deeper than the final depth of 34.66 feet bgs to identify the maximum depth of contamination (see also Comment 5). | Please see response to comment #5 regarding vertical delineation. |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 11:** | **Response 11:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 4, white bullets 1 and 2, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [w]estern edge of identified impacts [-] MKTF-LIF-62 - (34.76 ft-bgs) [-] MKTF-LIF- 74 (21.33 ft-bgs)." According to Figure 7, gasoline signatures were observed from boring MKTF- LIF-90 and advanced farther southwest of the borings MKTF-LIF-62 and MKTF-LIF-74. The gasoline signatures observed at boring MKTF-LIF-90 may be indicative of the leading edge of the gasoline plume; therefore, soil samples must also be collected from the location near MKTF-LIF-90 to investigate the lateral extent of the soil contamination. Revise the Work Plan accordingly. | The purpose of the proposed investigation locations were not to sample the furthest identified impact, or identify lateral extent, but to assess the constituent levels at locations hydraulically down gradient of the other investigation locations, near the western edge of identified impacts (i.e., assess the degradation/removal [if any] of constituent concentrations as the product moves through the subsurface).<br><br>While MKTF-LIF-90 could theoretically accomplish the objectives, there is also a chance that the proposed interval sampling would miss the contamination altogether. At MKTF-LIF-90, the UVOST log indicated an isolated interval of contamination (approximately 2 feet in depth from 16 to 18 ft-bgs) with a relatively low %RE (83.2% maximum). The two locations chosen, MKTF-LIF-62 and MKTF-LIF-74, were selected not only on their distance hydraulically down gradient from the historical gasoline release, but their relatively high %RE (361.3% and 537.6%, respectively) and 4 to 5 foot intervals containing identified impacts. The locations have been maintained as originally proposed. |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 12:** | **Response 12:** |
| In Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, black bullet 5, white bullets 1 and 2, the Permittee states, "[t]he locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses: [r]esidual/no UVOST response [-] MKTF-LIF-71 - (25.29 ft-bgs) [-] MKTF-LIF-78 (29.29 ft-bgs)." According to Figure 7, gasoline signatures were observed from the borings located farther west of boring MKTF-LIF-78 (e.g., MKTF-LIF-77, and -90). However, no UVOST response was observed from boring MKTF-LIF-135 located west of borings MKTF-LIF-77, and -90. In order to investigate the lateral extent of the soil contamination and confirm the limits of contamination downgradient of MKTF-LIF-77 and -90, soil samples must also be collected from the location near MKTF-LIF-135. Revise the Work Plan accordingly | MKTF-LIF-135 met refusal at 7.68 feet below ground surface and its ground surface elevation is approximately 30 feet lower than MKTF-LIF-90 due to the steep topographical descent immediately west of MKTF-LIF-90.<br><br>The purpose of the selected locations (MKTF-LIF-71 and MKTF-LIF-78) is to help confirm the accuracy of the LIF investigation (which was used to identify lateral extent) by collecting analytical data for locations with no impacts as identified by the LIF investigation (i.e., to confirm that no/minimal %RE indicates hydrocarbon constituents are not detected and/or below applicable screening levels). The selected locations were chosen based on the %RE throughout the entire LIF push, the LIF termination depth, and the ground surface elevation (to ensure sampling within the same geologic units as the other proposed investigation locations). The originally proposed locations best achieve the intended purpose and have been maintained. |
| **Comment 13:** | **Response 13:** |
| Section 4.1 (AOC 35 Investigation), page 12 of 18, paragraph 2, does not propose to investigate the presence/absence of SPH north of sump S-1, as required by Comment 2 in the NMED's August 17, 2021 Approval with Modifications Borrow Pit Interceptor Sumps Installation Summary Letter. Since Comment 2 is pertinent to the AOC 35 investigation, the provision must be included in the revised Work Plan. Furthermore, if Comment 2 is not addressed in the revised Work Plan, the Permittee will likely be required to submit a separate work plan to address Comment 2 to NMED. | To address Comment 2 in the Approval with Modifications Borrow Pit Interceptor Sumps Installation Summary Letter, two 4-inch diameter recovery wells were installed north of existing sump, S-1, during the week of January 21, 2022. Fluid recovery at the additional sumps will be conducted 4 days/week, in conjunction with recovery efforts at the existing sumps. Fluid recovery data from the Borrow Pit Seep Area will be documented in the quarterly Hydrocarbon Seep reports. |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 14:** | **Response 14:** |
| In Section 4.2 (Soil Sample Field Screening, Sampling, and Logging), page 13 of 18, paragraphs 6 and 7, the Permittee states, "[p]hotoionization detector equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator may be used for VOC field screening [and] for locations with observed impacts on the UVOST boring log, discrete soil samples will be collected from each boring for laboratory analyses every 3 feet until reaching the final depth of the corresponding LIF/HP borehole. For locations with residual/no UVOST response, soil samples will be collected every 6 feet until reaching final depth of the corresponding LIF/HP borehole." Based on the previous investigation, it is NMED's observation that the proposed sampling intervals may miss the contamination potentially present in the soils. Since a photoionization detector (PID) will be used for VOC screening, include a provision to collect additional soil samples at depths where elevated PID readings are recorded (e.g., by adjusting the sample collection intervals) in the revised Work Plan. | The proposed sample locations have been co-located with LIF locations to utilize the data gathered during the LIF investigation. The sample intervals are not intended to sample the most impacted intervals but rather to get a spectrum of sample results associated with various LIF %RE. The goal is to be able to correlate the LIF %RE with the analytical results so that the previously completed LIF investigation work can help to inform on possible constituent concentrations throughout the area. Western has elected to collect samples on specified intervals (3 feet at identified impacted locations and 6 feet at locations identified as unimpacted) to capture a wide spectrum of %RE to assist with the correlation. LIF logs have been further reviewed to ensure that the proposed interval sampling will contact zones with impacts identified based on %RE. Horizontal lines at the proposed sample intervals have been added to the LIF logs included as Appendix D.<br><br>It is noted that there is potential for changes within the subsurface and that field screening and visual/olfactory inspections can be utilized to determine if additional samples should be collected beyond the planned interval sampling. A provision has been added to Section 4.2, paragraph 5, to collect additional samples based on field screening/inspection results. More specifically:<br><br>"Additional samples, beyond the planned interval sampling, will be collected if unexpected results are observed during the field screening process (e.g., elevated PID/FID readings above expectations or stained/malodorous soil at intervals with no/low %RE)." |

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter**
**"Disapproval Response to Disapproval Revised Investigation Work Plan No. 2 Area of Concern 35" (October 20, 2021)**

| NMED General Comment | Western Response |
|---|---|
| **Comment 15:** | **Response 15:** |
| In Section 4.2 (Soil Sample Field Screening, Sampling, and Logging), page 14 of 18, paragraph 1, the Permittee states, "[a]dditional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will also be recorded on the logs." If water bearing zones are encountered during the investigation, the Permittee must collect groundwater samples at those intervals for laboratory analyses. The analytical suite for the additional groundwater samples must be consistent with those of the soil samples proposed in Section 4.5 (Chemical Analyses). Include these provisions in the revised Work Plan. | While groundwater samples taken from soil borings (i.e., grab samples) can indicate presence of impacts in the local groundwater, the results are seldom representative of the true levels of constituents in groundwater. Grab samples from soil borings are often biased due to sediment contamination and borehole smearing. However, as indicated on Figures 4 through 6, there are multiple groundwater wells in the area utilized for groundwater sampling. The purpose of this investigation is to correlate the soil analytical results with the LIF investigation results. Groundwater results are presented in the annual groundwater monitoring report in a holistic manner. |
| **Comment 16:** | **Response 16:** |
| In Section 4.5 (Chemical Analyses), page 16 of 18, bullet 4, the Permittee states, "[s]oil samples will be analyzed for the following:[-] 1, 2-dichloroethane (EDB) (EPA Method 8011 or similar)." There is a typographical error in the statement. 1, 2-dichloroethane is abbreviated as DCA rather than EDB. EDB refers to 1, 2-dibromoethane. Correct the typographical error in the revised Work Plan. | Both 1,2-dichloroethane and 1,4-dioxane were added to the AOC 35 investigation work plan in the December 2020 version. These constituents were intended to be targeted at proposed groundwater samples and were mistakenly included in the requested soil sample analyses of the previously approved work plan. The comment regarding inclusion of these constituents was Comment #10 of the August 31, 2020 NMED disapproval of the AOC 35 investigation work plan. The constituent list proposed in Section 4.5 has been updated to remove the identified errors. |

**ATTACHMENT B**

**REDLINE TEXT**

# Revised Investigation Work Plan No. 2
# Area of Concern 35


---

## Marathon Gallup Refinery
## Western Refining Southwest, LLC
## Gallup, New Mexico

*EPA ID# NMD000333211*

**March 2022**

# Table of Contents

Executive Summary ..... 5
1.0 Introduction ..... 6
2.0 Background ..... 7
2.1 Main Truck Loading Rack Area ..... 7
2.2 Crude Slop and Ethanol Unloading Facility ..... 7
2.3 Additive Tank Farm Loading Rack ..... 7
2.4 Marketing Tank Farm ..... 8
2.5 Historical AOC 35 Investigations ..... 8
2.6 October 2019 Underground Transfer Line Release and Laser-Induced Fluorescence Investigation ..... 10
3.0 Site Conditions ..... 12
3.1 Surface Conditions ..... 12
3.2 Subsurface Conditions ..... 12
4.0 Scope of Services ..... 13
4.1 AOC 35 Investigation ..... 13
4.2 Soil Sample Field Screening, Sampling, and Logging ..... 14
4.2.1 Sample Handling ..... 15
4.3 Collection and Management of Investigation Derived Waste ..... 16
4.4 Documentation of Field Activities ..... 16
4.5 Chemical Analyses ..... 17
5.0 References ..... 19
Figures .....
Appendix A - Power Service Safety Data Sheet, Diesel Fuel Additive .....
Appendix B - Fluid Levels .....
Appendix C - Analytical Results .....
Appendix D - C-141 Form – Gasoline Release .....
Appendix E - UVOST Boring Logs .....
Appendix F - Investigation Derived Waste Management Plan .....

## List of Figures


1. Site Location Map, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

2. AOC 35 Map, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

3~~a~~. Potentiometric Surface Map (~~Third Quarter 2019~~June 2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

~~3b. Potentiometric Surface Map (First Quarter (2020), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico~~

4~~a~~. Benzene Concentration Map (~~Third Quarter 2019~~2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

~~4b. Benzene Concentration Map (First Quarter (2020), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico~~

5~~a~~. MTBE Concentration Map (~~Third Quarter 2019~~2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

~~5b. MTBE Concentration Map (First Quarter (2020), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico~~

6~~a~~. ~~SPH Thickness Map~~TPH Concentration Map (~~Third Quarter 2019~~2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico)

~~6b. SPH Thickness Map (First Quarter (2020), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico~~

7. LIF/HP Investigation Locations, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

8. Proposed Investigation Locations, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

## List of Appendices

A. Power Service Safety Data Sheet, Diesel Fuel Additive

BA. Fluid Levels

CB. Analytical Results

DC. C-141 Form – Gasoline Release

ED. UVOST Boring Logs

F.E Investigation Derived Waste Management Plan

## List of Acronyms

| | |
|---|---|
| AOC | Area of Concern |
| BTEX | benzene, toluene, ethylbenzene, xylenes |
| EPA | Environmental Protection Agency |
| IDW | investigation derived waste |
| LIP/HP | laser-induced florescence/hydraulic profiling |
| MKTF | marketing tank farm |
| MTBE | methyl tert butyl ether |
| NMED | New Mexico Environment Department |
| NMOCD | New Mexico Oil Conservation Division |
| SPH | separate-phase hydrocarbon |
| UVOST | ultra-violet optical screening tool |
| VOC | volatile organic compound |

## Executive Summary

The Marathon Gallup Refinery (hereinafter referred to as "the Refinery"), which is located 17 miles east of Gallup, New Mexico, has been in operation since the 1950s. Pursuant to the terms and conditions of the facility Resource Conservation and Recovery Act Post-Closure Care Permit and 20.4.1.500 New Mexico Administrative Code, this Investigation Work Plan has been prepared for Area of Concern (AOC) 35. AOC 35 includes the main truck loading rack, crude slop and ethanol unloading facility, additive tank farm/loading rack, and the retail tank farm (also known as the marketing tank farm).

Historical groundwater sample results within and around AOC 35 have shown impacts from petroleum hydrocarbons. Investigative activities due to observed groundwater impacts were proposed in an AOC 35 investigation work plan originally dated August 2018; New Mexico Environment Department (NMED) approval was received in September 2019. Subsequent to preparation/approval of the initial investigation work plan, on October 27, 2019, a gasoline release was observed surfacing on the west side of the truck loading rack within AOC 35. The source of the release was determined to be an underground transfer line on the north side of the truck loading rack.

As a result of the gasoline release, the AOC 35 investigation work plan was modified to include additional soil boring locations. The modified work plan was submitted to NMED on February 27, 2020; NMED approval was received in February 2021.

Concurrently with development of the modified work plan, laser-induced florescence/hydraulic profiling (LIF/HP) events were scheduled and conducted at the Refinery in November 2019, February 2021, and May 2021. The LIF/HP events included numerous locations within, and hydraulically down-gradient, of AOC 35, greatly increasing the understanding of subsurface conditions in the area. A report pertaining to the November 2019 and February 2021 LIF/HP results was submitted to NMED on March 31, 2021. An investigation report regarding all the LIF/HP investigation data is currently scheduled to be submitted no later than October 31, 2021.

This investigation work plan seeks to supplant the originally proposed investigation activities to build upon the LIF/HP data collection efforts to bolster the understanding of subsurface conditions in the area and correlate the analytical results with the LIF/HP results. More specifically, the originally proposed soil investigation locations have been removed, and new locations, co-located with LIF/HP locations, have been proposed. The new locations were strategically chosen based on the LIF ultra-violet optical screening tool (UVOST) response data which identified the presence and location of multiple product types (i.e., gasoline, diesel, etc.) throughout and hydraulically down-gradient of AOC 35.

The soil samples will be analyzed for volatile organic compounds, semi-volatile organic compounds, total petroleum hydrocarbons, Skinner List metals, iron, manganese, and chloride.

# 1.0 Introduction

The Marathon Gallup Refinery (the Refinery) is located approximately 17 miles east of Gallup, New Mexico along the north side of Interstate Highway I-40 in McKinley County. The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Marathon Gallup Refinery is located on 810 acres. Figure 1 presents the refinery location and the regional vicinity.

The Refinery has been indefinitely idled since August 2020. Historically, the Refinery generally processed crude oil transported to the facility by pipeline or tanker truck. Various process units were operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, sulfur recovery, merox treater, and hydrotreating. Refinery operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

This investigation work plan addresses the Area of Concern (AOC) 35, which includes the main truck loading rack, crude slop and ethanol unloading facility, additive tank farm loading rack, and the retail tank farm (Figure 2). The initial AOC 35 investigation work plan was provided to the New Mexico Environment Department (NMED) in August 2018 and approved by NMED in September 2019. The initial investigation work plan was subsequently revised following discovery of a leaky underground transfer line in the vicinity of the main truck loading rack (October 2019). The revised work plan was submitted to NMED in February 2020 and approved by NMED in February 2021. Concurrently with development of the revised work plan, laser-induced florescence/hydraulic profiling (LIF/HP) events were scheduled and conducted at the Refinery in November 2019, February 2021, and May 2021. Subsequently, based on the LIF/HP results, a request to further revise the AOC 35 investigation work plan was submitted to NMED on August 3, 2021 and approved by NMED on August 10, 2021.

Much of the information presented in this work plan aligns with the previously submitted, and NMED-approved, AOC 35 investigation work plans. However, where applicable, additional information from the LIF/HP investigations are included. The goal of this investigation is to collect additional data to augment the understanding of the subsurface conditions within and hydraulically down gradient of AOC 35 using the previously collected LIF/HP data as a guide.

The investigation activities will be conducted in accordance with Section IV.H.5 of the Post-Closure Care Permit and the procedures outlined in this work plan.

# 2.0 Background

This section presents background information for the area of refinery property near AOC 35, including a review of historical waste management activities to help identity the following:

- Type and characteristics of waste and contaminants handled in the subject areas;
- Known and possible sources of contamination;
- History of operations; and
- Prior investigations.

## 2.1 Main Truck Loading Rack Area

The main truck loading rack is located in the southwestern area of the formerly active portion of the refinery property (Figure 2). The main loading racks cover an area approximately 100 feet by 120 feet and were used to load refined petroleum products (e.g., gasoline and diesel) into tanker trucks. The loading racks appear to have been in operation in this same location since at least 1962. There is no history of waste materials being handled at the loading racks.

Underground piping near the main loading racks include a sanitary sewer drain line running east to west, north of the loading rack, and oily water drain lines (process sewer lines) that run from the lab building to the loading rack and then continue to the north after picking up discharge from the loading rack sumps (Figure 2). The sumps were used to collect small spills on the loading rack concrete apron and de minimis volumes of product that drained from loading hoses.

There have been documented releases at the loading rack that were discovered and addressed at the time of the release, including notification to the appropriate regulatory agencies. On December 4, 2007, approximately 6,800 gallons of gasoline was spilled when a truck driver erroneously opened a valve on a tanker truck (Release Notification dated Dec. 7, 2007). On December 23, 2009, approximately 1,848 gallons of diesel fuel was spilled from a leaking underground pipeline at the west end of the loading rack (Release Notification dated Dec. 29, 2009).

## 2.2 Crude Slop and Ethanol Unloading Facility

This facility is located approximately 80 feet northwest of the main loading racks (Figure 2) and was used to unload recovered oil and transmix reclaimed from various locations within the refinery. The area was also used to unload ethanol delivered to the refinery via truck. It was originally put into service sometime before the 1990s. The unloading area is approximately 15 feet by 40 feet and includes a concrete pad and sump, overhead pipelines, and various connections to support unloading operations. The concrete pad and sump are connected to the process sewer.

## 2.3 Additive Tank Farm Loading Rack

Petroleum product additives were stored in aboveground tanks at the additive tank farm loading rack (Figure 2). These additive tanks are small aboveground tanks located approximately 150 feet west of

the main loading rack. The additive tanks were installed prior to 1997, but the exact date is uncertain. Only products (i.e., fuel additives), no wastes, were managed in this area; methyl tert butyl ether (MTBE) is not, and has not been, stored in these tanks. The additive tanks were taken out of service and cleaned during the 2020/2021 calendar years. There are no products stored in any additive tanks at this time. The only recorded release from the additive tanks is a 2 to 3 gallon Power Service brand diesel additive release in 2017. The safety data sheets for the diesel additive are provided as Appendix A.

## 2.4 Marketing Tank Farm

The marketing tank farm (MKTF) is located approximately 150 feet northwest of the main loading racks and includes Tanks 1 – 8, 912, 913, 1001, and 1002 (Figure 2). Retail petroleum products (e.g., gasoline, diesel, and biodiesel) were stored in these tanks, and MTBE was stored in Tank 6, prior to discontinuation of its use in 2006; ethanol was stored in Tank 6 after the use of MTBE was discontinued. The first tanks were constructed in 1963 and have had routine inspections both external and internal since construction. The MKTF tanks have been cleaned and emptied and remain in place.

The fuels were delivered to the marketing tanks via pipelines run primarily aboveground. Ethanol was unloaded at the adjacent ethanol unloading facility and transferred to Tanks 5 and 6 via aboveground lines. The fuels and additives were subsequently transferred to the main loading racks via aboveground and underground pipelines where they were loaded into tanker trucks.

There have been documented releases at the marketing tank farm primarily from overfilling of the tanks. Two examples include:

- On December 31, 2007, approximately 1,344 gallons (32 barrels) of ethanol was spilled when a pressure gauge on Tank 5 became loose and began leaking (Release Notification dated Jan. 2, 2008).
- On March 7, 2008, approximately 840 gallons (20 barrels) of diesel fuel was spilled during filling when the transfer pump did not switch off at the preselected level (Release Notification dated March 10, 2008).

## 2.5 Historical AOC 35 Investigations

The earliest investigation in the area is referenced in Comprehensive Facility Investigation Work Plan that was prepared for the New Mexico Oil Conservation Division (NMOCD) in June 1997 (Giant Refining Company, 1997). The work plan references “groundwater impact area #4” as being in the vicinity of the truck loading rack. It is stated that the source of the impact was a spill of hydrocarbon that occurred in the early 1980s. The area is further described as having residual hydrocarbons present at low levels and declining through natural biodegradation. No quantitative information could be located to substantiate the description of the conditions provided in the 1997 work plan.

As part of the 2013/2014 interim measures to address a hydrocarbon seep area located to the northwest of the main loading racks (Figure 2), 44 new monitoring wells were installed near the loading racks (DiSorbo, 2016). These wells are identified by “MKTF” in the monitoring well name (MKTF-1

through MKTF-44). In addition, during the 2013 field reconnaissance process to locate potential drilling locations near the main loading racks, an unidentified well was located to the west of the main loading racks, it was subsequently named MKTF-45. Figure~~s~~ 3~~a and 3b~~ depict~~s~~ the location of numerous monitoring wells (MKTF designation) in and around AOC 35 as well as fluid level elevations and a potentiometric surface map~~s; the two figures depict the potentiometric surface before and after the discovery of a leaking transfer line (October 2019), as detailed in Section 2.6~~. Fluid level data are provided in Appendix B~~A~~. These wells are primarily screened across the contact of the Chinle Group (Petrified Forest Formation) that forms an aquitard and the overlying alluvial/fluvial deposits (Quaternary Alluvium) (more geological information provided in Section 3).

Groundwater samples collected from the MKTF wells have shown the presence of petroleum hydrocarbons, including benzene, toluene, ethylbenzene, and xylene (BTEX) and related constituents (e.g., MTBE) at concentrations above screening levels (Appendix C~~B~~). The distribution of these constituents, as shown on Figures ~~4a, 4b, 5a, and 5b~~4 through 6, likely indicate a source of groundwater contamination from within AOC 35 ~~("a" and "b" in figure titles indicate before and after discovery of the leaking transfer line, respectively)~~. Additional information pertaining to the distribution of SPH within this area is presented in the March 31, 2021 LIF/HP report (Trihydro, 2021). Historical ~~Analytical~~BTEX, MTBE, and TPH results for ~~these~~ the MKTF wells are provided in Appendix C~~B~~.

The process sewer (oily water) drain lines that are present in the area (Figure 2) were also evaluated in the past to determine if they could be leaking. On July 8, 2013, one pint of fluorescent FWT red dye was poured into a sump/drain at the second bay from the south end at the truck loading rack. After several minutes the red dye was observed in the sewer box located on the west side of the bundle cleaning pad, confirming the flow of the drain from the truck rack to the north in the main process sewer pipeline.

Subsequently, a second pint of FWT red dye was added to the sewer box on the west side of the bundle pad. Excavations at the previously identified hydrocarbon seep area (located west of the crude tanks) were inspected each day after addition of the dye and on the 8th day, July 16, 2018, red dye was identified in one of the excavations. The dye was not initially detected in the soil borings/temporary wells located south the hydrocarbon seep and west of the marketing tanks, but only in the area where the seep was identified. During a later fluid gauging event on August 14, 2018, dye was observed in MKTF-03 and MKTF-10. The presence of dye in groundwater in the area of the seep was interpreted as indicating a likely release from the sewer system and a possible preferential migration pathway to the northwest.

Following the results of the July 2013 dye test, two additional dye tests were conducted in the process sewer system. On September 23, 2013, one pint of a yellow/green dye (Spectroline Oil-Glo 44G Fluorescent yellow/green) introduced into the sewer at the Crude Slop and Ethanol Unloading area. On September 24, 2013, one pint of a FWT red dye was introduced at the lab sinks. On September 25, 2013, green dye was detected at the hydrocarbon seep. A fluid level gauging event was conducted at the MKTF monitoring wells on September 26, 2013; the red dye was identified in five of the temporary wells [SB01 (MKTF-03), SB02, SB16 (MKTF-10), SB17 (MKTF-11), and SB22 (MKTF-14)], all of which are located just south of the road that runs east-west along the north side of the marketing tanks. The

green/yellow dye appeared to be present in nine locations [SB04, SB05, SB06 (MKTF-05), SB08 (MKTF-06), SB10 closer to the crude slop and ethanol unloading area. Although the dye tests were not conclusive, the separate patterns of the two dyes suggest the possibility of two separate release points from the sewer line.

Since the 2013 dye tests, repair work and installation of additional process sewer lines has occurred in the vicinity of AOC 35. In 2019, the main oily sewer lines ~~in the vicinity of~~near the marketing tank farm were visually inspected using a camera and were generally determined to be in relatively good condition with no obvious breaks. Smaller lines were not inspected so the condition of those lines is unknown. The Refinery is indefinitely idled at this time and the sewer is currently not in operation and blocked off. A limited scope investigation is tentatively proposed to investigate the current status of the process sewer system in this area; work plan to be submitted by May 31, 2022.

## 2.6 October 2019 Underground Transfer Line Release and Laser-Induced Fluorescence Investigation

On October 27, 2019 an area of soil staining and surfaced product was observed to the west of the Truck loading rack in a stormwater drainage ditch. Investigation efforts identified an underground product transfer line leaking gasoline on the north side of the Truck loading rack (Figure 7). As part of the initial spill response efforts, the pipeline was taken out of service, an earthen berm was placed to stop flow in the stormwater ditch, and fluids present in the ditch were recovered. The spill and spill response were reported on November 7, 2019 to NMED and NMOCD via Form C-141, a copy of which is included in Appendix ~~C~~D.

After the release was identified, fluid levels were checked in nearby monitoring wells to determine if the gasoline (expressed as separate-phase hydrocarbon [SPH]) was present. All measurements through June 2021 are provided in Appendix B~~A~~; fluid level measurements around AOC 35 are currently recorded on a monthly basis. These measurements show SPH appearing for the first time in wells MKTF-13 on January 15, 2020, MKTF-17 on November 19, 2019, MKTF-19 on December 2, 2019. In addition, significant increases in the measured thickness of SPH occurred in wells MKTF-05 on November 13, 2019, MKTF-06 on December 2, 2019, MKTF-07 on December 19, 2019, MKTF-36 on November 6, 2019, and MKTF-45 on October 31, 2019.

To further investigate the extent of the gasoline release an LIF/HP event was conducted in November 2019 consisting of 18 locations within and immediately downgradient (to the west) of AOC 35. The ultraviolet optical screening tool (UVOST) used during the November 2019 LIF/HP event identified multiple product signatures (i.e., gasoline, diesel, and naphtha) and some degree of impacts at all 18 locations. After review of the LIF/HP results, the subsurface investigation was expanded in February 2021 with the addition of 37 LIF/HP locations around the peripheral of AOC 35 (north, south, and west), primarily in the direction of groundwater migration (west). Some additional LIF/HP locations were also added in the vicinity of AOC 35 in May 2021 to further bound the observed extent of impacts. The LIF/HP investigation locations and observed product signatures are depicted on Figure 7. Results from the November 2019 and February 2021 LIF/HP investigations were submitted to NMED in a report dated

March 31, 2021, titled *Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report* (MKTF LIF Report). The LIF/HP results collected in May 2021 included step-out locations to further bound results presented in the MKTF LIF Report as well as additional locations outside of the MKTF area. Locations within the MKTF area, from the May 2021 LIF/HP investigation, were presented in November 2021 as an addendum to the MKTF LIF Report. LIF/HP locations outside of the MKTF area were included in the October 27, 2021 report titled *Tank 570 Release and Additional Areas LIF/HP Investigation Report.*~~A report regarding LIF/HP results sitewide (i.e., including the May 2021 data) is currently in development and due to be submitted to NMED by October 31, 2021.~~

# 3.0 Site Conditions

## 3.1 Surface 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 to 6,860 feet. Surface soils within most of the area of investigation are primarily Rehobeth silty clay loam. Rehobeth soil properties include a pH ranging from 8 to 9 standard units and salinity naturally occurring and typically measuring up to approximately 8 mmhos/cm.

The site is located in the Puerco River Valley, north of the Zuni Uplift with overland flows directed northward to the tributaries of the Puerco River. The Puerco River continues to the west to the confluence with the Little Colorado River. The South Fork of the Puerco River is intermittent and retains flow only during and immediately following precipitation events. Additional regional surface water features include the refinery evaporation ponds.

## 3.2 Subsurface Conditions

The shallow subsurface soils consist of fluvial and alluvial deposits comprised of clay and silt 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, which is Upper Triassic, 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 and the Sonsela Sandstone Bed is the uppermost recognized regional aquifer. Aquifer test of the Sonsela Bed northeast of Prewitt indicated a transmissivity of greater than 100 ft2/day (Stone and others, 1983). The Sonsela Sandstone's highest point occurs southeast of the site and slopes downward to the northwest as it passes under the refinery. The Sonsela Sandstone forms a water-bearing reservoir with artesian conditions throughout the central and western portions of the refinery property.

The diverse properties and complex irregular stratigraphy of the surface soils across the site cause a wide range of hydraulic conductivity ranging from less than 10-2 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 (Western, 2009). Generally, shallow groundwater at the refinery follows the upper contact of the Petrified Forest Formation with prevailing flow from the southeast to the northwest, although localized areas may have varying flow directions (Figure ~~3a and Figure 3b~~3). Fluid level measurements for wells in the area of AOC 35 are included in Appendix B~~A~~.

## 4.0 Scope of Services

This investigation ~~of soil and groundwater~~ will be conducted to further characterize the subsurface ~~conditions~~ soil within and downgradient of AOC 35 by supporting the LIF/HP investigation results with analytical results. Locations were strategically selected based on product signatures identified during the LIF/HP investigation, vertical extent of impacts at the identified locations, and the magnitude of the LIF %RE. If possible, a correlation will be created between the analytical results and individual UVOST signatures. The investigation will commence upon approval of this Investigation Work Plan by NMED, pending availability of direct push drilling equipment/operators.

### 4.1 AOC 35 Investigation

Out of the November 2019, February 2021, and May 2021 LIF/HP investigation locations in the vicinity of AOC 35, detailed in Section 2.6 and depicted on Figure 7, 10 locations have been selected for screening and sampling (Figure 8). The 10 locations were selected based on their UVOST signatures as well as their geographic location. The selected locations will provide two analytical data sets for each of the identified product types within AOC 35 (i.e., gasoline, diesel, and comingled gasoline/diesel), two analytical data sets for locations at the western edge of identified impacts, and two analytical data sets for locations with residual/no UVOST response. The locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses:

- ~~Gasoline~~ Diesel signatures
  - MKTF-LIF-47 - (31.20 ft-bgs)
    - Diesel signature from 4 to 15 ft-bgs
  - MKTF-LIF-66 - (18.58 ft-bgs)
- ~~Diesel~~ Gasoline signatures
  - MKTF-LIF-37 - (29.24 ft-bgs)
  - MKTF-LIF-42 - (31.51 ft-bgs)
- Gasoline/diesel mixture signatures

~~MKTF-LIF-36 - (27.04 ft-bgs)~~

  - MKTF-LIF-46 - (34.66 ft-bgs)
  - MKTF-LIF-47 - (31.20 ft-bgs)
    - Gasoline/diesel mixture signature from 20 to 32 ft-bgs
- Western edge of identified impacts
  - MKTF-LIF-62 - (34.76 ft-bgs)
  - MKTF-LIF-74 - (21.33 ft-bgs)

- Residual/no UVOST response
  - MKTF-LIF-71 - (25.29 ft-bgs)
  - MKTF-LIF-78 - (29.29 ft-bgs)

The LIF/HP depth will be utilized to determine the target depth for each co-located sample location; specifics regarding the soil screening and sampling intervals are provided in Section 4.2. The UVOST boring logs for the 10 selected LIF/HP locations are provide in Appendix E~~D~~.

In addition to the proposed screening/sampling, an effort will be made to determine the screened interval of monitoring well MKTF-45 (Figure 8). As detailed in Section 2.5, MKTF-45 was discovered in the vicinity of the main truck loading rack (~160 feet southwest) in 2013, however, a detailed construction log for this well was never discovered. A down hole camera will be deployed at this location in an attempt to determine the screened interval.

## 4.2 Soil Sample Field Screening, Sampling, and Logging

The soil borings may be completed via hand augers or a geo-probe direct push rig; macrocore will be used for shallow intervals, dual tube will be used for deeper intervals. Alternatively, hollow-stem augers may be used instead. The drilling equipment will be properly decontaminated before drilling each boring. The NMED will be notified as early as practicable if conditions arise or are encountered that do not allow the advancement of borings to the specified depths or at planned sampling locations.

Soil cores and associated samples will be screened in the field on 3.0-foot intervals for evidence of contaminants. Field screening results will be recorded on the exploratory boring logs. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds (VOCs).

Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds or other substances that may cause staining of natural soils. Headspace vapor screening targets volatile organic compounds and involves placing a soil sample in a plastic sample bag allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit) they will be sealed in airtight bags and warmed in a heated building and/or vehicle before screening.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation. A photoionization detector equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator may be used for VOC field screening. Field screening results may be site- and boring-specific and the results may vary with instrument type. The media screened, weather conditions, moisture content, soil type, and type of contaminant, will be recorded on the field logs.

For locations with observed impacts on the UVOST boring log, discrete soil samples will be collected from each boring for laboratory analyses every 3 feet until reaching the final depth of the corresponding LIF/HP borehole. For locations with residual/no UVOST response, soil samples will be collected every 6 feet until reaching final depth of the corresponding LIF/HP borehole. Additional samples, beyond the planned interval sampling, will be collected if unexpected results are observed during the field screening process (e.g., elevated PID/FID readings above expectations or stained/malodorous soil at intervals with no/low %RE). The physical characteristics of the samples (such as mineralogy, ASTM soil classification, moisture content, texture, color, presence of stains or odors, and/or field screening results), depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by a qualified geologist. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will also be recorded on the logs.

Quality Assurance/Quality Control samples will be collected to monitor the validity of the soil sample collection procedures as follows:

- Field duplicates will be collected at a rate of 10 percent of the overall samples
- Equipment blanks will be collected at a frequency of one per day

### 4.2.1 Sample Handling

At a minimum, the following procedures will be used at all times when collecting and screening samples:

1. New disposable nitrile gloves will be used to collect each sample.
2. Samples will be transferred from the sample retrieval device (e.g., macrocore, dual tube, split-spoon, hand auger, etc.) directly into clean sample containers supplied by the project analytical laboratory and/or clean field screening containers (e.g., Ziplock® baggies). Sample container volumes and preservation methods will be in accordance with the most recent standard Environmental Protection Agency (EPA) and industry accepted practices for use by accredited analytical laboratories. Sufficient sample volume will be collected for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis.
3. Sample labels and documentation will be completed as each sample is collected. Immediately after the samples are collected, they will be stored in a cooler with ice, or other appropriate storage method, until they are packaged for delivery to the analytical laboratory. Method holding times will be reviewed to ensure delivery of samples with adequate time for extraction/analysis.
4. Chain-of-custody and shipment procedures will include the following:
    - Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.

- Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.
- Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice. The drainage hole at the bottom of the cooler will be sealed and secured in case of sample container leakage.
- Temperature blanks will be included with each shipping container.
- Each container will be shipped directly to the analytical laboratory.
- A chain-of-custody form will be placed inside each container.
- Custody seals will be signed, dated, and used to seal the sample-shipping container, in conformance with EPA protocol.
- Upon receipt of the samples at the laboratory, the custody seals will be broken, the chain-of-custody form will be signed as received by the laboratory, and the conditions of the samples will be recorded. The original chain-of-custody form will remain with the laboratory and copies will be returned to the relinquishing party.
- Copies of all chain-of-custody forms generated as part of sampling activities will be maintained on-site.

## 4.3 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with soil borings will be contained and characterized using methods based on the boring location, boring depth, drilling method, and type of contaminants suspected or encountered. All decontamination water will be characterized prior to disposal unless it is disposed in the refinery wastewater treatment system upstream of the new API Separator. An IDW management plan is included as Appendix ~~E~~F.

Field equipment requiring calibration will be calibrated to known standards, in accordance with the manufacturers' recommended schedules and procedures. At a minimum, calibration checks will be conducted daily, or at other intervals approved by the Department, and the instruments will be recalibrated as necessary. Calibration measurements will be recorded in the daily field logs. If field equipment becomes inoperable, its use will be discontinued until the necessary repairs are made. In the interim, a properly calibrated replacement instrument will be used.

## 4.4 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded on field forms or in a field logbook. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

1. Site or unit designation;
2. Date;
3. Field investigation team members including subcontractors and visitors;
4. Weather conditions;
5. Observations;
6. Record of samples collected with sample designations and locations specified;
7. Photographic log, as appropriate;
8. Field monitoring data, including health and safety monitoring;
9. Equipment used and calibration records, if appropriate;
10. List of additional data sheets and maps completed;

## 4.5 Chemical Analyses

All samples collected for laboratory analysis will be submitted to Hall laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

Soil samples will be analyzed for the following :

- VOCs (SW-846 Method 8260 or similar)
- semi-volatile organic compounds (SW-846 Method 8270 or similar)
- gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics (SW-846 Method 8015B or similar)
- ~~1,2-dichloroethane (EDB) (EPA Method 8011 or similar)~~
- ~~1,4-dioxane (EPA Method 8270 Selected Ion Monitoring [SIM] or similar)~~

Soil samples will also be analyzed for the following Skinner List metals, iron, and manganese using the indicated analytical methods shown, or the most recent standard EPA and/or industry-accepted analytical methods.

Inorganic Analytical Methods

| Analyte | Analytical Method |
|---|---|
| Antimony | SW-846 method 6010/6020 |
| Arsenic | SW-846 method 6010/6020 |
| Barium | SW-846 method 6010/6020 |
| Beryllium | SW-846 method 6010/6020 |
| Cadmium | SW-846 method 6010/6020 |
| Chromium | SW-846 method 6010/6020 |
| Cobalt | SW-846 method 6010/6020 |
| Cyanide | SW-846 method 335.4/335.2 mod |
| Lead | SW-846 method 6010/6020 |
| Mercury | SW-846 method 7470/7471 |
| Nickel | SW-846 method 6010/6020 |
| Selenium | SW-846 method 6010/6020 |
| Silver | SW-846 method 6010/6020 |
| Vanadium | SW-846 method 6010/6020 |
| Zinc | SW-846 method 6010/6020 |
| Iron | SW-846 method 6010/6020 |
| Manganese | SW-846 method 6010/6020 |
| Chloride | EPA method 300.0 |

## 5.0 References

DiSorbo. 2016. Interim Measures Report Hydrocarbon Seep Area, Western Refining Gallup Refinery, p. 15.

Giant Refining Company. 1997. Comprehensive Facility Investigation Work Plan (Stage 1 Abatement Plan), Giant Refining Company Ciniza Refinery, p. 7.

NMED. 2019. Risk Assessment Guidance for Site Investigation and Remediation, New Mexico Environment Department.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizel, N.H., and Padgett, E.T. 1983. Hydrogeology and Water Resources of San Juan Basin, New Mexico; Hydrogeologic Report 6, New Mexico Bureau of Mines and Mineral Resources, p. 70.

Trihydro. 2021. LIF/HP Investigation Report, Marathon Petroleum Company LP, Gallup Refinery.

Western. 2009. Facility-wide Groundwater Monitoring Plan: Gallup Refinery, p. 97.

# Figures




# Appendix A - Power Service Safety Data Sheet, Diesel Fuel Additive

# ~~A~~Appendix B~~A~~ - Fluid Levels

# Appendix CB - Analytical Results

# Appendix DC - C-141 Form – Gasoline Release

# Appendix ED - UVOST Boring Logs

# Appendix FE - Investigation Derived Waste Management Plan

**ATTACHMENT C**

**CLEAN**

# Revised Investigation Work Plan No. 2
# Area of Concern 35


---

## Marathon Gallup Refinery
## Western Refining Southwest, LLC
## Gallup, New Mexico

*EPA ID# NMD000333211*

**March 2022**

# Table of Contents

Executive Summary ..... 5
1.0 Introduction ..... 6
2.0 Background ..... 7
2.1 Main Truck Loading Rack Area ..... 7
2.2 Crude Slop and Ethanol Unloading Facility ..... 7
2.3 Additive Tank Farm Loading Rack ..... 7
2.4 Marketing Tank Farm ..... 8
2.5 Historical AOC 35 Investigations ..... 8
2.6 October 2019 Underground Transfer Line Release and Laser-Induced Fluorescence Investigation ..... 10
3.0 Site Conditions ..... 12
3.1 Surface Conditions ..... 12
3.2 Subsurface Conditions ..... 12
4.0 Scope of Services ..... 13
4.1 AOC 35 Investigation ..... 13
4.2 Soil Sample Field Screening, Sampling, and Logging ..... 14
4.2.1 Sample Handling ..... 15
4.3 Collection and Management of Investigation Derived Waste ..... 16
4.4 Documentation of Field Activities ..... 16
4.5 Chemical Analyses ..... 17
5.0 References ..... 19
Figures .....
Appendix A - Power Service Safety Data Sheet, Diesel Fuel Additive .....
Appendix B - Fluid Levels .....
Appendix C - Analytical Results .....
Appendix D - C-141 Form – Gasoline Release .....
Appendix E - UVOST Boring Logs .....
Appendix F - Investigation Derived Waste Management Plan .....

## List of Figures

1. Site Location Map, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

2. AOC 35 Map, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

3. Potentiometric Surface Map (June 2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

4. Benzene Concentration Map (2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

5. MTBE Concentration Map (2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

6. TPH Concentration Map (2021), Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico)

7. LIF/HP Investigation Locations, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

8. Proposed Investigation Locations, Western Refining Southwest LLC, Marathon Gallup Refinery, Gallup, New Mexico

## List of Appendices

A. Power Service Safety Data Sheet, Diesel Fuel Additive

B. Fluid Levels

C. Analytical Results

D. C-141 Form – Gasoline Release

E. UVOST Boring Logs

F. Investigation Derived Waste Management Plan

## List of Acronyms

| | |
|---|---|
| AOC | Area of Concern |
| BTEX | benzene, toluene, ethylbenzene, xylenes |
| EPA | Environmental Protection Agency |
| IDW | investigation derived waste |
| LIP/HP | laser-induced florescence/hydraulic profiling |
| MKTF | marketing tank farm |
| MTBE | methyl tert butyl ether |
| NMED | New Mexico Environment Department |
| NMOCD | New Mexico Oil Conservation Division |
| SPH | separate-phase hydrocarbon |
| UVOST | ultra-violet optical screening tool |
| VOC | volatile organic compound |

## Executive Summary

The Marathon Gallup Refinery (hereinafter referred to as "the Refinery"), which is located 17 miles east of Gallup, New Mexico, has been in operation since the 1950s. Pursuant to the terms and conditions of the facility Resource Conservation and Recovery Act Post-Closure Care Permit and 20.4.1.500 New Mexico Administrative Code, this Investigation Work Plan has been prepared for Area of Concern (AOC) 35. AOC 35 includes the main truck loading rack, crude slop and ethanol unloading facility, additive tank farm/loading rack, and the retail tank farm (also known as the marketing tank farm).

Historical groundwater sample results within and around AOC 35 have shown impacts from petroleum hydrocarbons. Investigative activities due to observed groundwater impacts were proposed in an AOC 35 investigation work plan originally dated August 2018; New Mexico Environment Department (NMED) approval was received in September 2019. Subsequent to preparation/approval of the initial investigation work plan, on October 27, 2019, a gasoline release was observed surfacing on the west side of the truck loading rack within AOC 35. The source of the release was determined to be an underground transfer line on the north side of the truck loading rack.

As a result of the gasoline release, the AOC 35 investigation work plan was modified to include additional soil boring locations. The modified work plan was submitted to NMED on February 27, 2020; NMED approval was received in February 2021.

Concurrently with development of the modified work plan, laser-induced florescence/hydraulic profiling (LIF/HP) events were scheduled and conducted at the Refinery in November 2019, February 2021, and May 2021. The LIF/HP events included numerous locations within, and hydraulically down-gradient, of AOC 35, greatly increasing the understanding of subsurface conditions in the area. A report pertaining to the November 2019 and February 2021 LIF/HP results was submitted to NMED on March 31, 2021. An investigation report regarding all the LIF/HP investigation data is currently scheduled to be submitted no later than October 31, 2021.

This investigation work plan seeks to supplant the originally proposed investigation activities to build upon the LIF/HP data collection efforts to bolster the understanding of subsurface conditions in the area and correlate the analytical results with the LIF/HP results. More specifically, the originally proposed soil investigation locations have been removed, and new locations, co-located with LIF/HP locations, have been proposed. The new locations were strategically chosen based on the LIF ultra-violet optical screening tool (UVOST) response data which identified the presence and location of multiple product types (i.e., gasoline, diesel, etc.) throughout and hydraulically down-gradient of AOC 35.

The soil samples will be analyzed for volatile organic compounds, semi-volatile organic compounds, total petroleum hydrocarbons, Skinner List metals, iron, manganese, and chloride.

# 1.0 Introduction

The Marathon Gallup Refinery (the Refinery) is located approximately 17 miles east of Gallup, New Mexico along the north side of Interstate Highway I-40 in McKinley County. The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Marathon Gallup Refinery is located on 810 acres. Figure 1 presents the refinery location and the regional vicinity.

The Refinery has been indefinitely idled since August 2020. Historically, the Refinery generally processed crude oil transported to the facility by pipeline or tanker truck. Various process units were operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, sulfur recovery, merox treater, and hydrotreating. Refinery operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

This investigation work plan addresses the Area of Concern (AOC) 35, which includes the main truck loading rack, crude slop and ethanol unloading facility, additive tank farm loading rack, and the retail tank farm (Figure 2). The initial AOC 35 investigation work plan was provided to the New Mexico Environment Department (NMED) in August 2018 and approved by NMED in September 2019. The initial investigation work plan was subsequently revised following discovery of a leaky underground transfer line in the vicinity of the main truck loading rack (October 2019). The revised work plan was submitted to NMED in February 2020 and approved by NMED in February 2021. Concurrently with development of the revised work plan, laser-induced florescence/hydraulic profiling (LIF/HP) events were scheduled and conducted at the Refinery in November 2019, February 2021, and May 2021. Subsequently, based on the LIF/HP results, a request to further revise the AOC 35 investigation work plan was submitted to NMED on August 3, 2021 and approved by NMED on August 10, 2021.

Much of the information presented in this work plan aligns with the previously submitted, and NMED-approved, AOC 35 investigation work plans. However, where applicable, additional information from the LIF/HP investigations are included. The goal of this investigation is to collect additional data to augment the understanding of the subsurface conditions within and hydraulically down gradient of AOC 35 using the previously collected LIF/HP data as a guide.

The investigation activities will be conducted in accordance with Section IV.H.5 of the Post-Closure Care Permit and the procedures outlined in this work plan.

# 2.0 Background

This section presents background information for the area of refinery property near AOC 35, including a review of historical waste management activities to help identity the following:

- Type and characteristics of waste and contaminants handled in the subject areas;
- Known and possible sources of contamination;
- History of operations; and
- Prior investigations.

## 2.1 Main Truck Loading Rack Area

The main truck loading rack is located in the southwestern area of the formerly active portion of the refinery property (Figure 2). The main loading racks cover an area approximately 100 feet by 120 feet and were used to load refined petroleum products (e.g., gasoline and diesel) into tanker trucks. The loading racks appear to have been in operation in this same location since at least 1962. There is no history of waste materials being handled at the loading racks.

Underground piping near the main loading racks include a sanitary sewer drain line running east to west, north of the loading rack, and oily water drain lines (process sewer lines) that run from the lab building to the loading rack and then continue to the north after picking up discharge from the loading rack sumps (Figure 2). The sumps were used to collect small spills on the loading rack concrete apron and de minimis volumes of product that drained from loading hoses.

There have been documented releases at the loading rack that were discovered and addressed at the time of the release, including notification to the appropriate regulatory agencies. On December 4, 2007, approximately 6,800 gallons of gasoline was spilled when a truck driver erroneously opened a valve on a tanker truck (Release Notification dated Dec. 7, 2007). On December 23, 2009, approximately 1,848 gallons of diesel fuel was spilled from a leaking underground pipeline at the west end of the loading rack (Release Notification dated Dec. 29, 2009).

## 2.2 Crude Slop and Ethanol Unloading Facility

This facility is located approximately 80 feet northwest of the main loading racks (Figure 2) and was used to unload recovered oil and transmix reclaimed from various locations within the refinery. The area was also used to unload ethanol delivered to the refinery via truck. It was originally put into service sometime before the 1990s. The unloading area is approximately 15 feet by 40 feet and includes a concrete pad and sump, overhead pipelines, and various connections to support unloading operations. The concrete pad and sump are connected to the process sewer.

## 2.3 Additive Tank Farm Loading Rack

Petroleum product additives were stored in aboveground tanks at the additive tank farm loading rack (Figure 2). These additive tanks are small aboveground tanks located approximately 150 feet west of

the main loading rack. The additive tanks were installed prior to 1997, but the exact date is uncertain. Only products (i.e., fuel additives), no wastes, were managed in this area; methyl tert butyl ether (MTBE) is not, and has not been, stored in these tanks. The additive tanks were taken out of service and cleaned during the 2020/2021 calendar years. There are no products stored in any additive tanks at this time. The only recorded release from the additive tanks is a 2 to 3 gallon Power Service brand diesel additive release in 2017. The safety data sheets for the diesel additive are provided as Appendix A.

## 2.4 Marketing Tank Farm

The marketing tank farm (MKTF) is located approximately 150 feet northwest of the main loading racks and includes Tanks 1 – 8, 912, 913, 1001, and 1002 (Figure 2). Retail petroleum products (e.g., gasoline, diesel, and biodiesel) were stored in these tanks, and MTBE was stored in Tank 6, prior to discontinuation of its use in 2006; ethanol was stored in Tank 6 after the use of MTBE was discontinued. The first tanks were constructed in 1963 and have had routine inspections both external and internal since construction. The MKTF tanks have been cleaned and emptied and remain in place.

The fuels were delivered to the marketing tanks via pipelines run primarily aboveground. Ethanol was unloaded at the adjacent ethanol unloading facility and transferred to Tanks 5 and 6 via aboveground lines. The fuels and additives were subsequently transferred to the main loading racks via aboveground and underground pipelines where they were loaded into tanker trucks.

There have been documented releases at the marketing tank farm primarily from overfilling of the tanks. Two examples include:

- On December 31, 2007, approximately 1,344 gallons (32 barrels) of ethanol was spilled when a pressure gauge on Tank 5 became loose and began leaking (Release Notification dated Jan. 2, 2008).
- On March 7, 2008, approximately 840 gallons (20 barrels) of diesel fuel was spilled during filling when the transfer pump did not switch off at the preselected level (Release Notification dated March 10, 2008).

## 2.5 Historical AOC 35 Investigations

The earliest investigation in the area is referenced in Comprehensive Facility Investigation Work Plan that was prepared for the New Mexico Oil Conservation Division (NMOCD) in June 1997 (Giant Refining Company, 1997). The work plan references “groundwater impact area #4” as being in the vicinity of the truck loading rack. It is stated that the source of the impact was a spill of hydrocarbon that occurred in the early 1980s. The area is further described as having residual hydrocarbons present at low levels and declining through natural biodegradation. No quantitative information could be located to substantiate the description of the conditions provided in the 1997 work plan.

As part of the 2013/2014 interim measures to address a hydrocarbon seep area located to the northwest of the main loading racks (Figure 2), 44 new monitoring wells were installed near the loading racks (DiSorbo, 2016). These wells are identified by “MKTF” in the monitoring well name (MKTF-1

through MKTF-44). In addition, during the 2013 field reconnaissance process to locate potential drilling locations near the main loading racks, an unidentified well was located to the west of the main loading racks, it was subsequently named MKTF-45. Figure 3 depicts the location of numerous monitoring wells (MKTF designation) in and around AOC 35 as well as fluid level elevations and a potentiometric surface map. Fluid level data are provided in Appendix B. These wells are primarily screened across the contact of the Chinle Group (Petrified Forest Formation) that forms an aquitard and the overlying alluvial/fluvial deposits (Quaternary Alluvium) (more geological information provided in Section 3).

Groundwater samples collected from the MKTF wells have shown the presence of petroleum hydrocarbons, including benzene, toluene, ethylbenzene, and xylene (BTEX) and related constituents (e.g., MTBE) at concentrations above screening levels (Appendix C). The distribution of these constituents, as shown on Figures 4 through 6, likely indicate a source of groundwater contamination from within AOC 35. Additional information pertaining to the distribution of SPH within this area is presented in the March 31, 2021 LIF/HP report (Trihydro, 2021). Historical BTEX, MTBE, and TPH results for the MKTF wells are provided in Appendix C.

The process sewer (oily water) drain lines that are present in the area (Figure 2) were also evaluated in the past to determine if they could be leaking. On July 8, 2013, one pint of fluorescent FWT red dye was poured into a sump/drain at the second bay from the south end at the truck loading rack. After several minutes the red dye was observed in the sewer box located on the west side of the bundle cleaning pad, confirming the flow of the drain from the truck rack to the north in the main process sewer pipeline.

Subsequently, a second pint of FWT red dye was added to the sewer box on the west side of the bundle pad. Excavations at the previously identified hydrocarbon seep area (located west of the crude tanks) were inspected each day after addition of the dye and on the 8th day, July 16, 2018, red dye was identified in one of the excavations. The dye was not initially detected in the soil borings/temporary wells located south the hydrocarbon seep and west of the marketing tanks, but only in the area where the seep was identified. During a later fluid gauging event on August 14, 2018, dye was observed in MKTF-03 and MKTF-10. The presence of dye in groundwater in the area of the seep was interpreted as indicating a likely release from the sewer system and a possible preferential migration pathway to the northwest.

Following the results of the July 2013 dye test, two additional dye tests were conducted in the process sewer system. On September 23, 2013, one pint of a yellow/green dye (Spectroline Oil-Glo 44G Fluorescent yellow/green) introduced into the sewer at the Crude Slop and Ethanol Unloading area. On September 24, 2013, one pint of a FWT red dye was introduced at the lab sinks. On September 25, 2013, green dye was detected at the hydrocarbon seep. A fluid level gauging event was conducted at the MKTF monitoring wells on September 26, 2013; the red dye was identified in five of the temporary wells [SB01 (MKTF-03), SB02, SB16 (MKTF-10), SB17 (MKTF-11), and SB22 (MKTF-14)], all of which are located just south of the road that runs east-west along the north side of the marketing tanks. The green/yellow dye appeared to be present in nine locations [SB04, SB05, SB06 (MKTF-05), SB08 (MKTF-06), SB10 closer to the crude slop and ethanol unloading area. Although the dye tests were not

conclusive, the separate patterns of the two dyes suggest the possibility of two separate release points from the sewer line.

Since the 2013 dye tests, repair work and installation of additional process sewer lines has occurred in the vicinity of AOC 35. In 2019, the main oily sewer lines near the marketing tank farm were visually inspected using a camera and were generally determined to be in relatively good condition with no obvious breaks. Smaller lines were not inspected so the condition of those lines is unknown. The Refinery is indefinitely idled at this time and the sewer is currently not in operation and blocked off. A limited scope investigation is tentatively proposed to investigate the current status of the process sewer system in this area; work plan to be submitted by May 31, 2022.

## 2.6 October 2019 Underground Transfer Line Release and Laser-Induced Fluorescence Investigation

On October 27, 2019 an area of soil staining and surfaced product was observed to the west of the Truck loading rack in a stormwater drainage ditch. Investigation efforts identified an underground product transfer line leaking gasoline on the north side of the Truck loading rack (Figure 7). As part of the initial spill response efforts, the pipeline was taken out of service, an earthen berm was placed to stop flow in the stormwater ditch, and fluids present in the ditch were recovered. The spill and spill response were reported on November 7, 2019 to NMED and NMOCD via Form C-141, a copy of which is included in Appendix D.

After the release was identified, fluid levels were checked in nearby monitoring wells to determine if the gasoline (expressed as separate-phase hydrocarbon [SPH]) was present. All measurements through June 2021 are provided in Appendix B; fluid level measurements around AOC 35 are currently recorded on a monthly basis. These measurements show SPH appearing for the first time in wells MKTF-13 on January 15, 2020, MKTF-17 on November 19, 2019, MKTF-19 on December 2, 2019. In addition, significant increases in the measured thickness of SPH occurred in wells MKTF-05 on November 13, 2019, MKTF-06 on December 2, 2019, MKTF-07 on December 19, 2019, MKTF-36 on November 6, 2019, and MKTF-45 on October 31, 2019.

To further investigate the extent of the gasoline release an LIF/HP event was conducted in November 2019 consisting of 18 locations within and immediately downgradient (to the west) of AOC 35. The ultraviolet optical screening tool (UVOST) used during the November 2019 LIF/HP event identified multiple product signatures (i.e., gasoline, diesel, and naphtha) and some degree of impacts at all 18 locations. After review of the LIF/HP results, the subsurface investigation was expanded in February 2021 with the addition of 37 LIF/HP locations around the peripheral of AOC 35 (north, south, and west), primarily in the direction of groundwater migration (west). Some additional LIF/HP locations were also added in the vicinity of AOC 35 in May 2021 to further bound the observed extent of impacts. The LIF/HP investigation locations and observed product signatures are depicted on Figure 7. Results from the November 2019 and February 2021 LIF/HP investigations were submitted to NMED in a report dated March 31, 2021, titled *Marketing Tank Farm Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report* (MKTF LIF Report). The LIF/HP results collected in May 2021 included step-out

locations to further bound results presented in the MKTF LIF Report as well as additional locations outside of the MKTF area. Locations within the MKTF area, from the May 2021 LIF/HP investigation, were presented in November 2021 as an addendum to the MKTF LIF Report. LIF/HP locations outside of the MKTF area were included in the October 27, 2021 report titled *Tank 570 Release and Additional Areas LIF/HP Investigation Report.*

# 3.0 Site Conditions

## 3.1 Surface 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 to 6,860 feet. Surface soils within most of the area of investigation are primarily Rehobeth silty clay loam. Rehobeth soil properties include a pH ranging from 8 to 9 standard units and salinity naturally occurring and typically measuring up to approximately 8 mmhos/cm.

The site is located in the Puerco River Valley, north of the Zuni Uplift with overland flows directed northward to the tributaries of the Puerco River. The Puerco River continues to the west to the confluence with the Little Colorado River. The South Fork of the Puerco River is intermittent and retains flow only during and immediately following precipitation events. Additional regional surface water features include the refinery evaporation ponds.

## 3.2 Subsurface Conditions

The shallow subsurface soils consist of fluvial and alluvial deposits comprised of clay and silt 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, which is Upper Triassic, 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 and the Sonsela Sandstone Bed is the uppermost recognized regional aquifer. Aquifer test of the Sonsela Bed northeast of Prewitt indicated a transmissivity of greater than 100 ft2/day (Stone and others, 1983). The Sonsela Sandstone's highest point occurs southeast of the site and slopes downward to the northwest as it passes under the refinery. The Sonsela Sandstone forms a water-bearing reservoir with artesian conditions throughout the central and western portions of the refinery property.

The diverse properties and complex irregular stratigraphy of the surface soils across the site cause a wide range of hydraulic conductivity ranging from less than 10-2 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 (Western, 2009). Generally, shallow groundwater at the refinery follows the upper contact of the Petrified Forest Formation with prevailing flow from the southeast to the northwest, although localized areas may have varying flow directions (Figure 3). Fluid level measurements for wells in the area of AOC 35 are included in Appendix B.

# 4.0 Scope of Services

This investigation will be conducted to further characterize the subsurface soil within and downgradient of AOC 35 by supporting the LIF/HP investigation results with analytical results. Locations were strategically selected based on product signatures identified during the LIF/HP investigation, vertical extent of impacts at the identified locations, and the magnitude of the LIF %RE. If possible, a correlation will be created between the analytical results and individual UVOST signatures. The investigation will commence upon approval of this Investigation Work Plan by NMED, pending availability of direct push drilling equipment/operators.

## 4.1 AOC 35 Investigation

Out of the November 2019, February 2021, and May 2021 LIF/HP investigation locations in the vicinity of AOC 35, detailed in Section 2.6 and depicted on Figure 7, 10 locations have been selected for screening and sampling (Figure 8). The 10 locations were selected based on their UVOST signatures as well as their geographic location. The selected locations will provide two analytical data sets for each of the identified product types within AOC 35 (i.e., gasoline, diesel, and comingled gasoline/diesel), two analytical data sets for locations at the western edge of identified impacts, and two analytical data sets for locations with residual/no UVOST response. The locations listed below were selected for screening and sampling based on the UVOST waveform results, the total depth of the borings are provided in parentheses:

- Diesel signatures
  - MKTF-LIF-47 - (31.20 ft-bgs)
    - Diesel signature from 4 to 15 ft-bgs
  - MKTF-LIF-66 - (18.58 ft-bgs)
- Gasoline signatures
  - MKTF-LIF-37 - (29.24 ft-bgs)
  - MKTF-LIF-42 - (31.51 ft-bgs)
- Gasoline/diesel mixture signatures
  - MKTF-LIF-46 - (34.66 ft-bgs)
  - MKTF-LIF-47 - (31.20 ft-bgs)
    - Gasoline/diesel mixture signature from 20 to 32 ft-bgs
- Western edge of identified impacts
  - MKTF-LIF-62 - (34.76 ft-bgs)
  - MKTF-LIF-74 - (21.33 ft-bgs)

- Residual/no UVOST response
  - MKTF-LIF-71 - (25.29 ft-bgs)
  - MKTF-LIF-78 - (29.29 ft-bgs)

The LIF/HP depth will be utilized to determine the target depth for each co-located sample location; specifics regarding the soil screening and sampling intervals are provided in Section 4.2. The UVOST boring logs for the 10 selected LIF/HP locations are provide in Appendix E.

In addition to the proposed screening/sampling, an effort will be made to determine the screened interval of monitoring well MKTF-45 (Figure 8). As detailed in Section 2.5, MKTF-45 was discovered in the vicinity of the main truck loading rack (~160 feet southwest) in 2013, however, a detailed construction log for this well was never discovered. A down hole camera will be deployed at this location in an attempt to determine the screened interval.

## 4.2 Soil Sample Field Screening, Sampling, and Logging

The soil borings may be completed via hand augers or a geo-probe direct push rig; macrocore will be used for shallow intervals, dual tube will be used for deeper intervals. Alternatively, hollow-stem augers may be used instead. The drilling equipment will be properly decontaminated before drilling each boring. The NMED will be notified as early as practicable if conditions arise or are encountered that do not allow the advancement of borings to the specified depths or at planned sampling locations.

Soil cores and associated samples will be screened in the field on 3.0-foot intervals for evidence of contaminants. Field screening results will be recorded on the exploratory boring logs. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds (VOCs).

Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds or other substances that may cause staining of natural soils. Headspace vapor screening targets volatile organic compounds and involves placing a soil sample in a plastic sample bag allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit) they will be sealed in airtight bags and warmed in a heated building and/or vehicle before screening.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation. A photoionization detector equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator may be used for VOC field screening. Field screening results may be site- and boring-specific and the results may vary with instrument type. The media screened, weather conditions, moisture content, soil type, and type of contaminant, will be recorded on the field logs.

For locations with observed impacts on the UVOST boring log, discrete soil samples will be collected from each boring for laboratory analyses every 3 feet until reaching the final depth of the corresponding LIF/HP borehole. For locations with residual/no UVOST response, soil samples will be collected every 6 feet until reaching final depth of the corresponding LIF/HP borehole. Additional samples, beyond the planned interval sampling, will be collected if unexpected results are observed during the field screening process (e.g., elevated PID/FID readings above expectations or stained/malodorous soil at intervals with no/low %RE). The physical characteristics of the samples (such as mineralogy, ASTM soil classification, moisture content, texture, color, presence of stains or odors, and/or field screening results), depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by a qualified geologist. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will also be recorded on the logs.

Quality Assurance/Quality Control samples will be collected to monitor the validity of the soil sample collection procedures as follows:

- Field duplicates will be collected at a rate of 10 percent of the overall samples
- Equipment blanks will be collected at a frequency of one per day

### 4.2.1 Sample Handling

At a minimum, the following procedures will be used at all times when collecting and screening samples:

1. New disposable nitrile gloves will be used to collect each sample.
2. Samples will be transferred from the sample retrieval device (e.g., macrocore, dual tube, split-spoon, hand auger, etc.) directly into clean sample containers supplied by the project analytical laboratory and/or clean field screening containers (e.g., Ziplock® baggies). Sample container volumes and preservation methods will be in accordance with the most recent standard Environmental Protection Agency (EPA) and industry accepted practices for use by accredited analytical laboratories. Sufficient sample volume will be collected for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis.
3. Sample labels and documentation will be completed as each sample is collected. Immediately after the samples are collected, they will be stored in a cooler with ice, or other appropriate storage method, until they are packaged for delivery to the analytical laboratory. Method holding times will be reviewed to ensure delivery of samples with adequate time for extraction/analysis.
4. Chain-of-custody and shipment procedures will include the following:
    - Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.

- Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.
- Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice. The drainage hole at the bottom of the cooler will be sealed and secured in case of sample container leakage.
- Temperature blanks will be included with each shipping container.
- Each container will be shipped directly to the analytical laboratory.
- A chain-of-custody form will be placed inside each container.
- Custody seals will be signed, dated, and used to seal the sample-shipping container, in conformance with EPA protocol.
- Upon receipt of the samples at the laboratory, the custody seals will be broken, the chain-of-custody form will be signed as received by the laboratory, and the conditions of the samples will be recorded. The original chain-of-custody form will remain with the laboratory and copies will be returned to the relinquishing party.
- Copies of all chain-of-custody forms generated as part of sampling activities will be maintained on-site.

## 4.3 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with soil borings will be contained and characterized using methods based on the boring location, boring depth, drilling method, and type of contaminants suspected or encountered. All decontamination water will be characterized prior to disposal unless it is disposed in the refinery wastewater treatment system upstream of the new API Separator. An IDW management plan is included as Appendix F.

Field equipment requiring calibration will be calibrated to known standards, in accordance with the manufacturers' recommended schedules and procedures. At a minimum, calibration checks will be conducted daily, or at other intervals approved by the Department, and the instruments will be recalibrated as necessary. Calibration measurements will be recorded in the daily field logs. If field equipment becomes inoperable, its use will be discontinued until the necessary repairs are made. In the interim, a properly calibrated replacement instrument will be used.

## 4.4 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded on field forms or in a field logbook. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

1. Site or unit designation;
2. Date;
3. Field investigation team members including subcontractors and visitors;
4. Weather conditions;
5. Observations;
6. Record of samples collected with sample designations and locations specified;
7. Photographic log, as appropriate;
8. Field monitoring data, including health and safety monitoring;
9. Equipment used and calibration records, if appropriate;
10. List of additional data sheets and maps completed;

## 4.5 Chemical Analyses

All samples collected for laboratory analysis will be submitted to Hall laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

Soil samples will be analyzed for the following :

- VOCs (SW-846 Method 8260 or similar)
- semi-volatile organic compounds (SW-846 Method 8270 or similar)
- gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics (SW-846 Method 8015B or similar)

Soil samples will also be analyzed for the following Skinner List metals, iron, and manganese using the indicated analytical methods shown, or the most recent standard EPA and/or industry-accepted analytical methods.

Inorganic Analytical Methods

| Analyte | Analytical Method |
|---|---|
| Antimony | SW-846 method 6010/6020 |
| Arsenic | SW-846 method 6010/6020 |
| Barium | SW-846 method 6010/6020 |
| Beryllium | SW-846 method 6010/6020 |
| Cadmium | SW-846 method 6010/6020 |
| Chromium | SW-846 method 6010/6020 |
| Cobalt | SW-846 method 6010/6020 |
| Cyanide | SW-846 method 335.4/335.2 mod |
| Lead | SW-846 method 6010/6020 |
| Mercury | SW-846 method 7470/7471 |
| Nickel | SW-846 method 6010/6020 |
| Selenium | SW-846 method 6010/6020 |
| Silver | SW-846 method 6010/6020 |
| Vanadium | SW-846 method 6010/6020 |
| Zinc | SW-846 method 6010/6020 |
| Iron | SW-846 method 6010/6020 |
| Manganese | SW-846 method 6010/6020 |
| Chloride | EPA method 300.0 |

## 5.0 References

DiSorbo. 2016. Interim Measures Report Hydrocarbon Seep Area, Western Refining Gallup Refinery, p. 15.

Giant Refining Company. 1997. Comprehensive Facility Investigation Work Plan (Stage 1 Abatement Plan), Giant Refining Company Ciniza Refinery, p. 7.

NMED. 2019. Risk Assessment Guidance for Site Investigation and Remediation, New Mexico Environment Department.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizel, N.H., and Padgett, E.T. 1983. Hydrogeology and Water Resources of San Juan Basin, New Mexico; Hydrogeologic Report 6, New Mexico Bureau of Mines and Mineral Resources, p. 70.

Trihydro. 2021. LIF/HP Investigation Report, Marathon Petroleum Company LP, Gallup Refinery.

Western. 2009. Facility-wide Groundwater Monitoring Plan: Gallup Refinery, p. 97.

# Figures

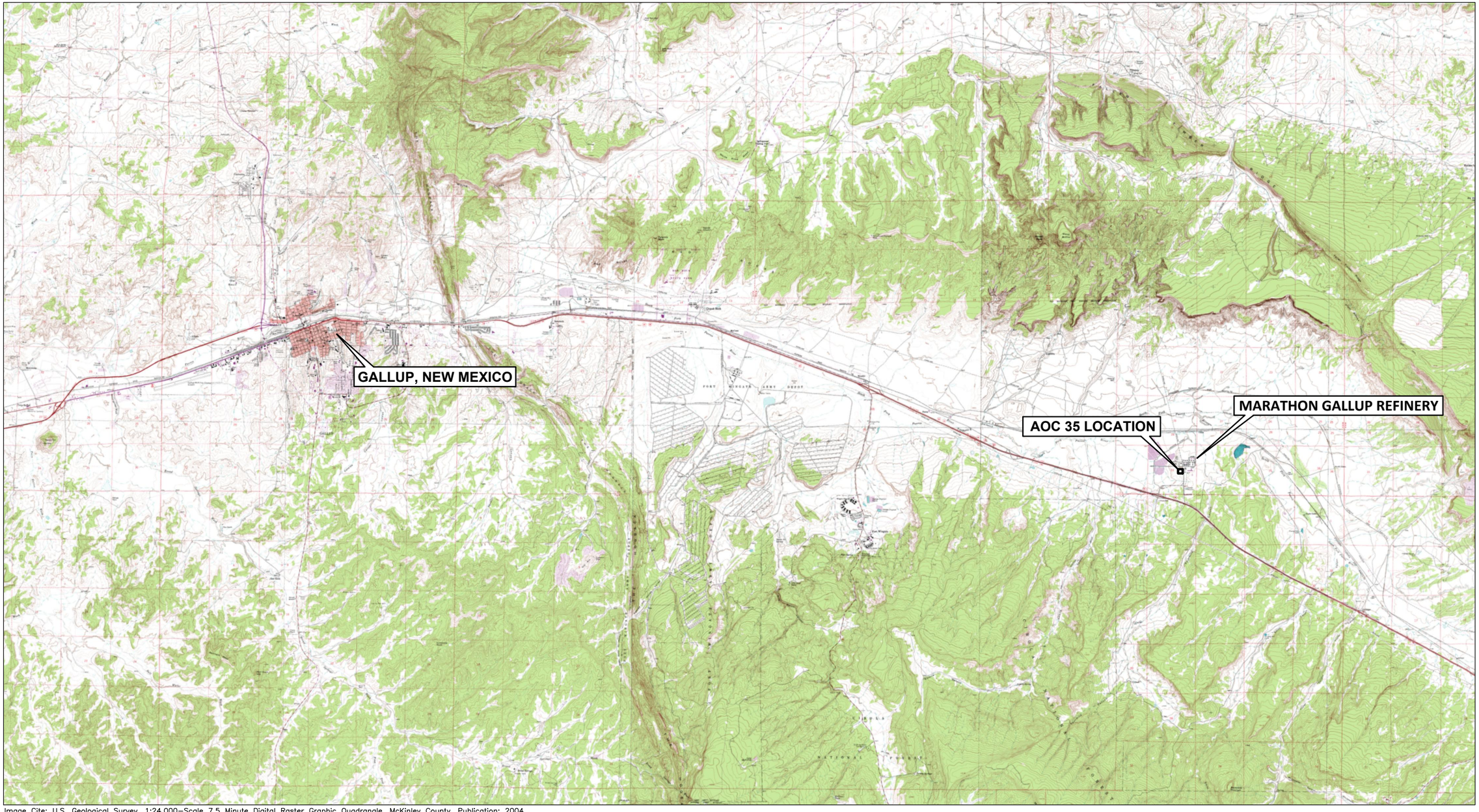
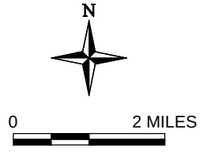



Image Cite: U.S. Geological Survey, 1:24,000–Scale 7.5 Minute Digital Raster Graphic Quadrangle, McKinley County, Publication: 2004


QUADRANGLE LOCATION

**NOTES:**

1. SITE LEGAL DESCRIPTION - TOWNSHIP 15 NORTH, RANGE 15 WEST, SECTION 33
2. AOC = AREA OF CONCERN




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

**FIGURE 1**

**SITE LOCATION MAP**

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

| Drawn By: REP | Checked By: JP | Scale: 1" = 2 MILES | Date: 8/20/2021 | File: 697-GALLUPAOC35-SITELOC_2021 |
|---|---|---|---|---|

M:\TON\MARATHON\CAD\GALLUP_REPORTS\AOC\AOC35-RTC\697-GALLUPAOC35-SITELOC_2021


Image Cite: DigitalGlobe © CNES (2020) Distribution Airbus DS © Microsoft Corporation, BING Imagery

M:\TION\MARATHON\CADD\GALLUP_REPORTS\AOC\AOC35-RTC\697-GALLUPAOC35-SITEMAP_2021

## EXPLANATION

- MKTF-34 — EXISTING MONITORING WELL LOCATION AND DESIGNATION
- EXISTING SUMP LOCATION
- AOC 35 BOUNDARY
- OILY WATER DRAIN LINE
- SS — SANITARY SEWER LINE

N

0 140'

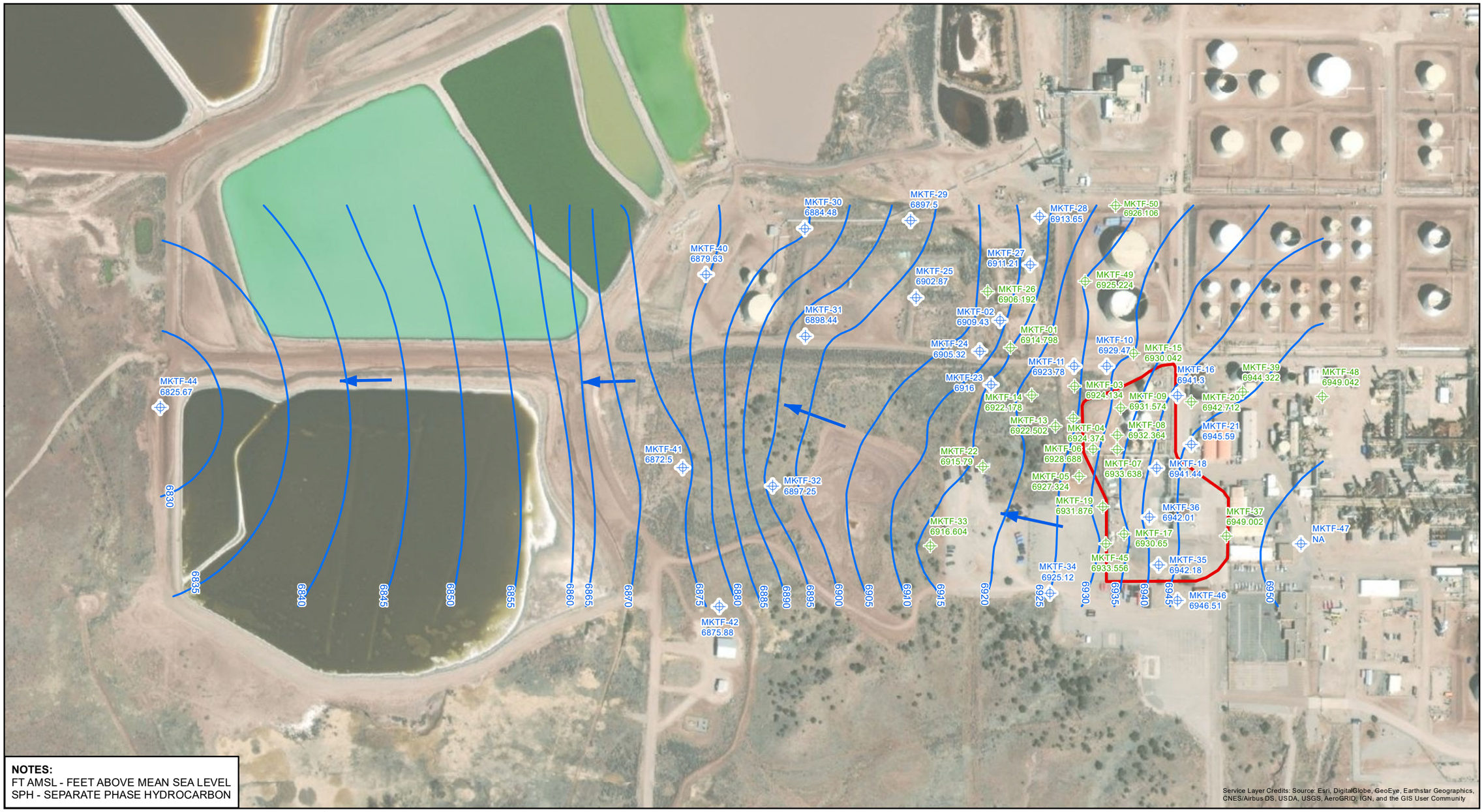
Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

**FIGURE 2**

**AOC 35 MAP**

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

| Drawn By: REP | Checked By: MS | Scale: 1" = 140' | Date: 8/23/2021 | File: 697-GALLUPAOC35-SITEMAP_2021 |
|---|---|---|---|---|




**NOTES:**
FT AMSL - FEET ABOVE MEAN SEA LEVEL
SPH - SEPARATE PHASE HYDROCARBON

**EXPLANATION**

- MONITORING WELL (GROUNDWATER ELEVATION IN FT AMSL)
- MONITORING WELL WITH SPH (CORRECTED GROUNDWATER ELEVATION IN FT AMSL)
- POTENTIOMETRIC SURFACE - JUNE 2021
- GROUNDWATER FLOW DIRECTION
- AOC 35 BOUNDARY APPROXIMATE

N

0 300 '

M:\TOMMARATHON\GIS\GALLUP\MAPPING\AOC\AOC_35_MKTF\202111_RTC_AOC35\MP\112021_POTSURFACE.MXD

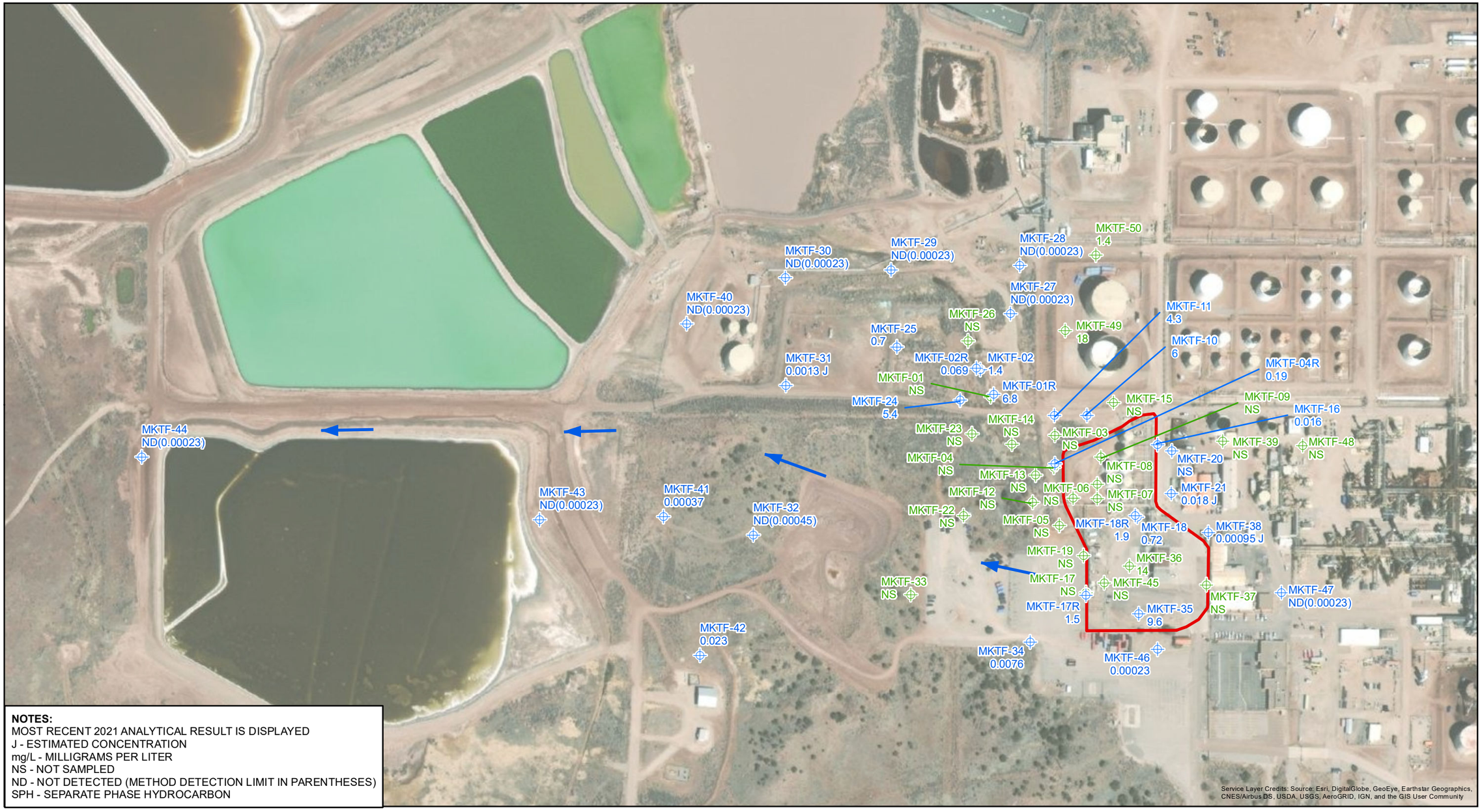
Trihydro CORPORATION
1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

**FIGURE 3**

**POTENTIOMETRIC SURFACE MAP (JUNE 2021)**

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

| Drawn By: JDH | Checked By: CF | Scale: 1 " = 300 ' | Date: 2/25/22 | File: 112021_PotSurface.mxd |
|---|---|---|---|---|




**NOTES:**
MOST RECENT 2021 ANALYTICAL RESULT IS DISPLAYED
J - ESTIMATED CONCENTRATION
mg/L - MILLIGRAMS PER LITER
NS - NOT SAMPLED
ND - NOT DETECTED (METHOD DETECTION LIMIT IN PARENTHESES)
SPH - SEPARATE PHASE HYDROCARBON

**EXPLANATION**

- MONITORING WELL WITH SPH
- MONITORING WELL (BENZENE CONCENTRATION IN mg/L)
- GROUNDWATER FLOW DIRECTION
- AOC 35 BOUNDARY APPROXIMATE

N

0 300 '

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

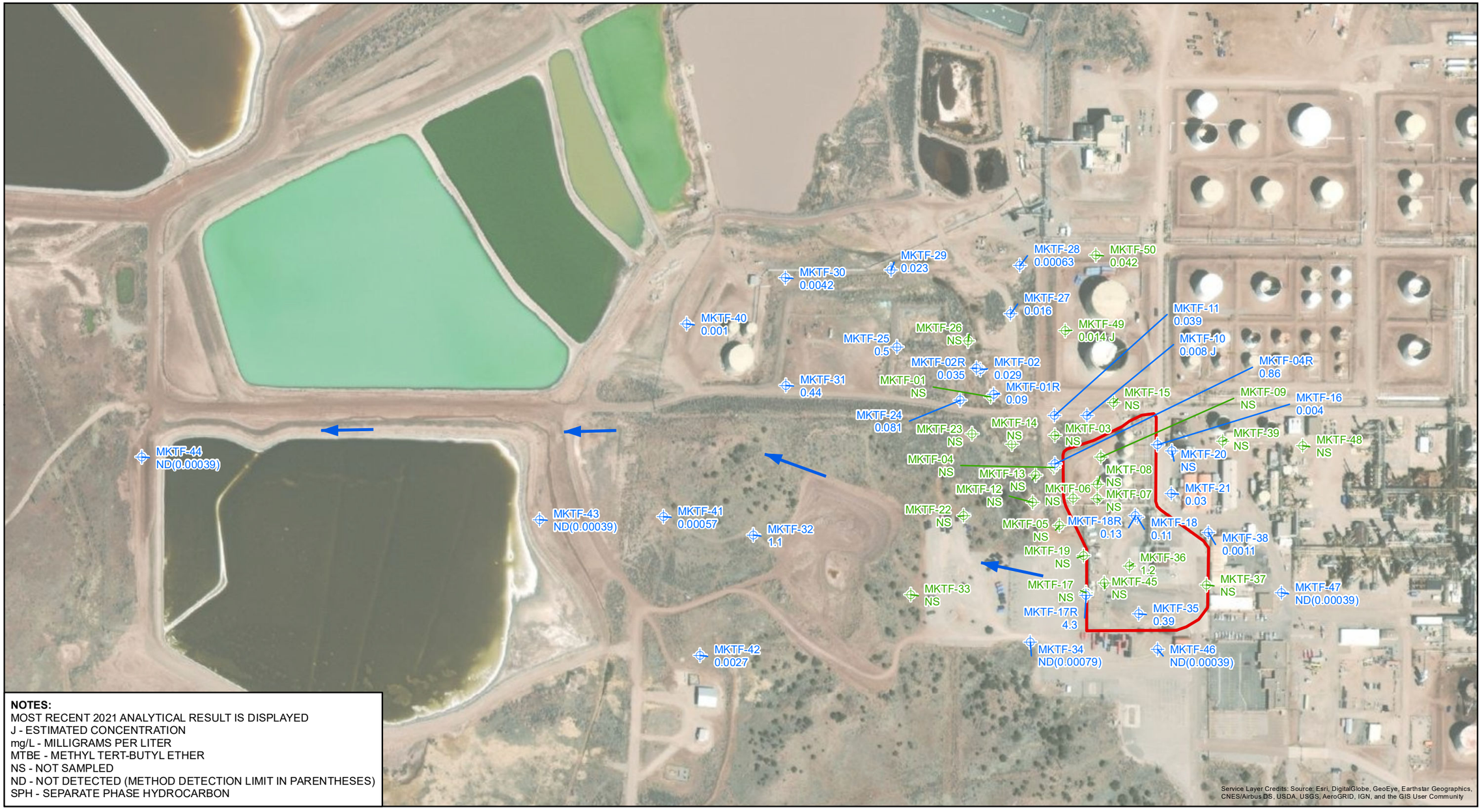
**FIGURE 4**

**BENZENE CONCENTRATION MAP (2021)**

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

| Drawn By: JDH | Checked By: CF | Scale: 1 " = 300 ' | Date: 2/28/22 | File: 022022_Benzene.mxd |
|---|---|---|---|---|

M:\TOMMARATHON\GIS\GALLUP\MAPPING\AOC\AOC_35_MKTF\202111_RTC_AOC35\MXD\022022_BENZENE.MXD




**NOTES:**
MOST RECENT 2021 ANALYTICAL RESULT IS DISPLAYED
J - ESTIMATED CONCENTRATION
mg/L - MILLIGRAMS PER LITER
MTBE - METHYL TERT-BUTYL ETHER
NS - NOT SAMPLED
ND - NOT DETECTED (METHOD DETECTION LIMIT IN PARENTHESES)
SPH - SEPARATE PHASE HYDROCARBON

**EXPLANATION**

- MONITORING WELL WITH SPH
- MONITORING WELL (MTBE CONCENTRATION IN mg/L)
- GROUNDWATER FLOW DIRECTION
- AOC 35 BOUNDARY APPROXIMATE

N

0 300'

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

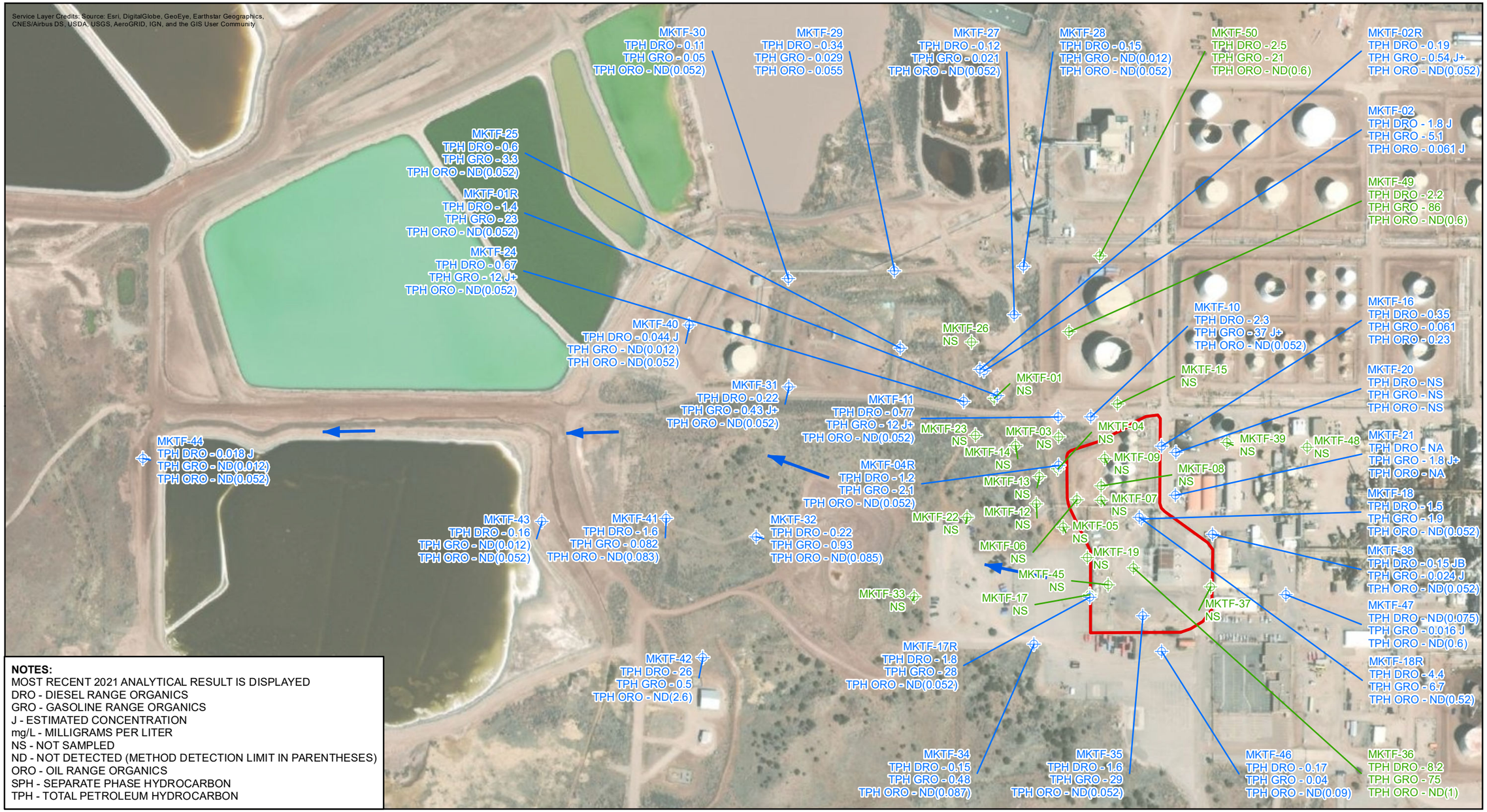
**FIGURE 5**

**MTBE CONCENTRATION MAP (2021)**

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

| Drawn By: JDH | Checked By: CF | Scale: 1 " = 300 ' | Date: 2/28/22 | File: 022022_MTBE.mxd |
|---|---|---|---|---|

M:\TOM\MARATHON\GIS\GALLUP\MAPPING\AOC\AOC_35_MKTF\202111_RTC_AOC35\MP\022022_MTBE.MXD




**NOTES:**
MOST RECENT 2021 ANALYTICAL RESULT IS DISPLAYED
DRO - DIESEL RANGE ORGANICS
GRO - GASOLINE RANGE ORGANICS
J - ESTIMATED CONCENTRATION
mg/L - MILLIGRAMS PER LITER
NS - NOT SAMPLED
ND - NOT DETECTED (METHOD DETECTION LIMIT IN PARENTHESES)
ORO - OIL RANGE ORGANICS
SPH - SEPARATE PHASE HYDROCARBON
TPH - TOTAL PETROLEUM HYDROCARBON

**EXPLANATION**

- MONITORING WELL WITH SPH
- MONITORING WELL (TPH CONCENTRATION IN mg/L)
- GROUNDWATER FLOW DIRECTION
- AOC 35 BOUNDARY APPROXIMATE

N

0 300'

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

**FIGURE 6**

**TPH CONCENTRATION MAP (2021)**

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

| Drawn By: JDH | Checked By: CF | Scale: 1 " = 300 ' | Date: 2/28/22 | File: 022022_TPH.mxd |
|---|---|---|---|---|

M:\TOM\MARATHON\GIS\GALLUP\MAPPING\AOC\AOC_35_MKTF\20211_RTC_AOC35\MP\022022_TPH.MXD

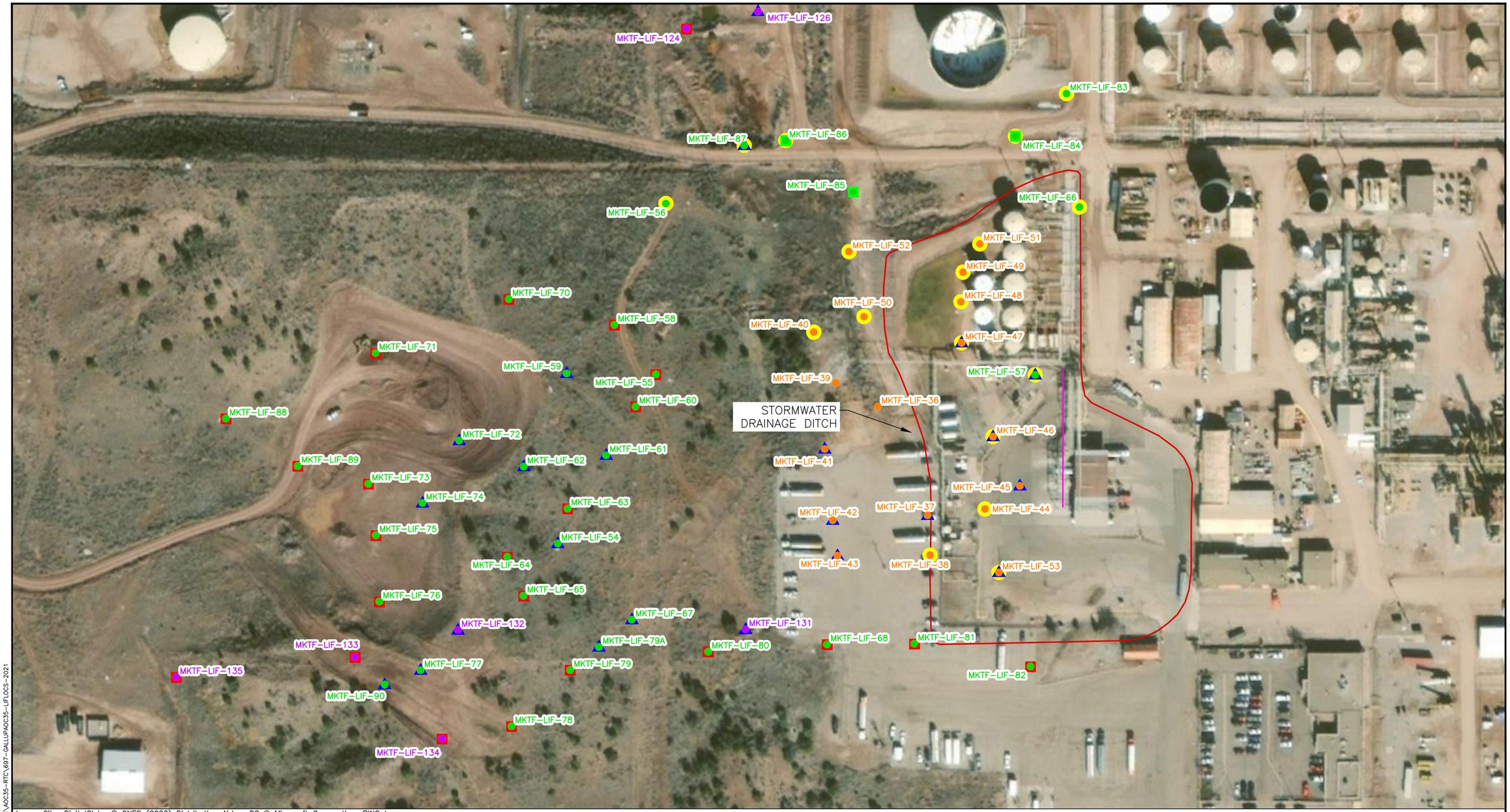



Image Cite: DigitalGlobe © CNES (2020) Distribution Airbus DS © Microsoft Corporation, BING Imagery

M:\TION\MARATHON\GAGD\GALLUP_REPORTS\AOC\AOC35-RTC\697-GALLUPAOC35-LIFLOCS-2021

## EXPLANATION

| | |
|---|---|
| MKTF-LIF-135 | 05/2021 LIF BORING LOCATION |
| MKTF-LIF-65 | 02/2021 LIF BORING LOCATION |
| MKTF-LIF-43 | 11/2019 LIF BORING LOCATION |
| | LEAKY UNDERGROUND TRANSFER LINE |
| | AOC 35 BOUNDARY |
| SPH | SEPARATE-PHASE HYDROCORBON |

## SPH OCCURRENCE BASED ON LIF RESPONSE

- DIESEL
- GASOLINE
- NAPHTHA
- RESIDUAL/NO RESPONSE

N

0 140'

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

**FIGURE 7**

**LIF/HP INVESTIGATION LOCATIONS**

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

| Drawn By: REP | Checked By: MS | Scale: 1" = 140' | Date: 8/20/21 | File: 697-GALLUPAOC35-LIFLOCS-2021 |
|---|---|---|---|---|

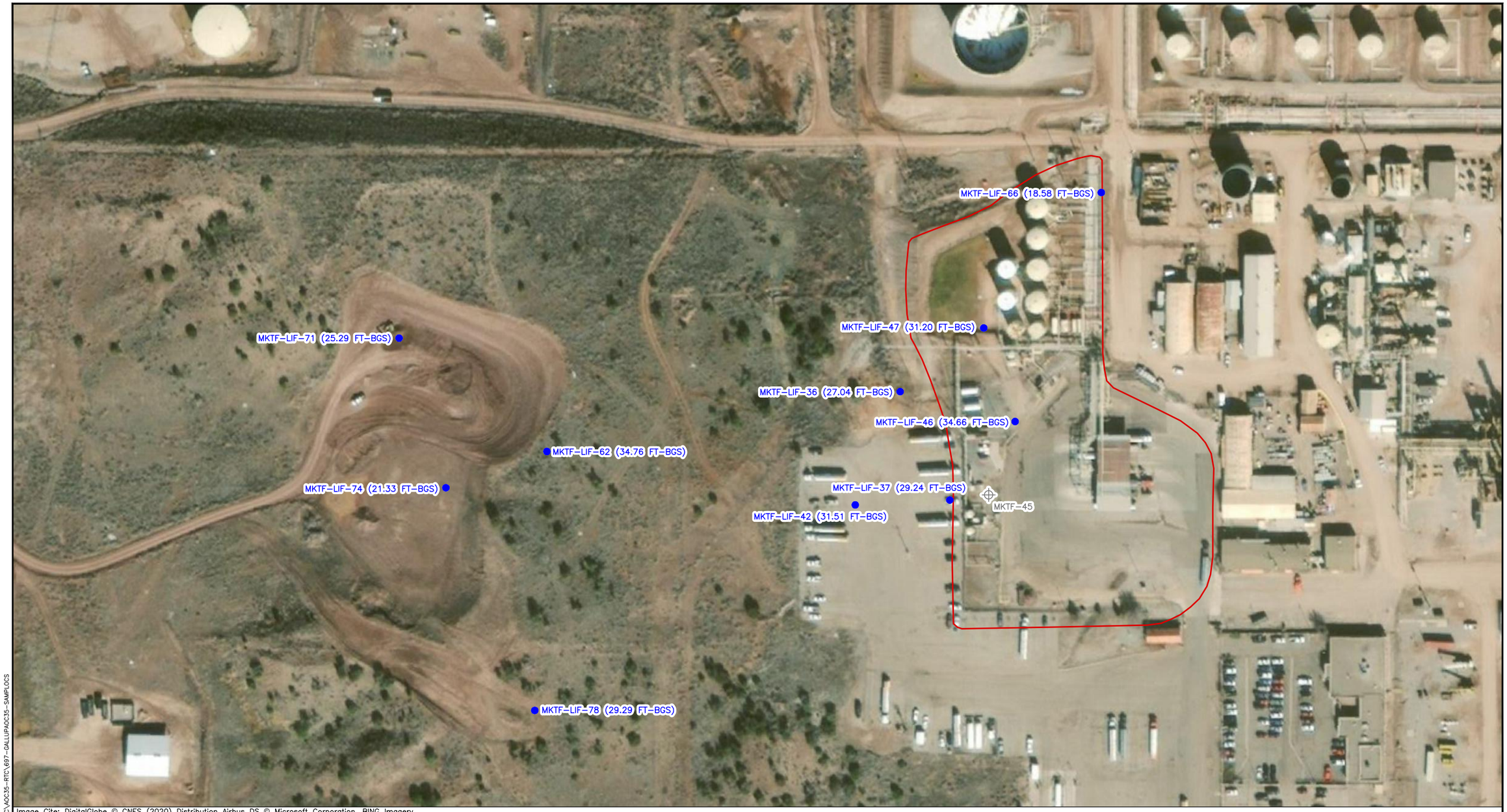



Image Cite: DigitalGlobe © CNES (2020) Distribution Airbus DS © Microsoft Corporation, BING Imagery

M:\TON\MARATHON\GIS\GALLUP_REPORTS\AOC\AOC35-RTE\697-GALLUPAOC35-SAMPLOCS

## EXPLANATION

MKTF-LIF-78 (29.29 FT-BGS) — EXISTING LIF/HP BORING LOCATION (DEPTH IN PARENTHESES) AND PROPOSED SOIL SAMPLE LOCATION

MKTF-45 — MONITORING WELL LOCATION

AOC 35 BOUNDARY

N

0 140'

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

**FIGURE 8**

**PROPOSED INVESTIGATION LOCATIONS**

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

| Drawn By: REP | Checked By: MS | Scale: 1" = 140' | Date: 8/20/2021 | File: 697-GALLUPAOC35-SAMPLOCS |
|---|---|---|---|---|




# Appendix A - Power Service Safety Data Sheet, Diesel Fuel Additive

# POWER SERVICE PRODUCTS, INC.
# SAFETY DATA SHEET

## SECTION 1 - IDENTIFICATION

**PRODUCT NAME:** DIESEL 9•1•1

Unless otherwise noted, all sections of this MSDS apply to each of the following products and part numbers.

**PART NUMBERS**:

8016-09, 8025-09, 8025-12, 8080-06, 8050-02, 8055-01, 8260-01 18016-09, 18025-12, 18080-06

**COMPANY IDENTIFICATION:**

Power Service Products, Inc.
P.O. Box 1089
Weatherford, TX 76086
Email: psp@powerservice.com
Phone: 800/643-9089 or 817-599-9486
Fax: 817-599-4893

**Emergency Phone Number:** Within USA 1-800-424-9300. Outside USA 001-703-527-3887 (Call Collect).

**RECOMMENDED USES:** Diesel fuel additive

## SECTION 2 - HAZARD(S) IDENTIFICATION

**CLASSIFICATION UNDER 29 CFR 1910.1200(d)**

***(NC=product does not meet classification criteria)***

| Health Hazard Criteria | Category |
|---|---|
| Acute Toxicity, Oral: | NC |
| Acute Toxicity, Dermal: | NC |
| Acute Toxicity, Inhalation, Vapors: | NC |
| Skin Corrosion/Irritation: | 2 |
| Serious Eye Damage/Eye Irritation: | 2 |
| Respiratory Sensitization: | NC |
| Skin Sensitization: | NC |
| Germ Cell Mutagenicity: | NC |

| Health Hazard Criteria | Category |
|---|---|
| Carcinogenicity: | NC |
| Reproductive Toxicity: | NC |
| Specific Target Organ Toxicity, Single Exposure: | 3 |
| Specific Target Organ Toxicity, Repeated or Prolonged Exposure: | NC |
| Aspiration Hazard: | 1 |

| Physical Properties Criteria | Category |
|---|---|
| Explosives: | NC |
| Flammable Gases: | NC |
| Flammable Aerosols: | NC |
| Oxidizing Gases: | NC |
| Gases Under Pressure: | NC |
| Flammable Liquids: | 3 |
| Flammable Solids: | NC |
| Self-Reactive Chemicals: | NC |
| Pyrophoric Liquids: | NC |
| Pyrophoric Solids: | NC |
| Self-Heating Chemicals: | NC |
| Chemicals Which, in Contact with Water, Emit Flammable Gases: | NC |
| Oxidizing Liquids: | NC |
| Oxidizing Solids: | NC |
| Organic Peroxides: | NC |
| Corrosive to Metals: | NC |

**LABEL SIGNAL WORD, HAZARD STATEMENTS, SYMBOLS AND PRECAUTIONARY STATEMENTS UNDER 29 CFR 1910.1200(f):**

***Please see the Note regarding product labeling in Section 16.***

## Signal Word(s): Danger

**Hazard Statement(s):** Flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin and serious eye irritation. May cause respiratory irritation.

**Symbols:**

**Precautionary Statement(s):** Keep away from sparks and open flames. No smoking. Keep container tightly closed. Use only non-sparking tools. Ground/Bond container and receiving equipment. Use explosion-proof pumps when pumping. Take precautionary measures against static discharge. Avoid breathing vapors. Use only outdoors or in a well-ventilated area. Wash

hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves and eye protection. Store locked up and in cool, well ventilated place. KEEP OUT OF REACH OF CHILDREN.

**Hazards Not Otherwise Classified: None**

## SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

The specific chemical identity and exact concentration percentage has been withheld as a Trade Secret. Specific chemical information will be made available to health professionals in accordance with 29 CFR 1910.1200.

**INGREDIENTS CLASSIFIED AS HEALTH HAZARDS**

| Chemical Name | Common Name/Synonyms | CAS Number | Concentration (%) |
|---|---|---|---|
| Aliphatic hydroxy hydrocarbons | Trade secret | Trade secret | 20 - 90 |
| Petroleum Distillates | Trade secret | Trade secret | 10 - 30 |

## SECTION 4 - FIRST AID MEASURES

As a precaution, exposure to liquids, vapors, mists and fumes should be minimized.

**EYE CONTACT:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice.

**SKIN CONTACT:** Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs get medical advice/attention.

**INHALATION:** Remove person to fresh air and keep comfortable for breathing. Call a doctor.

**INGESTION:** If swallowed, IMMEDIATELY call a doctor. Do NOT induce vomiting.

## SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

**EXTINGUISHING MEDIA:** Use water fog, alcohol-resistant foam, dry chemical or carbon dioxide ($CO_2$) to extinguish flames.

**SPECIFIC HAZARDS:** Vapors are heavier than air and may travel along the ground to a distant ignition source and flash back. See Section 10 for Stability and Reactivity. **NOTE:** EMPTY CONTAINERS CONTAIN COMBUSTIBLE VAPORS THAT CAN CAUSE FLASH FIRES OR EXPLOSIONS. CONTAINERS ARE SINGLE-TRIP CONTAINERS AND SHOULD NOT BE USED FOR ANY REASON AFTER BEING EMPTIED. DO NOT USE CUTTING TORCH

EQUIPMENT OR ANY OTHER FLAME OR OTHER SOURCES OF IGNITION ON ANY EMPTY CONTAINER.

**PROTECTIVE EQUIPMENT AND PRECAUTIONS**: Use standard protective equipment including self-contained breathing apparatus (SCBA).

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES:** Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas. Eliminate all sources of ignition in the vicinity of the spill or released vapor. See Section 2 for Hazards Identification. See Section 4 for First Aid Measures. See Section 5 for Fire Fighting Information. See Section 8 for Personal Protective Equipment.

**SPILL CONTAINMENT AND CLEAN-UP:** Eliminate potential sources of ignition. Stop leak if it can be done without risk. Dike and contain spill. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. A vapor suppressing foam may be used to reduce vapors. Local, state and federal laws and/or regulations may apply to releases and disposal of this material, as well as those materials and items employed in the clean-up releases. The user/responder will need to determine which local, state and federal laws and/or regulations are applicable. The National Response Center can be reached at 1-800-424-8802.

## SECTION 7 - HANDLING AND STORAGE

**PRECAUTIONS FOR SAFE HANDLING**: Avoid contact with eyes and skin. Use only with adequate ventilation. Use proper bonding and/or grounding procedures. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Keep away from ignition sources such as heat, sparks, and flames. No smoking.

**CONDITIONS FOR SAFE STORAGE:** DO NOT USE OR STORE near heat, sparks, or flame. USE AND STORE ONLY IN A WELL-VENTILATED AREA. Handle containers with care. Keep container closed when not in use. Store locked up.

**STORAGE TEMPERATURE:** -40°F to 100°F (-40°C to 38°C)

**EMPTY CONTAINER WARNING:** EMPTY CONTAINERS MAY CONTAIN FLAMMABLE VAPORS AND CAN BE DANGEROUS. SEE SECTION 5 FOR FIRE AND EXPLOSION HAZARD DATA.

## SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE GUIDELINES:

| | CAS # | OSHA | ACGIH | | NIOSH | | | |
|---|---|---|---|---|---|---|---|---|
| | | PEL | TLV | STEL | REL | STEL | IDLH | Note |
| Ethylbenzene | 100-41-4 | 100 ppm | 20 ppm | not est. | 100 ppm | 125 ppm | 800 ppm (LEL) | n/a |
| Xylene, mixed isomers | 1330-20-7 | 100 ppm | 100 ppm | 150 ppm | 100 ppm | 150 ppm | 900 ppm (LEL) | n/a |
| Cumene | 98-82-8 | 50 ppm | 50 ppm | not est | 50 ppm | not est. | 900 ppm (LEL) | Skin |
| Petroleum Distillates | n/a | 500 ppm | not est. | not est | not est | not est | not est | n/a |

**ENGINEERING CONTROLS:** The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Local exhaust ventilation is recommended to control exposure.

### PERSONAL PROTECTIVE EQUIPMENT (PPE):

**Eyes and Face:** Eye protection such as safety glasses or chemical goggles is recommended if contact is likely.

**Skin:** If prolonged or repeated skin contact is likely, chemical/oil resistant clothing and gloves are recommended. Wear additional protective clothing as appropriate.

**Respiratory:** Wear a NIOSH/MSHA approved respirator as necessary.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Practice good housekeeping.

**NOTE:** These precautions are for room temperature handling.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance** | Liquid, straw yellow |
| **Odor** | Strong solvent |
| **Odor Threshold** | Not available |
| **pH** | Not applicable |
| **Melting point/Freezing point** | Not available |
| **Initial Boiling Point and Boiling Range** | 187.7°F (86.5°C) |
| **Flash Point** | 74°F (TCC) 23°C |
| **Evaporation Rate** | Not available |
| **Flammability** | Not available |
| **Upper / lower Flammability or Explosive Limits** | Not available |
| **Vapor Pressure** | Not available |

| | |
|---|---|
| **Vapor Density** | Not available |
| **Relative Density/Specific Gravity (at 60°F)** | 0.8400 |
| **Solubility** | Not available |
| **Partition Coefficient; n-octanol / water** | Not available |
| **Auto-ignition Temperature** | Not available |
| **Decomposition temperature** | Not available |
| **Viscosity** | Not available |
| **Pour Point** | <-159°F (-106°C) |

## SECTION 10 - STABILITY AND REACTIVITY

**REACTIVITY: see Incompatible Materials below**

**CHEMICAL STABILITY:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**CONDITIONS TO AVOID:** Flames, high energy ignition sources, and elevated temperatures.

**INCOMPATIBLE MATERIALS:** May react with oxygen, oxidizing agents, such as; chlorates, nitrates, peroxides, etc., amines, caustics, alkanolamines halogens, chlorine.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon oxides, products of incomplete combustion.

**HAZARDOUS POLYMERIZATION**:
Hazardous polymerization will not occur.

## SECTION 11 - TOXICOLOGICAL INFORMATION

**LIKELY ROUTES OF EXPOSURE**

| INGESTION | INHALATION | SKIN CONTACT | EYE CONTACT | SKIN ABSORPTION |
|---|---|---|---|---|
| | X | X | X | X |

**SYMPTOMS RELATED TO PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:** Breathing of high vapor concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. The vapor or fumes from this material may cause respiratory irritation. Breathing this material at elevated concentrations causes central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors, or convulsions, loss of consciousness, coma or death.

**DELAYED AND IMMEDIATE EFFECTS AND CHRONIC EFFECTS FROM SHORT- AND LONG-TERM EXPOSURE:** Repeated skin exposure to a component of this product may cause

irritation, even a burn; may cause a more severe response on covered skin, such as under clothing or gloves. Inhalation exposure to a component of this product has caused fetotoxicity in the presence of maternal toxicity in animals.

**NUMERICAL MEASURES OF TOXICITY**
Note: the information provided below are estimates; testing of the product is not available.

| Acute Oral Toxicity ($ATE_{mix}$ estimate) | Acute Dermal Toxicity ($ATE_{mix}$ estimate) | Acute Inhalation ($ATE_{mix}$ estimate) |
|---|---|---|
| Does not meet criteria | Does not meet criteria | Does not meet criteria |

**SENSITIZATION**: No information available.

**MUTAGENICITY**: No information available.

**CARCINOGENICITY LISTINGS – the following chemicals are listed as indicated:**

| Chemical | List |
|---|---|
| Cumene | IARC, NTP |
| Ethylbenzene | IARC |

**REPODUCTIVE TOXICITY**: No information available.

**TERATOGENICITY/EMBRYOTOXICITY:** This product contains a component of a complex mixture (Xylenes (1330-20-7)) that has been shown to cause teratogenicity and/or embryotoxicity.

**SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE**): Respiratory tract irritation.

**SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE):** No information available

**ASPIRATION HAZARD**: Aspiration hazard identified.

## SECTION 12 - ECOLOGICAL INFORMATION

**ECOTOXICITY:**
This material is expected to be toxic to aquatic organisms.

**PERSISTENCE AND DEGRADABILITY**: No information available.

**BIOACCUMULATIVE POTENTIAL**: No information available.

**MOBILITY IN SOIL**: No information available.

**OTHER ADVERSE EFFECTS**: No information available.

## SECTION 13 - DISPOSAL CONSIDERATIONS

**RCRA Information:** Disposal of unused product may be subject to RCRA hazardous waste regulations (40 CFR Part 261). Disposal of the used product may also be regulated as hazardous waste due to resulting mixture characteristics, mixture components or product use. Such changes to the product may result in different and/or additional hazardous waste codes. Potential RCRA waste code based on the product as shipped: D001 IGNITABILITY.

State or local laws may impose additional regulatory requirements regarding disposal. *Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.*

**EMPTY CONTAINER WARNING:** EMPTY CONTAINERS MAY CONTAIN FLAMMABLE VAPORS AND CAN BE DANGEROUS. SEE SECTION 5 FOR FIRE AND EXPLOSION HAZARD DATA.

## SECTION 14 - TRANSPORTATION INFORMATION

**The following part numbers are classified as Limited Quantities:**

8016-09, 8025-09, 8025-12, 8080-06, 18016-09, 18025-12, 18080-06

**The following part numbers are regulated by DOT:**

8050-02, 8055-01, 8260-01

**PROPER SHIPPING NAME:** Flammable Liquid, N.O.S., (Aliphatic Hydroxy Hydrocarbons)
**HAZARD CLASS**: 3
**I.D. NUMBER**: UN 1993
**PACKING GROUP**: III
**PLACARDING**: Flammable Liquid

**Air shipment is not recommended.**

## SECTION 15 - REGULATORY INFORMATION

### §14(a) Consumer Product Safety Act General Certificate of Conformity

Power Service Products, Inc. certifies that this product meets the statutory and regulatory requirements of the US Consumer Products Safety Act, the Federal Hazardous Substances Act, and the Poison Prevention Packaging Act of 1970, as applicable. The Power Service products are manufactured in the United States in Weatherford, Texas, unless otherwise indicated on the product label. The product manufacture lot code is stamped on the product container. This Certification is based upon a reasonable testing program conducted by Power Service Products, Inc. which includes a quality control program incorporating, as necessary, confirmation of compliance by component suppliers. Third-party testing is not required to certify compliance.

Further details may be obtained by contacting the Power Service Products, Inc. EHS Manager at 1-800-643-9089.

---

Contents of this SDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200

**TSCA STATUS:**
All chemical substances found in this product comply with the Toxic Substances Control Act inventory reporting requirements.

**EPA SARA TITLE III CHEMICAL LISTINGS:**

**Section 302 Extremely Hazardous Substances:** None

**Sections 311/ 312 Hazard Class**:
Acute Health Effects: Yes Sudden Release of Pressure Hazard: No
Chronic Health Effects: Yes Reactivity Hazard: No
Fire Hazard: Yes

**NFPA (NATIONAL FIRE PROTECTION ASSOCIATION) RATING:**
HEALTH: **2**
FIRE: **3**
REACTIVITY: **0**

**Section 313:**
Specific chemical information is being withheld as a Trade Secret. The following chemicals subject to the reporting requirements of EPCRA Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (40 CFR Part 372) may be present in this product at a concentration that does not exceed the specified upper weight percentage.

| CAS Number | Chemical Name | Max % |
|---|---|---|
| 100-41-4 | Ethylbenzene | 10.0 |
| 1330-20-7 | Xylene, mixed isomers | 3.0 |

State or local laws may impose additional regulatory requirements for components of this material. It is the responsibility solely of the Employer to maintain compliance with State and Local reporting.

**CA Proposition 65**
⚠ **WARNING:** Cancer and Reproductive Harm – www.P65Warnings.ca.gov.

## SECTION 16 – OTHER INFORMATION

**DATE OF PREPARATION / REVISION**: January 6, 2017

**NOTE regarding product labeling: The OSHA Hazard Communication Standard applies to hazardous chemicals known to be present in the workplace. However, the labeling and Safety Data Sheet requirements do not apply to consumer products when they are used in the workplace for the purposes intended by the manufacturer and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the intended purpose. Power Service Products intends for product packaged in 1 gallon or smaller containers to be used by consumers and has labeled those containers as required under the Consumer Product Safety Commission regulations. Power Service Products intends for product packaged in containers larger than 1 gallon to be used in the workplace and has labeled those products as required by the OSHA Hazard Communication Standard. The Consumer Product Safety Commission and OSHA Hazard Communication Standard labeling requirements are different and variations between the consumer and industrial labels may occur. It is the employer's responsibility to purchase the appropriate product for use in the workplace.**

The information contained herein is offered in good faith and is believed to be accurate based on the data available to us as of the date of SDS preparation. The information in this document applies to this specific product as supplied. It may not be appropriate for this product if the product is used in combination with other materials. The information in this document is not intended to constitute product performance information. Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product. No statement shall be construed as an endorsement of any product or process. The recommended industrial hygiene and safe handling procedures are believed to be valid in the context of the intended use as described in product labeling. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. You are urged to obtain material safety data sheets for all products you buy, process, use or distribute, and are encouraged to advise those who may come in contact with such products of the information contained therein. Regulatory requirements are subject to change and may differ between locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. No warranty or guarantee is expressed or implied with respect to this product, the accuracy and sufficiency of the data or recommendations herein, or the results to be obtained from the use of this product. IN NO EVENT SHALL POWER SERVICE PRODUCTS, INC. BE LIABLE FOR ANY LOSS, CLAIM, DAMAGE OR LIABILITY OF ANY KIND, WHICH MAY ARISE FROM OR IN CONNECTION WITH THE INFORMATION CONTAINED IN THIS DOCUMENT OR FROM THE USE, HANDLING OR STORAGE OF THE PRODUCT BY THE BUYER/USER, WHETHER DIRECT, INDIRECT, OR CONSEQUENTIAL, OR FOR ANY CLAIM BY ANY THIRD PARTY, BEYOND THE PURCHASE PRICE OR REPLACEMENT OF THE PRODUCT IN CONNECTION WITH WHICH SUCH LOSS, CLAIM, DAMAGE OR LIABILITY AROSE.

THE FOREGOING LIMITATIONS APPLY REGARDLESS OF THE CAUSES OR CIRCUMSTANCES GIVING RISE TO SUCH LOSS, CLAIM, DAMAGE OR LIABILITY, EVEN IF SUCH LOSS, CLAIM, DAMAGE, OR LIABILITY IS BASED ON NEGLIGENCE OR OTHER TORTS OR BREACH OF CONTRACT.

# Appendix B - Fluid Levels

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/14/13 | MKTF-01 | 03/11/15 | 4.00 | 17.42 | ND | 0.00 | 5.85 | 6,914.82 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 06/09/15 | 4.00 | 17.42 | ND | 0.00 | 7.15 | 6,913.52 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 08/21/15 | 4.00 | 17.42 | ND | 0.00 | 6.23 | 6,914.44 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 11/04/15 | 4.00 | 17.42 | ND | 0.00 | 5.87 | 6,914.80 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 02/24/16 | 4.00 | 17.42 | ND | 0.00 | 5.84 | 6,914.83 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 06/10/16 | 4.00 | 17.42 | ND | 0.00 | 7.02 | 6,913.65 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 09/07/16 | 4.00 | 17.42 | 7.12 | 1.50 | 8.62 | 6,912.05 | 6,913.25 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 11/04/16 | 4.00 | 17.42 | ND | 0.00 | 5.87 | 6,914.80 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 03/14/17 | 4.00 | 17.42 | 4.65 | 0.16 | 4.81 | 6,915.86 | 6,915.99 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 06/07/17 | 4.00 | 17.42 | 4.89 | 0.53 | 5.42 | 6,915.25 | 6,915.67 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 10/03/17 | 4.00 | 17.42 | 6.20 | 0.36 | 6.56 | 6,914.11 | 6,914.40 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 11/20/17 | 4.00 | 17.42 | 4.62 | 0.33 | 4.95 | 6,915.72 | 6,915.98 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 02/07/18 | 4.00 | 17.42 | 5.05 | 0.35 | 5.40 | 6,915.27 | 6,915.55 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 04/25/18 | 4.00 | 17.35 | 6.22 | 0.30 | 6.52 | 6,914.15 | 6,914.39 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 08/15/18 | 4.00 | 17.27 | 6.40 | 0.31 | 6.71 | 6,913.96 | 6,914.21 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 11/27/18 | 4.00 | 17.42 | 5.50 | 0.37 | 5.87 | 6,914.80 | 6,915.10 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 02/19/19 | 4.00 | 17.42 | 4.40 | 0.34 | 4.74 | 6,915.93 | 6916.20 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 05/06/19 | 4.00 | 17.42 | 4.39 | 0.35 | 4.74 | 6,915.93 | 6916.21 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 08/30/19 | 4.00 | 17.42 | 4.58 | 0.37 | 4.95 | 6,915.72 | 6916.02 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 11/19/19 | 4.00 | 17.42 | 5.14 | 0.31 | 5.45 | 6,915.22 | 6915.47 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 02/24/20 | 4.00 | 17.42 | 4.87 | 0.29 | 5.16 | 6,915.51 | 6915.74 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 06/26/20 | 4.00 | 17.42 | 5.50 | 0.21 | 5.71 | 6,914.96 | 6915.13 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 09/15/20 | 4.00 | 17.48 | 5.61 | 0.01 | 5.62 | 6,914.96 | 6914.97 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 11/10/20 | 4.00 | 17.48 | 5.61 | 0.28 | 5.89 | 6,914.96 | 6915.18 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 12/03/20 | 4.00 | 17.43 | 5.74 | 0.28 | 6.02 | 6,914.96 | 6915.18 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 01/28/21 | 4.00 | 17.43 | 7.60 | 0.48 | 8.08 | 6,914.96 | 6915.34 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 02/28/21 | 4.00 | 17.45 | 5.70 | 0.23 | 5.93 | 6,914.96 | 6915.14 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 03/31/21 | 4.00 | 17.45 | 6.09 | 0.24 | 6.33 | 6,914.96 | 6915.15 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 04/26/21 | 4.00 | 17.45 | 5.88 | 0.34 | 6.22 | 6,914.96 | 6915.23 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 05/20/21 | 4.00 | 17.45 | 6.41 | 0.36 | 6.77 | 6,914.96 | 6915.25 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-01 | 06/01/21 | 4.00 | 17.38 | 5.81 | 0.31 | 6.12 | 6,914.96 | 6915.21 | 5 - 15 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/14/13 | MKTF-02 | 03/11/15 | 4.00 | 20.48 | ND | 0.00 | 6.88 | 6,910.57 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 06/09/15 | 4.00 | 20.48 | ND | 0.00 | 7.55 | 6,909.90 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 08/21/15 | 4.00 | 20.48 | ND | 0.00 | 7.30 | 6,910.15 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 11/04/15 | 4.00 | 20.48 | ND | 0.00 | 7.25 | 6,910.20 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 02/24/16 | 4.00 | 20.48 | ND | 0.00 | 7.22 | 6,910.23 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 06/10/16 | 4.00 | 20.48 | ND | 0.00 | 8.09 | 6,909.36 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 09/07/16 | 4.00 | 20.48 | ND | 0.00 | 8.28 | 6,909.17 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 11/04/16 | 4.00 | 20.48 | ND | 0.00 | 7.25 | 6,910.20 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 03/16/17 | 4.00 | 20.48 | ND | 0.00 | 7.34 | 6,910.11 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 06/07/17 | 4.00 | 20.48 | 7.10 | 0.01 | 7.11 | 6,910.34 | 6,910.35 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 10/03/17 | 4.00 | 20.48 | ND | 0.00 | 6.67 | 6,910.78 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 11/20/17 | 4.00 | 20.35 | ND | 0.00 | 7.00 | 6,910.45 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 02/06/18 | 4.00 | 20.34 | ND | 0.00 | 7.44 | 6,910.01 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 04/25/18 | 4.00 | 20.36 | ND | 0.00 | 7.95 | 6,909.50 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 08/15/18 | 4.00 | 20.43 | ND | 0.00 | 8.40 | 6,909.05 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 11/27/18 | 4.00 | 20.35 | ND | 0.00 | 8.40 | 6,909.05 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 03/28/19 | 4.00 | 20.48 | ND | 0.00 | 6.34 | 6,911.11 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 05/06/19 | 4.00 | 20.48 | ND | 0.00 | 6.24 | 6,911.21 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 08/23/19 | 4.00 | 20.43 | ND | 0.00 | 7.05 | 6,910.40 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 11/19/19 | 4.00 | 20.35 | ND | 0.00 | 7.14 | 6,910.31 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 02/24/20 | 4.00 | 20.48 | ND | 0.00 | 6.52 | 6,910.93 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 06/26/20 | 4.00 | 20.48 | ND | 0.00 | 7.70 | 6,909.75 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 09/15/20 | 4.00 | 20.54 | ND | 0.00 | 7.88 | 6,909.57 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 11/10/20 | 4.00 | 20.54 | ND | 0.00 | 7.43 | 6,910.02 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 12/03/20 | 4.00 | 20.54 | ND | 0.00 | 7.72 | 6,909.73 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 01/28/21 | 4.00 | 20.54 | ND | 0.00 | 7.75 | 6,909.70 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 02/28/21 | 4.00 | 20.54 | ND | 0.00 | 7.14 | 6,910.31 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 03/31/21 | 4.00 | 20.54 | ND | 0.00 | 7.84 | 6,909.61 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 04/26/21 | 4.00 | 20.54 | ND | 0.00 | 7.78 | 6,909.67 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 05/20/21 | 4.00 | 20.54 | ND | 0.00 | 8.11 | 6,909.34 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-02 | 06/01/21 | 4.00 | 20.54 | ND | 0.00 | 8.02 | 6,909.43 | NA | 7 - 17 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/07/13 | MKTF-03 | 03/17/15 | 4.00 | 18.45 | 8.46 | 0.80 | 9.26 | 6,922.43 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 06/04/15 | 4.00 | 18.45 | 8.70 | 0.62 | 9.32 | 6,922.37 | 6,922.87 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 08/18/15 | 4.00 | 18.45 | 8.09 | 0.82 | 8.91 | 6,922.78 | 6,923.44 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 11/03/15 | 4.00 | 18.45 | 8.30 | 1.10 | 9.40 | 6,922.29 | 6,923.17 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 03/17/16 | 4.00 | 18.45 | 8.46 | 0.80 | 9.26 | 6,922.43 | 6,923.07 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 06/09/16 | 4.00 | 18.45 | 7.55 | 4.28 | 11.83 | 6,919.86 | 6,923.28 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 09/12/16 | 4.00 | 18.45 | 7.92 | 2.40 | 10.32 | 6,921.37 | 6,923.29 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 11/03/16 | 4.00 | 18.45 | 8.30 | 1.10 | 9.40 | 6,922.29 | 6,923.17 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 03/02/17 | 4.00 | 18.45 | 6.42 | 1.17 | 7.59 | 6,924.10 | 6,925.04 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 06/07/17 | 4.00 | 18.45 | 6.95 | 1.30 | 8.25 | 6,923.44 | 6,924.48 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 09/26/17 | 4.00 | 18.45 | 6.35 | 0.80 | 7.15 | 6,924.54 | 6,925.18 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 11/28/17 | 4.00 | 18.45 | 7.00 | 0.95 | 7.95 | 6,923.74 | 6,924.50 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 02/08/18 | 4.00 | 18.45 | 7.40 | 0.85 | 8.25 | 6,923.44 | 6,924.12 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 04/25/18 | 4.00 | 18.45 | 7.30 | 0.92 | 8.22 | 6,923.47 | 6,924.21 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 08/16/18 | 4.00 | 18.53 | 7.30 | 0.95 | 8.25 | 6,923.44 | 6,924.20 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 11/19/18 | 4.00 | 18.45 | 6.85 | 1.00 | 7.85 | 6,923.84 | 6,924.64 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 03/25/19 | 4.00 | 18.45 | 4.50 | 1.10 | 5.60 | 6,926.09 | 6,926.97 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 05/13/19 | 4.00 | 18.45 | 4.55 | 1.11 | 5.66 | 6,926.03 | 6,926.92 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 08/21/19 | 4.00 | 18.53 | 6.04 | 1.23 | 7.27 | 6,924.42 | 6,925.40 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 10/30/19 | 4.00 | 18.45 | 6.70 | 1.30 | 8.00 | 6,923.69 | 6,924.73 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 03/05/20 | 4.00 | 18.45 | 6.47 | 1.37 | 7.84 | 6,923.85 | 6924.95 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 06/26/20 | 4.00 | 18.45 | 7.36 | 1.27 | 8.63 | 6,923.06 | 6924.08 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 09/15/20 | 4.00 | 18.59 | 7.08 | 0.01 | 7.09 | 6,924.60 | 6924.61 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 11/10/20 | 4.00 | 18.59 | 7.13 | 1.30 | 8.43 | 6,923.26 | 6924.30 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 12/03/20 | 4.00 | 18.58 | 7.46 | 1.16 | 8.62 | 6,923.07 | 6924.00 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 12/26/20 | 4.00 | 18.57 | 7.83 | 0.91 | 8.74 | 6,922.95 | 6923.68 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 01/28/21 | 4.00 | 18.57 | 7.80 | 0.93 | 8.73 | 6,922.96 | 6923.70 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 02/28/21 | 4.00 | 18.62 | 7.46 | 0.93 | 8.39 | 6,923.30 | 6924.04 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 03/31/21 | 4.00 | 18.62 | 7.20 | 1.03 | 8.23 | 6,923.46 | 6924.28 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 04/26/21 | 4.00 | 18.62 | 7.11 | 0.80 | 7.91 | 6,923.78 | 6924.42 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 05/20/21 | 4.00 | 18.62 | 7.28 | 1.09 | 8.37 | 6,923.32 | 6924.19 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-03 | 06/01/21 | 4.00 | 18.62 | 7.33 | 1.13 | 8.46 | 6,923.23 | 6924.13 | 3 - 18 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12/13 | MKTF-04 | 03/16/15 | 4.00 | 22.15 | ND | 0.00 | 10.25 | 6,923.32 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 06/04/15 | 4.00 | 22.15 | ND | 0.00 | 11.00 | 6,922.57 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 08/18/15 | 4.00 | 22.15 | ND | 0.00 | 10.64 | 6,922.93 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 11/03/15 | 4.00 | 22.15 | ND | 0.00 | 4.23 | 6,929.34 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 02/29/16 | 4.00 | 22.15 | ND | 0.00 | 10.68 | 6,922.89 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 06/09/16 | 4.00 | 22.15 | ND | 0.00 | 10.30 | 6,923.27 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 09/11/16 | 4.00 | 22.15 | ND | 0.00 | 10.23 | 6,923.34 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 11/03/16 | 4.00 | 22.15 | ND | 0.00 | 10.40 | 6,923.17 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 03/02/17 | 4.00 | 22.15 | ND | 0.00 | 8.31 | 6,925.26 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 06/07/17 | 4.00 | 22.15 | ND | 0.00 | 9.28 | 6,924.29 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 09/26/17 | 4.00 | 22.15 | ND | 0.00 | 8.80 | 6,924.77 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 11/29/17 | 4.00 | 22.30 | ND | 0.00 | 9.30 | 6,924.27 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 02/14/18 | 4.00 | 22.37 | ND | 0.00 | 9.85 | 6,923.72 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 04/25/18 | 4.00 | 22.29 | ND | 0.00 | 9.70 | 6,923.87 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 08/16/18 | 4.00 | 22.39 | ND | 0.00 | 9.70 | 6,923.87 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 11/19/18 | 4.00 | 22.30 | ND | 0.00 | 8.39 | 6,925.18 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 03/25/19 | 4.00 | 22.15 | ND | 0.00 | 6.45 | 6,927.12 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 05/13/19 | 4.00 | 22.15 | ND | 0.00 | 6.55 | 6,927.02 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 08/21/19 | 4.00 | 22.39 | ND | 0.00 | 8.27 | 6,925.30 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 10/30/19 | 4.00 | 22.30 | ND | 0.00 | 8.93 | 6,924.64 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 03/02/20 | 4.00 | 22.21 | ND | 0.00 | 8.47 | 6,925.10 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 06/26/20 | 4.00 | 22.15 | ND | 0.00 | 9.75 | 6,923.82 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 09/15/20 | 4.00 | 22.72 | 9.39 | 0.01 | 9.40 | 6,924.17 | 6924.18 | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 11/10/20 | 4.00 | 22.72 | ND | 0.00 | 9.20 | 6,924.37 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 12/03/20 | 4.00 | 22.72 | 9.70 | 0.01 | 9.71 | 6,923.86 | 6923.87 | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 01/28/21 | 4.00 | 22.72 | ND | 0.00 | 10.14 | 6,923.43 | NA | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 02/28/21 | 4.00 | 22.72 | 9.84 | 0.12 | 9.96 | 6,923.61 | 6923.71 | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 03/31/21 | 4.00 | 22.72 | 9.21 | 0.02 | 9.23 | 6,924.34 | 6924.36 | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 04/26/21 | 4.00 | 22.72 | 9.20 | 0.02 | 9.22 | 6,924.35 | 6924.37 | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 05/20/21 | 4.00 | 22.72 | 9.28 | 0.10 | 9.38 | 6,924.19 | 6924.27 | 10 - 22 | Chinle/Alluvium Interface |
| | MKTF-04 | 06/01/21 | 4.00 | 22.72 | 9.19 | 0.03 | 9.22 | 6,924.35 | 6924.37 | 10 - 22 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/20/13 | MKTF-05 | 03/16/15 | 4.00 | 17.75 | 15.72 | 0.36 | 16.08 | 6,926.14 | 6,926.43 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 06/04/15 | 4.00 | 17.75 | 15.77 | 0.63 | 16.40 | 6,925.82 | 6,926.32 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 08/18/15 | 4.00 | 17.75 | 15.44 | 0.19 | 15.63 | 6,926.59 | 6,926.74 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/03/15 | 4.00 | 17.75 | 15.47 | 0.84 | 16.31 | 6,925.91 | 6,926.58 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 03/16/16 | 4.00 | 17.75 | 15.72 | 0.36 | 16.08 | 6,926.14 | 6,926.43 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 06/09/16 | 4.00 | 17.75 | 15.34 | 0.53 | 15.87 | 6,926.35 | 6,926.77 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 09/11/16 | 4.00 | 17.75 | 14.74 | 3.04 | 17.78 | 6,924.44 | 6,926.87 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/03/16 | 4.00 | 17.75 | 15.47 | 0.84 | 16.31 | 6,925.91 | 6,926.58 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 03/02/17 | 4.00 | 17.75 | 13.33 | 0.29 | 13.62 | 6,928.60 | 6,928.83 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 06/07/17 | 4.00 | 17.75 | 13.79 | 0.46 | 14.25 | 6,927.97 | 6,928.34 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 09/26/17 | 4.00 | 17.75 | 13.01 | 0.49 | 13.50 | 6,928.72 | 6,929.11 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/28/17 | 4.00 | 17.75 | 13.98 | 0.77 | 14.75 | 6,927.47 | 6,928.09 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 02/08/18 | 4.00 | 17.75 | 14.78 | 0.42 | 15.20 | 6,927.02 | 6,927.36 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 04/25/18 | 4.00 | 17.70 | 14.96 | 0.23 | 15.19 | 6,927.03 | 6,927.21 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 08/16/18 | 4.00 | 17.75 | 14.61 | 0.19 | 14.80 | 6,927.42 | 6,927.57 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/19/18 | 4.00 | 17.75 | 14.62 | 0.21 | 14.83 | 6,927.39 | 6,927.56 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 02/19/19 | 4.00 | 17.75 | 13.87 | 0.10 | 13.97 | 6,928.25 | 6,928.33 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 05/13/19 | 4.00 | 17.75 | 12.95 | 0.17 | 13.12 | 6,929.10 | 6,929.24 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 08/30/19 | 4.00 | 17.75 | 13.40 | 0.20 | 13.60 | 6,928.62 | 6,928.78 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 10/30/19 | 4.00 | 17.75 | 13.90 | 0.30 | 14.20 | 6,928.02 | 6,928.26 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/12/19 | 4.00 | 17.75 | 11.64 | 5.09 | 16.73 | 6,925.49 | 6929.56 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/13/19 | 4.00 | 17.75 | 10.96 | 6.19 | 17.15 | 6,925.07 | 6930.02 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/14/19 | 4.00 | 17.75 | 10.78 | 6.39 | 17.17 | 6,925.05 | 6930.16 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/15/19 | 4.00 | 17.75 | 10.54 | 6.62 | 17.16 | 6,925.06 | 6930.36 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/19/19 | 4.00 | 17.75 | 10.04 | 7.14 | 17.18 | 6,925.04 | 6930.75 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/21/19 | 4.00 | 17.75 | 9.97 | 7.21 | 17.18 | 6,925.04 | 6930.81 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 12/02/19 | 4.00 | 17.75 | 10.64 | 6.53 | 17.17 | 6,925.05 | 6930.27 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 03/05/20 | 4.00 | 17.75 | 13.58 | 0.14 | 13.72 | 6,928.50 | 6928.61 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 06/25/20 | 4.00 | 17.75 | 14.06 | 0.75 | 14.80 | 6,927.42 | 6928.02 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 09/15/20 | 4.00 | 17.83 | 13.65 | 1.03 | 14.68 | 6,927.54 | 6928.36 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 11/10/20 | 4.00 | 17.83 | 14.02 | 0.88 | 14.90 | 6,927.32 | 6928.02 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 12/03/20 | 4.00 | 17.80 | 14.12 | 0.81 | 14.93 | 6,927.29 | 6927.94 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 01/28/21 | 4.00 | 17.80 | 14.94 | 0.19 | 15.13 | 6,927.09 | 6927.24 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 02/28/21 | 4.00 | 17.77 | 14.60 | 0.15 | 14.75 | 6,927.47 | 6927.59 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 03/31/21 | 4.00 | 17.77 | 14.99 | 0.06 | 15.05 | 6,927.17 | 6927.22 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 04/26/21 | 4.00 | 17.77 | 15.03 | 0.14 | 15.17 | 6,927.05 | 6927.16 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 05/20/21 | 4.00 | 17.77 | 15.02 | 0.07 | 15.09 | 6,927.13 | 6927.19 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-05 | 06/01/21 | 4.00 | 17.77 | 14.88 | 0.08 | 14.96 | 6,927.26 | 6927.32 | 4 - 14 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/13 | MKTF-06 | 03/16/15 | 4.00 | 23.77 | 18.24 | 1.70 | 19.94 | 6,926.87 | 6,928.23 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 06/04/15 | 4.00 | 23.77 | 18.56 | 0.84 | 19.40 | 6,927.41 | 6,928.08 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 08/15/15 | 4.00 | 23.77 | 17.53 | 0.86 | 18.39 | 6,928.42 | 6,929.11 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/03/15 | 4.00 | 23.77 | 18.04 | 0.74 | 18.78 | 6,928.03 | 6,928.62 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 03/16/16 | 4.00 | 23.77 | 18.24 | 1.70 | 19.94 | 6,926.87 | 6,928.23 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 06/09/16 | 4.00 | 23.77 | 18.02 | 0.94 | 18.96 | 6,927.85 | 6,928.60 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 09/11/16 | 4.00 | 23.77 | 17.40 | 1.08 | 18.48 | 6,928.33 | 6,929.19 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/03/16 | 4.00 | 23.77 | 18.04 | 0.74 | 18.78 | 6,928.03 | 6,928.62 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 03/15/17 | 4.00 | 23.77 | 15.95 | 0.10 | 16.05 | 6,930.76 | 6,930.84 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 06/12/17 | 4.00 | 23.77 | 16.60 | 0.64 | 17.24 | 6,929.57 | 6,930.08 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 09/26/17 | 4.00 | 23.77 | 16.01 | 0.71 | 16.72 | 6,930.09 | 6,930.66 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/28/17 | 4.00 | 23.77 | 16.55 | 1.15 | 17.70 | 6,929.11 | 6,930.03 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 02/08/18 | 4.00 | 23.77 | 17.14 | 1.38 | 18.52 | 6,928.29 | 6,929.39 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 04/25/18 | 4.00 | 23.72 | 17.29 | 1.32 | 18.61 | 6,928.20 | 6,929.26 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 08/16/18 | 4.00 | 23.79 | 16.83 | 1.17 | 18.00 | 6,928.81 | 6,929.75 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/19/18 | 4.00 | 23.77 | 16.85 | 1.16 | 18.01 | 6,928.80 | 6,929.73 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 02/19/19 | 4.00 | 23.77 | 15.79 | 0.76 | 16.55 | 6,930.26 | 6,930.87 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 05/13/19 | 4.00 | 23.77 | 15.55 | 0.84 | 16.39 | 6,930.42 | 6,931.09 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 08/30/19 | 4.00 | 23.79 | 15.82 | 0.78 | 16.60 | 6,930.21 | 6,930.83 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 10/30/19 | 4.00 | 23.77 | 16.80 | 1.11 | 17.91 | 6,928.90 | 6,929.79 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/12/19 | 4.00 | 23.77 | 16.52 | 0.96 | 17.48 | 6,929.33 | 6930.10 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/13/19 | 4.00 | 23.77 | 16.33 | 0.85 | 17.18 | 6,929.63 | 6930.31 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/14/19 | 4.00 | 23.77 | 16.42 | 0.89 | 17.31 | 6,929.50 | 6930.21 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/15/19 | 4.00 | 23.77 | 16.35 | 0.85 | 17.20 | 6,929.61 | 6930.29 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/19/19 | 4.00 | 23.77 | 16.08 | 0.75 | 16.83 | 6,929.98 | 6930.58 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/21/19 | 4.00 | 23.77 | 15.93 | 1.31 | 17.24 | 6,929.57 | 6930.62 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 12/02/19 | 4.00 | 23.77 | 14.75 | 6.61 | 21.36 | 6,925.45 | 6930.74 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 03/05/20 | 4.00 | 23.77 | 16.89 | 1.71 | 18.60 | 6,928.21 | 6929.58 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 06/25/20 | 4.00 | 23.77 | 14.05 | 4.86 | 18.90 | 6,927.91 | 6931.79 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 09/15/20 | 4.00 | 23.79 | 16.78 | 1.93 | 18.71 | 6,928.10 | 6929.64 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 11/10/20 | 4.00 | 23.79 | 17.20 | 1.39 | 18.59 | 6,928.22 | 6929.33 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 12/03/20 | 4.00 | 23.79 | 17.38 | 1.11 | 18.49 | 6,928.32 | 6929.21 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 01/28/21 | 4.00 | 23.79 | 18.09 | 1.56 | 19.65 | 6,927.16 | 6928.41 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 02/28/21 | 4.00 | 23.85 | 17.93 | 0.72 | 18.65 | 6,928.16 | 6928.74 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 03/31/21 | 4.00 | 23.85 | 17.97 | 0.18 | 18.15 | 6,928.66 | 6928.80 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 04/26/21 | 4.00 | 23.85 | 17.88 | 0.07 | 17.95 | 6,928.86 | 6928.92 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 05/20/21 | 4.00 | 23.85 | 18.01 | 0.12 | 18.13 | 6,928.68 | 6928.78 | 8 - 20 | Chinle/Alluvium Interface |
| | MKTF-06 | 06/01/21 | 4.00 | 23.85 | 18.09 | 0.16 | 18.25 | 6,928.56 | 6928.69 | 8 - 20 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/13 | MKTF-07 | 03/16/15 | 4.00 | 17.62 | 13.10 | 1.13 | 14.23 | 6,932.95 | 6,933.85 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 06/04/15 | 4.00 | 17.62 | 12.95 | 1.65 | 14.60 | 6,932.58 | 6,933.90 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 08/18/15 | 4.00 | 17.62 | 12.71 | 1.13 | 13.84 | 6,933.34 | 6,934.24 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/03/15 | 4.00 | 17.62 | 12.90 | 1.98 | 14.88 | 6,932.30 | 6,933.88 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 03/16/16 | 4.00 | 17.62 | 13.10 | 1.13 | 14.23 | 6,932.95 | 6,933.85 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 06/09/16 | 4.00 | 17.62 | 12.01 | 2.59 | 14.60 | 6,932.58 | 6,934.65 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 09/11/16 | 4.00 | 17.62 | 12.20 | 2.41 | 14.61 | 6,932.57 | 6,934.50 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/03/16 | 4.00 | 17.62 | 12.90 | 1.98 | 14.88 | 6,932.30 | 6,933.88 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 03/15/17 | 4.00 | 17.62 | 10.63 | 1.97 | 12.60 | 6,934.58 | 6,936.16 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 06/12/17 | 4.00 | 17.62 | 10.20 | 1.30 | 11.50 | 6,935.68 | 6,936.72 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 09/26/17 | 4.00 | 17.62 | 9.80 | 1.30 | 11.10 | 6,936.08 | 6,937.12 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/28/17 | 4.00 | 17.62 | 10.40 | 1.40 | 11.80 | 6,935.38 | 6,936.50 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 02/08/18 | 4.00 | 17.62 | 11.33 | 1.22 | 12.55 | 6,934.63 | 6,935.61 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 04/25/18 | 4.00 | 17.58 | 10.84 | 1.18 | 12.02 | 6,935.16 | 6,936.10 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 08/16/18 | 4.00 | 17.47 | 11.42 | 1.08 | 12.50 | 6,934.68 | 6,935.54 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/27/18 | 4.00 | 17.62 | 12.35 | 1.17 | 13.52 | 6,933.66 | 6,934.60 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 02/19/19 | 4.00 | 17.62 | 10.39 | 1.21 | 11.60 | 6,935.58 | 6,936.55 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 05/13/19 | 4.00 | 17.62 | 10.72 | 0.10 | 10.82 | 6,936.36 | 6,936.44 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 08/30/19 | 4.00 | 17.47 | 11.18 | 1.11 | 12.29 | 6,934.89 | 6,935.78 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 10/30/19 | 4.00 | 17.62 | 12.20 | 1.19 | 13.39 | 6,933.79 | 6,934.74 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/12/19 | 4.00 | 17.62 | 12.03 | 1.16 | 13.19 | 6,933.99 | 6934.92 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/13/19 | 4.00 | 17.62 | 11.81 | 1.08 | 12.89 | 6,934.29 | 6935.15 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/14/19 | 4.00 | 17.62 | 11.98 | 1.16 | 13.14 | 6,934.04 | 6934.97 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/15/19 | 4.00 | 17.62 | 12.00 | 1.16 | 13.16 | 6,934.02 | 6934.95 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/19/19 | 4.00 | 17.62 | 11.40 | 2.77 | 14.17 | 6,933.01 | 6935.23 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/21/19 | 4.00 | 17.62 | 10.83 | 5.72 | 16.55 | 6,930.63 | 6935.21 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 12/02/19 | 4.00 | 17.62 | 11.38 | 5.74 | 17.12 | 6,930.06 | 6934.65 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 03/05/20 | 4.00 | 17.62 | 12.50 | 1.22 | 13.72 | 6,933.46 | 6934.44 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 06/25/20 | 4.00 | 17.62 | 12.23 | 1.53 | 13.76 | 6,933.42 | 6934.64 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 09/18/20 | 4.00 | 17.43 | 11.42 | 2.35 | 13.77 | 6,933.41 | 6935.29 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 11/10/20 | 4.00 | 17.43 | 12.56 | 1.20 | 13.76 | 6,933.42 | 6934.38 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 12/03/20 | 4.00 | 17.66 | 12.93 | 0.87 | 13.80 | 6,933.38 | 6934.08 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 01/28/21 | 4.00 | 17.66 | 13.80 | 0.40 | 14.20 | 6,932.98 | 6933.30 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 02/28/21 | 4.00 | 17.86 | 13.51 | 0.21 | 13.72 | 6,933.46 | 6933.63 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 03/31/21 | 4.00 | 17.86 | 13.70 | 0.11 | 13.81 | 6,933.37 | 6933.46 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 04/26/21 | 4.00 | 17.86 | 13.51 | 0.25 | 13.76 | 6,933.42 | 6933.62 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 05/20/21 | 4.00 | 17.86 | 13.68 | 0.13 | 13.81 | 6,933.37 | 6933.47 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-07 | 06/01/21 | 4.00 | 17.86 | 13.52 | 0.11 | 13.63 | 6,933.55 | 6933.64 | 4 - 14 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/13 | MKTF-08 | 03/16/15 | 4.00 | 21.98 | 14.25 | 0.25 | 14.50 | 6,932.59 | 6,932.79 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 06/04/15 | 4.00 | 21.98 | 14.35 | 0.56 | 14.91 | 6,932.18 | 6,932.63 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 08/18/15 | 4.00 | 21.98 | 13.79 | 0.96 | 14.75 | 6,932.34 | 6,933.11 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 11/08/15 | 4.00 | 21.98 | 13.84 | 1.48 | 15.32 | 6,931.77 | 6,932.95 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 03/16/16 | 4.00 | 21.98 | 14.25 | 0.25 | 14.50 | 6,932.59 | 6,932.79 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 06/09/16 | 4.00 | 21.98 | 13.48 | 0.70 | 14.18 | 6,932.91 | 6,933.47 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 09/11/16 | 4.00 | 21.98 | 13.63 | 0.66 | 14.29 | 6,932.80 | 6,933.33 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 11/08/16 | 4.00 | 21.98 | 13.84 | 1.48 | 15.32 | 6,931.77 | 6,932.95 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 03/15/17 | 4.00 | 21.98 | 11.99 | 0.61 | 12.60 | 6,934.49 | 6,934.98 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 06/12/17 | 4.00 | 21.98 | 11.98 | 0.42 | 12.40 | 6,934.69 | 6,935.03 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 09/26/17 | 4.00 | 21.98 | 12.15 | 0.45 | 12.60 | 6,934.49 | 6,934.85 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 11/28/17 | 4.00 | 21.98 | 12.68 | 0.52 | 13.20 | 6,933.89 | 6,934.31 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 02/08/18 | 4.00 | 21.98 | 13.29 | 0.34 | 13.63 | 6,933.46 | 6,933.73 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 04/25/18 | 4.00 | 21.94 | 13.00 | 0.33 | 13.33 | 6,933.76 | 6,934.02 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 08/16/18 | 4.00 | 21.98 | 12.96 | 0.39 | 13.35 | 6,933.74 | 6,934.05 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 11/27/18 | 4.00 | 21.98 | 13.41 | 0.39 | 13.80 | 6,933.29 | 6,933.60 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 02/19/19 | 4.00 | 21.98 | 11.35 | 0.65 | 12.00 | 6,935.09 | 6,935.61 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 05/13/19 | 4.00 | 21.98 | 11.95 | 0.48 | 12.43 | 6,934.66 | 6,935.04 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 08/30/19 | 4.00 | 21.98 | 12.50 | 0.40 | 12.90 | 6,934.19 | 6,934.51 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 10/30/19 | 4.00 | 21.98 | 13.54 | 0.45 | 13.99 | 6,933.10 | 6,933.46 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 11/21/19 | 4.00 | 21.98 | 13.47 | 0.38 | 13.85 | 6,933.24 | 6933.54 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 12/02/19 | 4.00 | 21.98 | 13.72 | 0.41 | 14.13 | 6,932.96 | 6933.29 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 03/05/20 | 4.00 | 21.98 | 14.03 | 0.34 | 14.37 | 6,932.72 | 6932.99 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 06/25/20 | 4.00 | 21.98 | 14.00 | 0.40 | 14.40 | 6,932.69 | 6933.01 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 09/18/20 | 4.00 | 22.00 | 13.76 | 0.39 | 14.15 | 6,932.94 | 6933.25 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 11/10/20 | 4.00 | 22.00 | 14.23 | 0.46 | 14.69 | 6,932.40 | 6932.77 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 12/03/20 | 4.00 | 22.01 | 14.36 | 0.40 | 14.76 | 6,932.33 | 6932.65 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 01/28/21 | 4.00 | 22.01 | 14.84 | 0.31 | 15.15 | 6,931.94 | 6932.19 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 02/28/21 | 4.00 | 22.00 | 14.76 | 0.13 | 14.89 | 6,932.20 | 6932.30 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 03/31/21 | 4.00 | 22.00 | 14.60 | 0.10 | 14.70 | 6,932.39 | 6932.47 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 04/26/21 | 4.00 | 22.00 | 14.64 | 0.11 | 14.75 | 6,932.34 | 6932.43 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 05/20/21 | 4.00 | 22.00 | 14.63 | 0.08 | 14.71 | 6,932.38 | 6932.44 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-08 | 06/01/21 | 4.00 | 22.00 | 14.71 | 0.08 | 14.79 | 6,932.30 | 6932.36 | 8 - 18 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/13 | MKTF-09 | 03/16/15 | 4.00 | 22.70 | ND | 0.00 | 14.48 | 6,932.02 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 06/04/15 | 4.00 | 22.70 | ND | 0.00 | 14.68 | 6,931.82 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 08/18/15 | 4.00 | 22.70 | ND | 0.00 | 14.49 | 6,932.01 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 11/03/15 | 4.00 | 22.70 | ND | 0.00 | 14.29 | 6,932.21 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 02/29/16 | 4.00 | 22.70 | ND | 0.00 | 14.15 | 6,932.35 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 06/09/16 | 4.00 | 22.70 | ND | 0.00 | 13.92 | 6,932.58 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 09/11/16 | 4.00 | 22.70 | ND | 0.00 | 14.20 | 6,932.30 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 11/03/16 | 4.00 | 22.70 | ND | 0.00 | 14.29 | 6,932.21 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 03/15/17 | 4.00 | 22.70 | ND | 0.00 | 12.64 | 6,933.86 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 06/12/17 | 4.00 | 22.70 | ND | 0.00 | 12.64 | 6,933.86 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 09/28/17 | 4.00 | 22.70 | ND | 0.00 | 12.69 | 6,933.81 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 11/29/17 | 4.00 | 22.75 | ND | 0.00 | 13.15 | 6,933.35 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 02/14/18 | 4.00 | 22.74 | ND | 0.00 | 13.76 | 6,932.74 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 04/25/18 | 4.00 | 22.69 | ND | 0.00 | 13.42 | 6,933.08 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 08/16/18 | 4.00 | 22.74 | ND | 0.00 | 13.49 | 6,933.01 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 11/27/18 | 4.00 | 22.75 | ND | 0.00 | 13.81 | 6,932.69 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 03/25/19 | 4.00 | 22.70 | ND | 0.00 | 11.10 | 6,935.40 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 05/13/19 | 4.00 | 22.70 | ND | 0.00 | 12.27 | 6,934.23 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 08/28/19 | 4.00 | 22.74 | ND | 0.00 | 13.28 | 6,933.22 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 11/18/19 | 4.00 | 22.75 | ND | 0.00 | 13.97 | 6,932.53 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 03/02/20 | 4.00 | 22.76 | ND | 0.00 | 14.23 | 6,932.27 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 06/25/20 | 4.00 | 22.77 | ND | 0.00 | 14.55 | 6,931.95 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 09/18/20 | 4.00 | 22.41 | 14.19 | 0.01 | 14.20 | 6,932.30 | 6932.31 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 11/10/20 | 4.00 | 22.41 | 14.61 | 0.01 | 14.62 | 6,931.88 | 6931.89 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 12/03/20 | 4.00 | 22.78 | 14.75 | 0.01 | 14.76 | 6,931.74 | 6931.75 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 01/28/21 | 4.00 | 22.78 | ND | 0.00 | 15.11 | 6,931.39 | NA | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 02/28/21 | 4.00 | 22.70 | 14.76 | 0.13 | 14.89 | 6,931.61 | 6931.71 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 03/31/21 | 4.00 | 22.70 | 14.85 | 0.02 | 14.87 | 6,931.63 | 6931.65 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 04/26/21 | 4.00 | 22.70 | 14.79 | 0.05 | 14.84 | 6,931.66 | 6931.70 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 05/20/21 | 4.00 | 22.70 | 14.98 | 0.18 | 15.16 | 6,931.34 | 6931.48 | 7 - 19 | Chinle/Alluvium Interface |
| | MKTF-09 | 06/01/21 | 4.00 | 22.70 | 14.92 | 0.03 | 14.95 | 6,931.55 | 6931.57 | 7 - 19 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/31/13 | MKTF-10 | 03/16/15 | 4.00 | 15.99 | ND | 0.00 | 8.96 | 6,928.20 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 06/04/15 | 4.00 | 15.99 | ND | 0.00 | 8.82 | 6,928.34 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 08/18/15 | 4.00 | 15.99 | ND | 0.00 | 8.72 | 6,928.44 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 11/03/15 | 4.00 | 15.99 | ND | 0.00 | 8.84 | 6,928.32 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 02/29/16 | 4.00 | 15.99 | ND | 0.00 | 8.60 | 6,928.56 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 06/09/16 | 4.00 | 15.99 | ND | 0.00 | 8.20 | 6,928.96 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 09/11/16 | 4.00 | 15.99 | ND | 0.00 | 8.45 | 6,928.71 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 11/03/16 | 4.00 | 15.99 | ND | 0.00 | 8.84 | 6,928.32 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 03/02/17 | 4.00 | 15.99 | ND | 0.00 | 7.47 | 6,929.69 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 06/07/17 | 4.00 | 15.99 | ND | 0.00 | 7.02 | 6,930.14 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 09/27/17 | 4.00 | 15.99 | ND | 0.00 | 6.78 | 6,930.38 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 11/29/17 | 4.00 | 15.99 | ND | 0.00 | 7.00 | 6,930.16 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 02/14/18 | 4.00 | 16.10 | ND | 0.00 | 7.30 | 6,929.86 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 04/25/18 | 4.00 | 16.05 | ND | 0.00 | 7.05 | 6,930.11 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 08/16/18 | 4.00 | 16.28 | ND | 0.00 | 7.08 | 6,930.08 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 11/19/18 | 4.00 | 15.99 | ND | 0.00 | 7.25 | 6,929.91 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 03/25/19 | 4.00 | 15.99 | ND | 0.00 | 5.70 | 6,931.46 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 05/13/19 | 4.00 | 15.99 | ND | 0.00 | 6.23 | 6,930.93 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 08/21/19 | 4.00 | 16.28 | ND | 0.00 | 7.65 | 6,929.51 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 10/30/19 | 4.00 | 15.99 | ND | 0.00 | 7.28 | 6,929.88 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 03/02/20 | 4.00 | 15.99 | ND | 0.00 | 7.67 | 6,929.49 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 06/25/20 | 4.00 | 15.99 | ND | 0.00 | 7.07 | 6,930.09 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 09/18/20 | 4.00 | 16.41 | 7.52 | 0.01 | 7.53 | 6,929.63 | 6929.64 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 11/10/20 | 4.00 | 16.41 | ND | 0.00 | 7.79 | 6,929.37 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 12/03/20 | 4.00 | 16.50 | ND | 0.00 | 7.80 | 6,929.36 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 01/28/21 | 4.00 | 16.50 | ND | 0.00 | 7.91 | 6,929.25 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 02/28/21 | 4.00 | 16.50 | ND | 0.00 | 7.89 | 6,929.27 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 03/31/21 | 4.00 | 16.50 | ND | 0.00 | 7.74 | 6,929.42 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 04/26/21 | 4.00 | 16.50 | ND | 0.00 | 8.03 | 6,929.13 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 05/20/21 | 4.00 | 16.50 | ND | 0.00 | 7.92 | 6,929.24 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-10 | 06/01/21 | 4.00 | 16.50 | ND | 0.00 | 7.69 | 6,929.47 | NA | 7 - 17 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/31/13 | MKTF-11 | 03/16/15 | 4.00 | 18.14 | ND | 0.00 | 8.80 | 6,922.54 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 06/04/15 | 4.00 | 18.14 | ND | 0.00 | 9.00 | 6,922.34 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 08/18/15 | 4.00 | 18.14 | ND | 0.00 | 8.45 | 6,922.89 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 11/03/15 | 4.00 | 18.14 | ND | 0.00 | 8.63 | 6,922.71 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 02/29/16 | 4.00 | 18.14 | ND | 0.00 | 8.80 | 6,922.54 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 06/09/16 | 4.00 | 18.14 | ND | 0.00 | 8.66 | 6,922.68 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 09/11/16 | 4.00 | 18.14 | ND | 0.00 | 8.70 | 6,922.64 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 11/03/16 | 4.00 | 18.14 | ND | 0.00 | 8.63 | 6,922.71 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 03/02/17 | 4.00 | 18.14 | ND | 0.00 | 6.96 | 6,924.38 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 06/07/17 | 4.00 | 18.14 | ND | 0.00 | 7.39 | 6,923.95 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 09/26/17 | 4.00 | 18.14 | ND | 0.00 | 6.70 | 6,924.64 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 11/29/17 | 4.00 | 18.14 | ND | 0.00 | 8.00 | 6,923.34 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 02/08/18 | 4.00 | 18.31 | ND | 0.00 | 7.87 | 6,923.47 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 04/25/18 | 4.00 | 18.39 | ND | 0.00 | 7.85 | 6,923.49 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 08/16/18 | 4.00 | 18.48 | ND | 0.00 | 7.48 | 6,923.86 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 11/19/18 | 4.00 | 18.14 | ND | 0.00 | 7.20 | 6,924.14 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 03/25/19 | 4.00 | 18.14 | ND | 0.00 | 4.96 | 6,926.38 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 05/13/19 | 4.00 | 18.14 | ND | 0.00 | 5.24 | 6,926.10 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 08/21/19 | 4.00 | 18.48 | ND | 0.00 | 6.22 | 6,925.12 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 10/30/19 | 4.00 | 18.14 | ND | 0.00 | 7.06 | 6,924.28 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 03/02/20 | 4.00 | 18.14 | ND | 0.00 | 7.89 | 6,923.45 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 06/26/20 | 4.00 | 18.14 | 7.67 | 0.01 | 7.68 | 6,923.66 | 6923.67 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 09/18/20 | 4.00 | 18.45 | 7.59 | 0.01 | 7.60 | 6,923.74 | 6923.75 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 11/10/20 | 4.00 | 18.45 | ND | 0.00 | 7.61 | 6,923.73 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 12/03/20 | 4.00 | 18.45 | 7.89 | 0.02 | 7.91 | 6,923.43 | 6923.45 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 01/28/21 | 4.00 | 18.45 | ND | 0.00 | 7.88 | 6,923.46 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 02/28/21 | 4.00 | 18.53 | ND | 0.00 | 7.84 | 6,923.50 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 03/31/21 | 4.00 | 18.53 | ND | 0.00 | 7.63 | 6,923.71 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 04/26/21 | 4.00 | 18.53 | ND | 0.00 | 7.70 | 6,923.64 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 05/20/21 | 4.00 | 18.53 | ND | 0.00 | 7.67 | 6,923.67 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-11 | 06/01/21 | 4.00 | 18.53 | ND | 0.00 | 7.56 | 6,923.78 | NA | 8 - 18 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/07/13 | MKTF-12 | 03/12/15 | 4.00 | 25.60 | 19.13 | 1.81 | 20.94 | 6,921.17 | 6,922.62 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 06/09/15 | 4.00 | 25.60 | 19.47 | 2.18 | 21.65 | 6,920.46 | 6,922.20 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 08/18/15 | 4.00 | 25.60 | 19.46 | 0.53 | 19.99 | 6,922.12 | 6,922.54 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/03/15 | 4.00 | 25.60 | 19.66 | 0.61 | 20.27 | 6,921.84 | 6,922.33 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 03/12/16 | 4.00 | 25.60 | 19.13 | 1.81 | 20.94 | 6,921.17 | 6,922.62 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 06/10/16 | 4.00 | 25.60 | 18.23 | 1.32 | 19.55 | 6,922.56 | 6,923.62 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 09/10/16 | 4.00 | 25.60 | 19.23 | 0.32 | 19.55 | 6,922.56 | 6,922.82 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/03/16 | 4.00 | 25.60 | 19.66 | 0.61 | 20.27 | 6,921.84 | 6,922.33 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 03/15/17 | 4.00 | 25.60 | 17.75 | 0.06 | 17.81 | 6,924.30 | 6,924.35 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 06/07/17 | 4.00 | 25.60 | 18.60 | 0.19 | 18.79 | 6,923.32 | 6,923.47 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 10/03/17 | 4.00 | 25.60 | 17.30 | 0.13 | 17.43 | 6,924.68 | 6,924.78 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/27/17 | 4.00 | 25.60 | 18.43 | 0.13 | 18.56 | 6,923.55 | 6,923.65 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 02/07/18 | 4.00 | 25.60 | 19.11 | 0.17 | 19.28 | 6,922.83 | 6,922.97 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 04/26/18 | 4.00 | 25.58 | 19.11 | 0.12 | 19.23 | 6,922.88 | 6,922.98 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 08/15/18 | 4.00 | 25.60 | 19.01 | 0.19 | 19.20 | 6,922.91 | 6,923.06 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/27/18 | 4.00 | 25.60 | 18.40 | 0.14 | 18.54 | 6,923.57 | 6,923.68 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 03/26/19 | 4.00 | 25.60 | 16.65 | 0.35 | 17.00 | 6,925.11 | 6,925.39 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 05/09/19 | 4.00 | 25.60 | 17.25 | 0.10 | 17.35 | 6,924.76 | 6,924.84 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 08/20/19 | 4.00 | 25.60 | 17.92 | 0.09 | 18.01 | 6,924.10 | 6,924.17 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 10/28/19 | 4.00 | 25.60 | 18.35 | 0.12 | 18.47 | 6,923.64 | 6,923.74 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/12/19 | 4.00 | 25.60 | 18.14 | 0.08 | 18.22 | 6,923.89 | 6923.95 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/13/19 | 4.00 | 25.60 | 18.02 | 0.10 | 18.12 | 6,923.99 | 6924.07 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/14/19 | 4.00 | 25.60 | 18.11 | 0.08 | 18.19 | 6,923.92 | 6923.98 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/15/19 | 4.00 | 25.60 | 18.10 | 0.08 | 18.18 | 6,923.93 | 6923.99 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/19/19 | 4.00 | 25.60 | 18.00 | 0.09 | 18.09 | 6,924.02 | 6924.09 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/21/19 | 4.00 | 25.60 | 18.04 | 0.16 | 18.20 | 6,923.91 | 6924.04 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 12/02/19 | 4.00 | 25.60 | 17.70 | 0.05 | 17.75 | 6,924.36 | 6924.40 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 02/27/20 | 4.00 | 25.60 | 17.84 | 0.08 | 17.92 | 6,924.19 | 6924.25 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 06/29/20 | 4.00 | 25.60 | 19.13 | 0.12 | 19.25 | 6,922.86 | 6922.96 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 09/18/20 | 4.00 | 25.82 | 18.64 | 0.01 | 18.65 | 6,923.46 | 6923.47 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 11/10/20 | 4.00 | 25.82 | 17.97 | 0.03 | 18.00 | 6,924.11 | 6924.13 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 12/03/20 | 4.00 | 25.89 | 18.90 | 0.16 | 19.06 | 6,923.05 | 6923.18 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 01/28/21 | 4.00 | 25.89 | 19.46 | 0.17 | 19.63 | 6,922.48 | 6922.62 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 02/28/21 | 4.00 | 25.85 | 18.82 | 0.10 | 18.92 | 6,923.19 | 6923.27 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 03/31/21 | 4.00 | 25.85 | 18.59 | 0.04 | 18.63 | 6,923.48 | 6923.51 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 04/26/21 | 4.00 | 25.85 | 18.49 | 0.11 | 18.60 | 6,923.51 | 6923.60 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 05/20/21 | 4.00 | 25.85 | 18.70 | 0.03 | 18.73 | 6,923.38 | 6923.40 | 12 - 22 | Chinle/Alluvium Interface |
| | MKTF-12 | 05/20/21 | 4.00 | 25.85 | 19.03 | 0.05 | 19.08 | 6,923.03 | 6923.07 | 12 - 22 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12/13 | MKTF-13 | 03/12/15 | 4.00 | 21.25 | 13.75 | 2.07 | 15.82 | 6,919.36 | 6,921.02 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 06/09/15 | 4.00 | 21.25 | 14.22 | 1.65 | 15.87 | 6,919.31 | 6,920.63 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 08/21/15 | 4.00 | 21.25 | 13.94 | 1.68 | 15.62 | 6,919.56 | 6,920.90 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/03/15 | 4.00 | 21.25 | 14.22 | 1.33 | 15.55 | 6,919.63 | 6,920.69 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 03/12/16 | 4.00 | 21.25 | 13.75 | 2.07 | 15.82 | 6,919.36 | 6,921.02 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 06/10/16 | 4.00 | 21.25 | 12.99 | 1.20 | 14.19 | 6,920.99 | 6,921.95 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 09/10/16 | 4.00 | 21.25 | 13.88 | 0.98 | 14.86 | 6,920.32 | 6,921.10 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/03/16 | 4.00 | 21.25 | 14.22 | 1.33 | 15.55 | 6,919.63 | 6,920.69 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 03/15/17 | 4.00 | 21.25 | ND | 0.00 | 12.60 | 6,922.58 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 06/07/17 | 4.00 | 21.25 | 13.35 | 0.06 | 13.41 | 6,921.77 | 6,921.82 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 10/03/17 | 4.00 | 21.25 | 11.91 | 0.03 | 11.94 | 6,923.24 | 6,923.26 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/27/17 | 4.00 | 21.25 | 13.14 | 0.01 | 13.15 | 6,922.03 | 6,922.04 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 02/07/18 | 4.00 | 21.25 | 13.77 | 0.01 | 13.78 | 6,921.40 | 6,921.41 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 04/26/18 | 4.00 | 21.66 | ND | 0.00 | 13.75 | 6,921.43 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 08/15/18 | 4.00 | 21.55 | ND | 0.00 | 13.68 | 6,921.50 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/27/18 | 4.00 | 21.25 | ND | 0.00 | 12.72 | 6,922.46 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 03/26/19 | 4.00 | 21.25 | ND | 0.00 | 10.90 | 6,924.28 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 05/09/19 | 4.00 | 21.25 | ND | 0.00 | 11.60 | 6,923.58 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 08/20/19 | 4.00 | 21.55 | ND | 0.00 | 12.45 | 6,922.73 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 10/28/19 | 4.00 | 21.25 | ND | 0.00 | 12.95 | 6,922.23 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/12/19 | 4.00 | 21.25 | ND | 0.00 | 12.82 | 6,922.36 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/13/19 | 4.00 | 21.25 | ND | 0.00 | 12.75 | 6,922.43 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/14/19 | 4.00 | 21.25 | ND | 0.00 | 12.85 | 6,922.33 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/15/19 | 4.00 | 21.25 | ND | 0.00 | 12.80 | 6,922.38 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/19/19 | 4.00 | 21.25 | ND | 0.00 | 12.71 | 6,922.47 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/21/19 | 4.00 | 21.25 | ND | 0.00 | 12.75 | 6,922.43 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 12/02/19 | 4.00 | 21.25 | ND | 0.00 | 12.40 | 6,922.78 | NA | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 02/27/20 | 4.00 | 21.25 | 11.13 | 6.18 | 17.31 | 6,917.87 | 6922.81 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 06/29/20 | 4.00 | 21.25 | 12.67 | 5.54 | 18.21 | 6,916.97 | 6921.40 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 09/18/20 | 4.00 | 22.13 | 12.55 | 4.37 | 16.92 | 6,918.26 | 6921.76 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 11/10/20 | 4.00 | 22.13 | 11.98 | 4.38 | 16.36 | 6,918.82 | 6922.32 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 12/03/20 | 4.00 | 21.92 | 12.84 | 3.81 | 16.65 | 6,918.53 | 6921.58 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 01/28/21 | 4.00 | 21.92 | 13.25 | 4.01 | 17.26 | 6,917.92 | 6921.13 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 02/28/21 | 4.00 | 21.75 | 12.60 | 4.30 | 16.90 | 6,918.28 | 6921.72 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 03/31/21 | 4.00 | 21.75 | 12.21 | 4.44 | 16.65 | 6,918.53 | 6922.08 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 04/26/21 | 4.00 | 21.75 | 12.25 | 4.08 | 16.33 | 6,918.85 | 6922.11 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 05/20/21 | 4.00 | 21.75 | 12.11 | 4.59 | 16.70 | 6,918.48 | 6922.15 | 8 - 18 | Chinle/Alluvium Interface |
| | MKTF-13 | 06/01/21 | 4.00 | 21.75 | 11.93 | 3.74 | 15.67 | 6,919.51 | 6922.50 | 8 - 18 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12/13 | MKTF-14 | 03/12/15 | 4.00 | 17.46 | 7.60 | 0.55 | 8.15 | 6,919.87 | 6,920.31 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 06/09/15 | 4.00 | 17.46 | 8.00 | 0.37 | 8.37 | 6,919.65 | 6,919.95 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 08/21/15 | 4.00 | 17.46 | 7.61 | 0.42 | 8.03 | 6,919.99 | 6,920.33 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 11/03/15 | 4.00 | 17.46 | 7.71 | 0.39 | 8.10 | 6,919.92 | 6,920.23 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 03/12/16 | 4.00 | 17.46 | 7.60 | 0.55 | 8.15 | 6,919.87 | 6,920.31 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 06/10/16 | 4.00 | 17.46 | 7.13 | 2.33 | 9.46 | 6,918.56 | 6,920.42 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 09/10/16 | 4.00 | 17.46 | 7.31 | 1.69 | 9.00 | 6,919.02 | 6,920.37 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 11/03/16 | 4.00 | 17.46 | 7.71 | 0.39 | 8.10 | 6,919.92 | 6,920.23 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 03/08/17 | 4.00 | 17.46 | 5.77 | 0.98 | 6.75 | 6,921.27 | 6,922.05 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 06/07/17 | 4.00 | 17.46 | 6.68 | 0.84 | 7.52 | 6,920.50 | 6,921.17 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 10/03/17 | 4.00 | 17.46 | 5.70 | 0.41 | 6.11 | 6,921.91 | 6,922.24 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 11/27/17 | 4.00 | 17.46 | 6.56 | 0.37 | 6.93 | 6,921.09 | 6,921.39 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 02/07/18 | 4.00 | 17.46 | 6.98 | 0.41 | 7.39 | 6,920.63 | 6,920.96 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 04/26/18 | 4.00 | 17.43 | 7.01 | 0.38 | 7.39 | 6,920.63 | 6,920.93 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 08/15/18 | 4.00 | 17.45 | 6.95 | 0.35 | 7.30 | 6,920.72 | 6,921.00 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 11/27/18 | 4.00 | 17.46 | 6.26 | 0.39 | 6.65 | 6,921.37 | 6,921.68 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 03/25/19 | 4.00 | 17.46 | 3.89 | 0.36 | 4.25 | 6,923.77 | 6,924.06 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 05/09/19 | 4.00 | 17.46 | 4.65 | 0.39 | 5.04 | 6,922.98 | 6,923.29 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 08/20/19 | 4.00 | 17.45 | 5.64 | 0.28 | 5.92 | 6,922.10 | 6,922.32 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 10/28/19 | 4.00 | 17.46 | 6.02 | 0.37 | 6.39 | 6,921.63 | 6,921.93 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 02/27/20 | 4.00 | 17.46 | 5.35 | 0.30 | 5.65 | 6,922.37 | 6922.61 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 06/29/20 | 4.00 | 17.46 | 6.38 | 2.20 | 8.58 | 6,919.44 | 6921.20 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 09/18/20 | 4.00 | 17.32 | 6.18 | 1.98 | 8.16 | 6,919.86 | 6921.44 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 11/10/20 | 4.00 | 17.32 | 5.98 | 0.30 | 6.28 | 6,921.74 | 6921.98 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 12/03/20 | 4.00 | 17.55 | 6.79 | 0.27 | 7.06 | 6,920.96 | 6921.18 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 01/28/21 | 4.00 | 17.55 | 7.11 | 0.30 | 7.41 | 6,920.61 | 6920.85 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 02/28/21 | 4.00 | 17.55 | 6.64 | 0.34 | 6.98 | 6,921.04 | 6921.31 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 03/31/21 | 4.00 | 17.55 | 6.14 | 0.12 | 6.26 | 6,921.76 | 6921.86 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 04/26/21 | 4.00 | 17.55 | 6.11 | 0.07 | 6.18 | 6,921.84 | 6921.90 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 05/20/21 | 4.00 | 17.55 | 6.20 | 0.11 | 6.31 | 6,921.71 | 6921.80 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-14 | 06/01/21 | 4.00 | 17.55 | 5.81 | 0.16 | 5.97 | 6,922.05 | 6922.18 | 4 - 14 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/29/13 | MKTF-15 | 03/16/15 | 2.00 | 19.48 | 13.17 | 0.75 | 13.92 | 6,929.56 | 6,930.16 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 06/04/15 | 2.00 | 19.48 | 13.20 | 0.58 | 13.78 | 6,929.70 | 6,930.16 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 08/18/15 | 2.00 | 19.48 | 13.09 | 0.25 | 13.34 | 6,930.14 | 6,930.34 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 11/03/15 | 2.00 | 19.48 | 12.90 | 0.65 | 13.55 | 6,929.93 | 6,930.45 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 03/16/16 | 2.00 | 19.48 | 13.17 | 0.75 | 13.92 | 6,929.56 | 6,930.16 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 06/09/16 | 2.00 | 19.48 | 12.60 | 0.22 | 12.82 | 6,930.66 | 6,930.84 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 09/11/16 | 2.00 | 19.48 | ND | 0.00 | 13.00 | 6,930.48 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 11/03/16 | 2.00 | 19.48 | 12.90 | 0.65 | 13.55 | 6,929.93 | 6,930.45 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 03/02/17 | 2.00 | 19.48 | ND | 0.00 | 12.15 | 6,931.33 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 06/07/17 | 2.00 | 19.48 | ND | 0.00 | 11.93 | 6,931.55 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 09/26/17 | 2.00 | 19.48 | 12.00 | 0.10 | 12.10 | 6,931.38 | 6,931.46 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 11/29/17 | 2.00 | 19.48 | ND | 0.00 | 12.13 | 6,931.35 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 02/08/18 | 2.00 | 19.48 | 12.40 | 0.07 | 12.47 | 6,931.01 | 6,931.07 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 04/25/18 | 2.00 | 19.40 | ND | 0.00 | 12.20 | 6,931.28 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 08/16/18 | 2.00 | 19.50 | ND | 0.00 | 12.40 | 6,931.08 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 11/19/18 | 2.00 | 19.48 | 12.57 | 0.13 | 12.70 | 6,930.78 | 6,930.88 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 03/25/19 | 2.00 | 19.48 | 10.98 | 0.02 | 11.00 | 6,932.48 | 6,932.50 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 05/13/19 | 2.00 | 19.48 | ND | 0.00 | 11.59 | 6,931.89 | NA | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 08/21/19 | 2.00 | 19.50 | 12.02 | 0.01 | 12.03 | 6,931.45 | 6,931.46 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 10/30/19 | 2.00 | 19.48 | 12.65 | 0.05 | 12.70 | 6,930.78 | 6,930.82 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 02/03/20 | 2.00 | 19.48 | 13.02 | 0.09 | 13.11 | 6,930.37 | 6,930.44 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 06/26/20 | 2.00 | 19.48 | 13.11 | 0.06 | 13.17 | 6,930.31 | 6,930.36 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 09/18/20 | 2.00 | 19.18 | 13.00 | 0.03 | 13.03 | 6,930.45 | 6,930.47 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 11/10/20 | 2.00 | 19.18 | 13.25 | 0.25 | 13.50 | 6,929.98 | 6,930.18 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 12/03/20 | 2.00 | 19.52 | 13.39 | 0.21 | 13.60 | 6,929.88 | 6,930.05 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 01/28/21 | 2.00 | 19.52 | 13.54 | 0.21 | 13.75 | 6,929.73 | 6,929.90 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 02/28/21 | 2.00 | 19.53 | 13.45 | 0.07 | 13.52 | 6,929.96 | 6,930.02 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 03/31/21 | 2.00 | 19.53 | 13.39 | 0.03 | 13.42 | 6,930.06 | 6,930.08 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 04/26/21 | 2.00 | 19.53 | 13.11 | 0.21 | 13.32 | 6,930.16 | 6,930.33 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 05/20/21 | 2.00 | 19.53 | 13.51 | 0.07 | 13.58 | 6,929.90 | 6,929.96 | 9 - 19 | Chinle/Alluvium Interface |
| | MKTF-15 | 06/01/21 | 2.00 | 19.53 | 13.43 | 0.04 | 13.47 | 6,930.01 | 6,930.04 | 9 - 19 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/07/13 | MKTF-16 | 03/16/15 | 2.00 | 14.10 | ND | 0.00 | 10.93 | 6,939.65 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 06/08/15 | 2.00 | 14.10 | ND | 0.00 | 8.86 | 6,941.72 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 08/23/15 | 2.00 | 14.10 | ND | 0.00 | 9.79 | 6,940.79 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 11/03/15 | 2.00 | 14.10 | ND | 0.00 | 9.49 | 6,941.09 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 02/29/16 | 2.00 | 14.10 | ND | 0.00 | 9.90 | 6,940.68 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 06/08/16 | 2.00 | 14.10 | ND | 0.00 | 9.58 | 6,941.00 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 09/11/16 | 2.00 | 14.10 | ND | 0.00 | 9.65 | 6,940.93 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 11/03/16 | 2.00 | 14.10 | ND | 0.00 | 9.49 | 6,941.09 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 03/14/17 | 2.00 | 14.10 | ND | 0.00 | 7.45 | 6,943.13 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 06/07/17 | 2.00 | 14.10 | ND | 0.00 | 7.66 | 6,942.92 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 09/26/17 | 2.00 | 14.10 | ND | 0.00 | 8.00 | 6,942.58 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 11/28/17 | 2.00 | 14.10 | ND | 0.00 | 8.22 | 6,942.36 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 02/14/18 | 2.00 | 14.10 | ND | 0.00 | 8.80 | 6,941.78 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 04/25/18 | 2.00 | 13.96 | ND | 0.00 | 8.35 | 6,942.23 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 08/16/18 | 2.00 | 14.08 | ND | 0.00 | 8.55 | 6,942.03 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 11/29/18 | 2.00 | 14.10 | ND | 0.00 | 9.54 | 6,941.04 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 02/20/19 | 2.00 | 14.10 | ND | 0.00 | 7.05 | 6,943.53 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 05/13/19 | 2.00 | 14.10 | ND | 0.00 | 8.35 | 6,942.23 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 08/21/19 | 2.00 | 14.08 | ND | 0.00 | 9.22 | 6,941.36 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 10/30/19 | 2.00 | 14.10 | ND | 0.00 | 9.89 | 6,940.69 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 02/05/20 | 2.00 | 14.10 | ND | 0.00 | 9.68 | 6,940.90 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 06/26/20 | 2.00 | 14.10 | ND | 0.00 | 9.54 | 6,941.04 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 09/18/20 | 2.00 | 10.92 | 9.18 | 0.01 | 9.19 | 6,941.39 | 6,941.40 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 11/10/20 | 2.00 | 10.92 | ND | 0.00 | 7.20 | 6,943.38 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 12/08/20 | 2.00 | 10.95 | ND | 0.00 | 9.70 | 6,940.88 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 01/28/21 | 2.00 | 10.95 | ND | 0.00 | 6.15 | 6,944.43 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 02/28/21 | 2.00 | 10.95 | ND | 0.00 | 8.84 | 6,941.74 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 03/31/21 | 2.00 | 10.95 | ND | 0.00 | 9.31 | 6,941.27 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 04/26/21 | 2.00 | 10.95 | ND | 0.00 | 9.51 | 6,941.07 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 05/20/21 | 2.00 | 10.95 | ND | 0.00 | 9.40 | 6,941.18 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 06/01/21 | 2.00 | 10.95 | ND | 0.00 | 9.28 | 6,941.30 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-16 | 06/23/21 | 2.00 | 10.95 | ND | 0.00 | DRY | NA | NA | 4 - 14 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/14/13 | MKTF-17 | 03/12/15 | 2.00 | 24.11 | ND | 0.00 | 12.81 | 6,932.95 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 06/08/15 | 2.00 | 24.11 | ND | 0.00 | 13.40 | 6,932.36 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 08/18/15 | 2.00 | 24.11 | ND | 0.00 | 11.98 | 6,933.78 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/03/15 | 2.00 | 24.11 | ND | 0.00 | 12.34 | 6,933.42 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 02/25/16 | 2.00 | 24.11 | ND | 0.00 | 11.82 | 6,933.94 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 06/10/16 | 2.00 | 24.11 | ND | 0.00 | 11.30 | 6,934.46 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 09/12/16 | 2.00 | 24.11 | ND | 0.00 | 12.40 | 6,933.36 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/03/16 | 2.00 | 24.11 | ND | 0.00 | 12.34 | 6,933.42 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 03/08/17 | 2.00 | 24.11 | ND | 0.00 | 8.20 | 6,937.56 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 06/14/17 | 2.00 | 24.11 | ND | 0.00 | 9.98 | 6,935.78 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 09/26/17 | 2.00 | 24.11 | ND | 0.00 | 9.33 | 6,936.43 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/30/17 | 2.00 | 24.65 | ND | 0.00 | 13.68 | 6,932.08 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 02/15/18 | 2.00 | 24.68 | ND | 0.00 | 11.65 | 6,934.11 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 04/26/18 | 2.00 | 24.55 | ND | 0.00 | 12.28 | 6,933.48 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 08/15/18 | 2.00 | 24.68 | ND | 0.00 | 12.50 | 6,933.26 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/27/18 | 2.00 | 24.65 | ND | 0.00 | 13.65 | 6,932.11 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 03/25/19 | 2.00 | 24.11 | ND | 0.00 | 10.70 | 6,935.06 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 05/09/19 | 2.00 | 24.11 | ND | 0.00 | 14.05 | 6,931.71 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 08/19/19 | 2.00 | 24.68 | ND | 0.00 | 10.79 | 6,934.97 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 10/28/19 | 2.00 | 24.65 | ND | 0.00 | 9.00 | 6,936.76 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 10/29/19 | 2.00 | 24.65 | ND | 0.00 | 15.20 | 6,930.56 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/12/19 | 2.00 | 24.65 | ND | 0.00 | 11.86 | 6,933.90 | NA | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/19/19 | 2.00 | 24.65 | 12.35 | 1.60 | 13.95 | 6,931.81 | 6,933.09 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/21/19 | 2.00 | 24.65 | 12.42 | 2.88 | 15.30 | 6,930.46 | 6,932.76 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 12/02/19 | 2.00 | 24.65 | 13.17 | 4.88 | 18.05 | 6,927.71 | 6,931.61 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 02/03/20 | 2.00 | 24.11 | 11.44 | 5.41 | 16.85 | 6,928.91 | 6,933.24 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 06/29/20 | 2.00 | 24.11 | 10.19 | 5.31 | 15.50 | 6,930.26 | 6,934.51 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 09/14/20 | 2.00 | 24.67 | 10.00 | 5.37 | 15.37 | 6,930.39 | 6,934.69 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 11/10/20 | 2.00 | 24.67 | 11.39 | 0.20 | 11.59 | 6,934.17 | 6,934.33 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 12/04/20 | 2.00 | 24.66 | 11.28 | 0.19 | 11.47 | 6,934.29 | 6,934.44 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 01/28/21 | 2.00 | 24.65 | 11.88 | 0.02 | 11.90 | 6,933.86 | 6,933.88 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 02/28/21 | 2.00 | 24.70 | 11.88 | 0.02 | 11.90 | 6,933.86 | 6,933.88 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 03/31/21 | 2.00 | 24.70 | 12.06 | 0.03 | 12.09 | 6,933.67 | 6,933.69 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 04/26/21 | 2.00 | 24.70 | 14.97 | 0.02 | 14.99 | 6,930.77 | 6,930.79 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 05/20/21 | 2.00 | 24.70 | 15.03 | 0.03 | 15.06 | 6,930.70 | 6,930.72 | 14 - 24 | Chinle/Alluvium Interface |
| | MKTF-17 | 06/01/21 | 2.00 | 24.70 | 15.10 | 0.05 | 15.15 | 6,930.61 | 6,930.65 | 14 - 24 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/15/13 | MKTF-18 | 03/17/15 | 2.00 | 25.38 | ND | 0.00 | 8.92 | 6,941.73 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 06/08/15 | 2.00 | 25.38 | ND | 0.00 | 8.86 | 6,941.79 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 08/18/15 | 2.00 | 25.38 | ND | 0.00 | 8.83 | 6,941.82 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 11/03/15 | 2.00 | 25.38 | ND | 0.00 | 8.52 | 6,942.13 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 02/26/16 | 2.00 | 25.38 | ND | 0.00 | 8.34 | 6,942.31 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 06/10/16 | 2.00 | 25.38 | ND | 0.00 | 11.85 | 6,938.80 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 09/12/16 | 2.00 | 25.38 | ND | 0.00 | 7.75 | 6,942.90 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 11/03/16 | 2.00 | 25.38 | ND | 0.00 | 8.52 | 6,942.13 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 03/01/17 | 2.00 | 25.38 | ND | 0.00 | 7.81 | 6,942.84 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 06/14/17 | 2.00 | 25.38 | ND | 0.00 | 6.30 | 6,944.35 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 09/27/17 | 2.00 | 25.38 | 6.35 | 0.02 | 6.37 | 6,944.28 | 6,944.30 | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 11/30/17 | 2.00 | 25.38 | 6.29 | 0.01 | 6.30 | 6,944.35 | 6,944.36 | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 02/15/18 | 2.00 | 26.80 | ND | 0.00 | 6.47 | 6,944.18 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 04/26/18 | 2.00 | 26.70 | ND | 0.00 | 8.22 | 6,942.43 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 08/16/18 | 2.00 | 27.45 | ND | 0.00 | 7.12 | 6,943.53 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 11/27/18 | 2.00 | 25.38 | ND | 0.00 | 7.94 | 6,942.71 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 03/25/19 | 2.00 | 25.38 | ND | 0.00 | 7.32 | 6,943.33 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 05/16/19 | 2.00 | 25.38 | ND | 0.00 | 7.54 | 6,943.11 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 08/19/19 | 2.00 | 27.45 | 7.71 | 0.01 | 7.72 | 6,942.93 | 6,942.94 | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 10/28/19 | 2.00 | 25.38 | ND | 0.00 | 7.79 | 6,942.86 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 10/29/19 | 2.00 | 25.38 | ND | 0.00 | 8.30 | 6,942.35 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 11/12/19 | 2.00 | 25.38 | ND | 0.00 | 8.19 | 6,942.46 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 02/05/20 | 2.00 | 25.38 | ND | 0.00 | 9.10 | 6,941.55 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 06/30/20 | 2.00 | 25.38 | ND | 0.00 | 8.98 | 6,941.67 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 09/18/20 | 2.00 | 21.73 | 8.49 | 0.01 | 8.50 | 6,942.15 | 6,942.16 | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 11/10/20 | 2.00 | 21.73 | ND | 0.00 | 8.74 | 6,941.91 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 12/04/20 | 2.00 | 25.50 | ND | 0.00 | 8.80 | 6,941.85 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 01/28/21 | 2.00 | 25.50 | ND | 0.00 | 9.28 | 6,941.37 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 02/28/21 | 2.00 | 27.55 | ND | 0.00 | 9.08 | 6,941.57 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 03/31/21 | 2.00 | 27.55 | ND | 0.00 | 9.30 | 6,941.35 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 04/26/21 | 2.00 | 27.55 | ND | 0.00 | 9.23 | 6,941.42 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 05/20/21 | 2.00 | 27.55 | ND | 0.00 | 9.25 | 6,941.40 | NA | 17 - 27 | Chinle/Alluvium Interface |
| | MKTF-18 | 06/01/21 | 2.00 | 27.55 | ND | 0.00 | 9.21 | 6,941.44 | NA | 17 - 27 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/05/13 | MKTF-19 | 03/12/15 | 2.00 | 17.47 | ND | 0.00 | 11.91 | 6,932.76 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 06/08/15 | 2.00 | 17.47 | ND | 0.00 | 12.47 | 6,932.20 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 08/18/15 | 2.00 | 17.47 | ND | 0.00 | 13.76 | 6,930.91 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/03/15 | 2.00 | 17.47 | ND | 0.00 | 12.95 | 6,931.72 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 02/25/16 | 2.00 | 17.47 | ND | 0.00 | 12.62 | 6,932.05 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 06/10/16 | 2.00 | 17.47 | ND | 0.00 | 11.90 | 6,932.77 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 09/12/16 | 2.00 | 17.47 | ND | 0.00 | 11.25 | 6,933.42 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/03/16 | 2.00 | 17.47 | ND | 0.00 | 12.84 | 6,931.83 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 03/08/17 | 2.00 | 17.47 | ND | 0.00 | 9.82 | 6,934.85 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 06/14/17 | 2.00 | 17.47 | ND | 0.00 | 10.58 | 6,934.09 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 09/26/17 | 2.00 | 17.47 | ND | 0.00 | 11.00 | 6,933.67 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/30/17 | 2.00 | 18.20 | ND | 0.00 | 11.70 | 6,932.97 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 02/15/18 | 2.00 | 18.45 | ND | 0.00 | 12.00 | 6,932.67 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 04/26/18 | 2.00 | 18.19 | ND | 0.00 | 12.05 | 6,932.62 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 08/15/18 | 2.00 | 19.30 | ND | 0.00 | 12.20 | 6,932.47 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/27/18 | 2.00 | 18.20 | ND | 0.00 | 12.37 | 6,932.30 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 03/25/19 | 2.00 | 17.47 | ND | 0.00 | 11.40 | 6,933.27 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 05/09/19 | 2.00 | 17.47 | ND | 0.00 | 11.31 | 6,933.36 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 08/19/19 | 2.00 | 19.30 | ND | 0.00 | 11.06 | 6,933.61 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 10/28/19 | 2.00 | 18.20 | ND | 0.00 | 10.91 | 6,933.76 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 10/29/19 | 2.00 | 18.20 | ND | 0.00 | 15.76 | 6,928.91 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/12/19 | 2.00 | 18.20 | ND | 0.00 | 10.85 | 6,933.82 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/19/19 | 2.00 | 18.20 | ND | 0.00 | 10.90 | 6,933.77 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/21/19 | 2.00 | 18.20 | ND | 0.00 | 11.05 | 6,933.62 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 12/02/19 | 2.00 | 18.20 | 11.63 | 0.87 | 12.50 | 6,932.17 | 6,932.87 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 02/03/20 | 2.00 | 17.47 | 11.35 | 1.05 | 12.40 | 6,932.27 | 6,933.11 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 06/29/20 | 2.00 | 17.47 | 12.08 | 1.21 | 13.29 | 6,931.38 | 6,932.35 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 09/14/20 | 2.00 | 19.24 | 11.95 | 0.02 | 11.97 | 6,932.70 | 6,932.72 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 11/10/20 | 2.00 | 19.24 | 12.22 | 1.33 | 13.55 | 6,931.12 | 6,932.18 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 12/04/20 | 2.00 | 19.38 | 12.18 | 1.24 | 13.42 | 6,931.25 | 6,932.24 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 01/28/21 | 2.00 | 19.38 | 12.22 | 1.24 | 13.46 | 6,931.21 | 6,932.20 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 02/28/21 | 2.00 | 19.44 | 12.45 | 1.14 | 13.59 | 6,931.08 | 6,931.99 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 03/31/21 | 2.00 | 19.44 | 12.60 | 1.23 | 13.83 | 6,930.84 | 6,931.82 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 04/26/21 | 2.00 | 19.44 | 12.54 | 1.53 | 14.07 | 6,930.60 | 6,931.82 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 05/20/21 | 2.00 | 19.44 | 12.28 | 1.42 | 13.70 | 6,930.97 | 6,932.11 | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-19 | 06/01/21 | 2.00 | 19.44 | 12.55 | 1.22 | 13.77 | 6,930.90 | 6,931.88 | 10 - 20 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 02/10/14 | MKTF-20 | 03/16/15 | 4.00 | 9.89 | ND | 0.00 | 7.26 | 6,944.52 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 06/08/15 | 4.00 | 9.89 | ND | 0.00 | 7.89 | 6,943.89 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 08/23/15 | 4.00 | 9.89 | ND | 0.00 | 7.79 | 6,943.99 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 11/09/15 | 4.00 | 9.89 | ND | 0.00 | 7.78 | 6,944.00 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 02/29/16 | 4.00 | 9.89 | ND | 0.00 | 7.81 | 6,943.97 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 06/08/16 | 4.00 | 9.89 | ND | 0.00 | 7.23 | 6,944.55 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 09/11/16 | 4.00 | 9.89 | ND | 0.00 | 7.65 | 6,944.13 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 11/09/16 | 4.00 | 9.89 | ND | 0.00 | 7.78 | 6,944.00 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 03/14/17 | 4.00 | 9.89 | ND | 0.00 | 5.70 | 6,946.08 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 06/12/17 | 4.00 | 9.89 | ND | 0.00 | 5.57 | 6,946.21 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 09/26/17 | 4.00 | 9.89 | ND | 0.00 | 6.23 | 6,945.55 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 11/28/17 | 4.00 | 9.58 | ND | 0.00 | 6.53 | 6,945.25 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 02/14/18 | 4.00 | 9.55 | ND | 0.00 | 7.45 | 6,944.33 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 04/25/18 | 4.00 | 9.50 | ND | 0.00 | 6.90 | 6,944.88 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 08/16/18 | 4.00 | 9.56 | ND | 0.00 | 7.20 | 6,944.58 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 11/29/18 | 4.00 | 9.58 | ND | 0.00 | 7.52 | 6,944.26 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 02/20/19 | 4.00 | 8.83 | ND | 0.00 | 6.29 | 6,945.49 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 05/13/19 | 4.00 | 8.83 | ND | 0.00 | 7.14 | 6,944.64 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 08/20/19 | 4.00 | 8.83 | ND | 0.00 | 8.03 | 6,943.75 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 11/04/19 | 4.00 | 8.83 | ND | 0.00 | 7.68 | 6,944.10 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 02/05/20 | 4.00 | 8.83 | ND | 0.00 | 9.02 | 6,942.76 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 06/26/20 | 4.00 | 8.83 | ND | 0.00 | 8.67 | 6,943.11 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 09/15/20 | 4.00 | 9.62 | 8.54 | 0.81 | 9.35 | 6,942.43 | 6,943.08 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 11/10/20 | 4.00 | 9.62 | 8.10 | 0.80 | 8.90 | 6,942.88 | 6,943.52 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 12/08/20 | 4.00 | 9.60 | 8.76 | 0.19 | 8.95 | 6,942.83 | 6,942.98 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 01/28/21 | 4.00 | 9.60 | 8.99 | 0.61 | 9.60 | 6,942.18 | 6,942.67 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 02/28/21 | 4.00 | 9.61 | ND | 0.00 | DRY | NA | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 03/31/21 | 4.00 | 9.61 | 8.95 | 0.28 | 9.23 | 6,951.78 | 6,952.00 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 04/26/21 | 4.00 | 9.61 | 9.14 | 0.29 | 9.43 | 6,951.78 | 6,952.01 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 05/20/21 | 4.00 | 9.61 | 8.90 | 0.27 | 9.17 | 6,951.78 | 6,952.00 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-20 | 06/01/21 | 4.00 | 9.61 | 9.01 | 0.29 | 9.30 | 6,951.78 | 6,952.01 | 2 - 10 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 02/10/14 | MKTF-21 | 03/16/15 | 4.00 | 9.89 | ND | 0.00 | 7.62 | 6,944.95 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 06/10/15 | 4.00 | 9.89 | ND | 0.00 | 7.96 | 6,944.61 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 08/23/15 | 4.00 | 9.89 | ND | 0.00 | 7.62 | 6,944.95 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 11/09/15 | 4.00 | 9.89 | ND | 0.00 | 7.46 | 6,945.11 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 02/29/16 | 4.00 | 9.89 | ND | 0.00 | 7.24 | 6,945.33 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 06/08/16 | 4.00 | 9.89 | ND | 0.00 | 6.98 | 6,945.59 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 09/11/16 | 4.00 | 9.89 | ND | 0.00 | 7.62 | 6,944.95 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 11/09/16 | 4.00 | 9.89 | ND | 0.00 | 7.46 | 6,945.11 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 03/14/17 | 4.00 | 9.89 | ND | 0.00 | 5.50 | 6,947.07 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 06/21/17 | 4.00 | 9.89 | ND | 0.00 | 5.09 | 6,947.48 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 09/26/17 | 4.00 | 9.89 | ND | 0.00 | 5.69 | 6,946.88 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 11/28/17 | 4.00 | 8.81 | ND | 0.00 | 6.25 | 6,946.32 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 02/14/18 | 4.00 | 8.80 | ND | 0.00 | 6.88 | 6,945.69 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 04/25/18 | 4.00 | 8.75 | ND | 0.00 | 6.32 | 6,946.25 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 08/16/18 | 4.00 | 8.80 | ND | 0.00 | 6.05 | 6,946.52 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 11/29/18 | 4.00 | 8.81 | ND | 0.00 | 7.52 | 6,945.05 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 02/20/19 | 4.00 | 8.81 | ND | 0.00 | 5.62 | 6,946.95 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 05/13/19 | 4.00 | 8.81 | ND | 0.00 | 6.70 | 6,945.87 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 08/20/19 | 4.00 | 8.81 | ND | 0.00 | 7.22 | 6,945.35 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 10/30/19 | 4.00 | 8.81 | ND | 0.00 | 8.32 | 6,944.25 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 02/05/20 | 4.00 | 8.83 | ND | 0.00 | 8.25 | 6,944.32 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 06/26/20 | 4.00 | 8.83 | 8.17 | 0.03 | 8.20 | 6,944.37 | 6944.39 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 09/15/20 | 4.00 | 8.84 | 7.08 | 0.01 | 7.09 | 6,945.48 | 6945.49 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 11/10/20 | 4.00 | 8.84 | ND | 0.00 | 6.41 | 6,946.16 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 12/04/20 | 4.00 | 8.80 | 8.04 | 0.01 | 8.05 | 6,944.52 | 6944.53 | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 01/28/21 | 4.00 | 8.80 | ND | 0.00 | 7.34 | 6,945.23 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 02/28/21 | 4.00 | 8.87 | ND | 0.00 | 7.81 | 6,944.76 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 03/31/21 | 4.00 | 8.87 | ND | 0.00 | 7.73 | 6,944.84 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 04/26/21 | 4.00 | 8.87 | ND | 0.00 | 7.28 | 6,945.29 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 05/20/21 | 4.00 | 8.87 | ND | 0.00 | 7.40 | 6,945.17 | NA | 2 - 10 | Chinle/Alluvium Interface |
| | MKTF-21 | 06/01/21 | 4.00 | 8.87 | ND | 0.00 | 6.98 | 6,945.59 | NA | 2 - 10 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/08/13 | MKTF-22 | 03/12/15 | 2.00 | 35.25 | ND | 0.00 | 26.07 | 6,916.24 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 06/09/15 | 2.00 | 35.25 | ND | 0.00 | 26.18 | 6,916.13 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 08/20/15 | 2.00 | 36.25 | ND | 0.00 | 26.20 | 6,916.11 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 11/09/15 | 2.00 | 35.25 | ND | 0.00 | 26.05 | 6,916.26 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 02/25/16 | 2.00 | 35.25 | ND | 0.00 | 26.13 | 6,916.18 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 06/10/16 | 2.00 | 35.25 | ND | 0.00 | 26.06 | 6,916.25 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 09/10/16 | 2.00 | 36.25 | ND | 0.00 | 26.13 | 6,916.18 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 11/09/16 | 2.00 | 35.25 | ND | 0.00 | 26.05 | 6,916.26 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 03/08/17 | 2.00 | 35.25 | ND | 0.00 | 25.10 | 6,917.21 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 06/07/17 | 2.00 | 35.25 | ND | 0.00 | 25.31 | 6,917.00 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 10/03/17 | 2.00 | 35.25 | ND | 0.00 | 25.19 | 6,917.12 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 11/27/17 | 2.00 | 35.60 | ND | 0.00 | 25.18 | 6,917.13 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 02/07/18 | 2.00 | 35.60 | ND | 0.00 | 25.50 | 6,916.81 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 04/26/18 | 2.00 | 35.51 | ND | 0.00 | 25.40 | 6,916.91 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 08/15/18 | 2.00 | 35.62 | ND | 0.00 | 25.80 | 6,916.51 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 11/27/18 | 2.00 | 35.60 | ND | 0.00 | 25.57 | 6,916.74 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 03/25/19 | 2.00 | 35.25 | ND | 0.00 | 24.43 | 6,917.88 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 05/09/19 | 2.00 | 35.25 | ND | 0.00 | 24.64 | 6,917.67 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 08/20/19 | 2.00 | 35.62 | ND | 0.00 | 24.95 | 6,917.36 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 10/24/19 | 2.00 | 35.60 | ND | 0.00 | 25.40 | 6,916.91 | NA | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 02/27/20 | 2.00 | 35.25 | 24.48 | 1.05 | 25.53 | 6,916.78 | 6917.62 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 06/29/20 | 2.00 | 35.25 | 24.57 | 3.14 | 27.71 | 6,914.60 | 6917.11 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 09/14/20 | 2.00 | 35.09 | 24.98 | 2.70 | 27.68 | 6,914.63 | 6916.79 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 11/10/20 | 2.00 | 35.09 | 24.94 | 2.35 | 27.29 | 6,915.02 | 6916.90 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 12/04/20 | 2.00 | 35.09 | 25.10 | 2.45 | 27.55 | 6,914.76 | 6916.72 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 01/28/21 | 2.00 | 35.09 | 25.28 | 2.69 | 27.97 | 6,914.34 | 6916.49 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 02/28/21 | 2.00 | 35.66 | 25.17 | 2.68 | 27.85 | 6,914.46 | 6916.60 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 03/31/21 | 2.00 | 35.66 | 25.77 | 1.48 | 27.25 | 6,915.06 | 6916.24 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 04/26/21 | 2.00 | 35.66 | 26.01 | 0.22 | 26.23 | 6,916.08 | 6916.26 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 05/20/21 | 2.00 | 35.66 | 25.15 | 1.83 | 26.98 | 6,915.33 | 6916.79 | 22 - 32 | Chinle/Alluvium Interface |
| | MKTF-22 | 06/01/21 | 2.00 | 35.66 | 26.10 | 2.10 | 28.20 | 6,914.11 | 6915.79 | 22 - 32 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/04/13 | MKTF-23 | 03/12/15 | 2.00 | 20.36 | ND | 0.00 | 14.79 | 6,915.19 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 06/09/15 | 2.00 | 20.36 | ND | 0.00 | 13.82 | 6,916.16 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 08/21/15 | 2.00 | 21.36 | ND | 0.00 | 14.76 | 6,915.22 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 11/09/15 | 2.00 | 20.36 | ND | 0.00 | 14.61 | 6,915.37 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 02/25/16 | 2.00 | 20.36 | ND | 0.00 | 14.67 | 6,915.31 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 06/10/16 | 2.00 | 20.36 | ND | 0.00 | 14.64 | 6,915.34 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 09/10/16 | 2.00 | 21.36 | 15.04 | 0.11 | 15.15 | 6,914.83 | 6,914.92 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 11/09/16 | 2.00 | 20.36 | ND | 0.00 | 14.61 | 6,915.37 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 03/08/17 | 2.00 | 20.36 | ND | 0.00 | 14.20 | 6,915.78 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 06/07/17 | 2.00 | 20.36 | 14.20 | 0.70 | 14.90 | 6,915.08 | 6,915.64 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 10/03/17 | 2.00 | 20.36 | 14.19 | 0.06 | 14.25 | 6,915.73 | 6,915.78 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 11/27/17 | 2.00 | 20.36 | 13.93 | 0.01 | 13.94 | 6,916.04 | 6,916.05 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 02/07/18 | 2.00 | 20.36 | 14.11 | 0.09 | 14.20 | 6,915.78 | 6,915.85 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 04/26/18 | 2.00 | 20.27 | 14.07 | 0.02 | 14.09 | 6,915.89 | 6,915.91 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 08/15/18 | 2.00 | 20.38 | 15.48 | 0.10 | 15.58 | 6,914.40 | 6,914.48 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 11/27/18 | 2.00 | 20.36 | 14.20 | 0.04 | 14.24 | 6,915.74 | 6,915.77 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 03/25/19 | 2.00 | 20.36 | ND | ND | 12.55 | 6,917.43 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 05/09/19 | 2.00 | 20.36 | 12.95 | 0.07 | 13.02 | 6,916.96 | 6,917.02 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 08/20/19 | 2.00 | 20.38 | 13.47 | 0.03 | 13.50 | 6,916.48 | 6,916.50 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 10/28/19 | 2.00 | 20.36 | ND | 0.00 | 13.95 | 6,916.03 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 02/27/20 | 2.00 | 20.36 | ND | 0.00 | 13.42 | 6,916.56 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 06/29/20 | 2.00 | 20.36 | ND | 0.00 | 13.25 | 6,916.73 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 09/19/20 | 2.00 | 20.02 | 15.42 | 0.02 | 15.44 | 6,914.54 | 6,914.56 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 11/10/20 | 2.00 | 20.02 | ND | 0.00 | 14.23 | 6,915.75 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 12/04/20 | 2.00 | 20.39 | 14.15 | 0.01 | 14.16 | 6,915.82 | 6,915.83 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 12/28/20 | 2.00 | 20.76 | ND | 0.00 | 14.09 | 6,915.89 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 01/28/21 | 2.00 | 20.76 | 14.22 | 0.01 | 14.23 | 6,915.75 | 6,915.76 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 02/28/21 | 2.00 | 20.41 | 14.38 | 0.01 | 14.39 | 6,915.59 | 6,915.60 | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 03/31/21 | 2.00 | 20.41 | ND | 0.00 | 14.21 | 6,915.77 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 04/26/21 | 2.00 | 20.41 | ND | 0.00 | 13.90 | 6,916.08 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 05/20/21 | 2.00 | 20.41 | ND | 0.00 | 14.19 | 6,915.79 | NA | 7 - 17 | Chinle/Alluvium Interface |
| | MKTF-23 | 06/01/21 | 2.00 | 20.41 | ND | 0.00 | 13.98 | 6,916.00 | NA | 7 - 17 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/29/13 | MKTF-24 | 03/11/15 | 2.00 | 30.47 | ND | 0.00 | 21.54 | 6,907.18 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 06/10/15 | 2.00 | 30.47 | ND | 0.00 | 21.65 | 6,907.07 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 08/20/15 | 2.00 | 31.47 | ND | 0.00 | 21.53 | 6,907.19 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 11/04/15 | 2.00 | 30.47 | ND | 0.00 | 21.72 | 6,907.00 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 02/22/16 | 2.00 | 30.47 | ND | 0.00 | 21.34 | 6,907.38 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 06/08/16 | 2.00 | 30.47 | ND | 0.00 | 21.23 | 6,907.49 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 09/07/16 | 2.00 | 31.47 | ND | 0.00 | 22.69 | 6,906.03 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 11/04/16 | 2.00 | 30.47 | ND | 0.00 | 21.72 | 6,907.00 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 03/06/17 | 2.00 | 30.47 | ND | 0.00 | 20.61 | 6,908.11 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 06/05/17 | 2.00 | 30.47 | ND | 0.00 | 21.07 | 6,907.65 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 10/03/17 | 2.00 | 30.47 | ND | 0.00 | 21.52 | 6,907.20 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 11/20/17 | 2.00 | 30.82 | ND | 0.00 | 21.53 | 6,907.19 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 02/06/18 | 2.00 | 30.83 | ND | 0.00 | 21.60 | 6,907.12 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 04/25/18 | 2.00 | 30.78 | ND | 0.00 | 21.76 | 6,906.96 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 08/15/18 | 2.00 | 30.85 | ND | 0.00 | 22.65 | 6,906.07 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 11/14/18 | 2.00 | 30.82 | ND | 0.00 | 23.30 | 6,905.42 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 02/25/19 | 2.00 | 30.47 | ND | 0.00 | 22.43 | 6,906.29 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 05/06/19 | 2.00 | 30.47 | ND | 0.00 | 21.53 | 6,907.19 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 08/23/19 | 2.00 | 30.85 | ND | 0.00 | 22.05 | 6,906.67 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 10/22/19 | 2.00 | 30.82 | ND | 0.00 | 23.21 | 6,905.51 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 02/24/20 | 2.00 | 30.47 | ND | 0.00 | 22.17 | 6,906.55 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 06/26/20 | 2.00 | 30.47 | ND | 0.00 | 22.80 | 6,905.92 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 09/15/20 | 2.00 | 31.13 | ND | 0.00 | 23.35 | 6,905.37 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 11/10/20 | 2.00 | 31.13 | ND | 0.00 | 23.32 | 6,905.40 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 12/04/20 | 2.00 | 31.18 | ND | 0.00 | 23.22 | 6,905.50 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 01/28/21 | 2.00 | 31.23 | ND | 0.00 | 23.26 | 6,905.46 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 02/27/21 | 2.00 | 31.47 | ND | 0.00 | 22.97 | 6,905.75 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 03/31/21 | 2.00 | 31.47 | ND | 0.00 | 23.16 | 6,905.56 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 04/26/21 | 2.00 | 31.47 | ND | 0.00 | 24.16 | 6,904.56 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 05/20/21 | 2.00 | 31.47 | ND | 0.00 | 23.21 | 6,905.51 | NA | 18 - 28 | Chinle/Alluvium Interface |
| | MKTF-24 | 06/01/21 | 2.00 | 31.47 | ND | 0.00 | 23.40 | 6,905.32 | NA | 18 - 28 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/30/13 | MKTF-25 | 03/11/15 | 2.00 | 19.43 | ND | 0.00 | 10.85 | 6,905.34 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 06/10/15 | 2.00 | 19.43 | ND | 0.00 | 11.04 | 6,905.15 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 08/21/15 | 2.00 | 20.43 | ND | 0.00 | 10.60 | 6,905.59 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 11/05/15 | 2.00 | 19.43 | ND | 0.00 | 11.20 | 6,904.99 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 02/23/16 | 2.00 | 19.43 | ND | 0.00 | 10.83 | 6,905.36 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 06/09/16 | 2.00 | 19.43 | ND | 0.00 | 11.22 | 6,904.97 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 09/08/16 | 2.00 | 20.43 | ND | 0.00 | 12.17 | 6,904.02 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 11/05/16 | 2.00 | 19.43 | ND | 0.00 | 11.20 | 6,904.99 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 03/06/17 | 2.00 | 19.43 | ND | 0.00 | 9.52 | 6,906.67 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 06/05/17 | 2.00 | 19.43 | ND | 0.00 | 10.23 | 6,905.96 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 09/25/17 | 2.00 | 19.43 | ND | 0.00 | 11.04 | 6,905.15 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 11/21/17 | 2.00 | 19.80 | ND | 0.00 | 11.11 | 6,905.08 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 02/05/18 | 2.00 | 19.55 | ND | 0.00 | 11.20 | 6,904.99 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 04/25/18 | 2.00 | 19.50 | ND | 0.00 | 11.18 | 6,905.01 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 08/15/18 | 2.00 | 19.78 | ND | 0.00 | 12.36 | 6,903.83 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 11/14/18 | 2.00 | 19.80 | ND | 0.00 | 13.35 | 6,902.84 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 02/14/19 | 2.00 | 19.43 | ND | 0.00 | 13.13 | 6,903.06 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 05/06/19 | 2.00 | 19.43 | ND | 0.00 | 12.00 | 6,904.19 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 08/23/19 | 2.00 | 19.78 | ND | 0.00 | 13.12 | 6,903.07 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 08/27/19 | 2.00 | 20.78 | ND | 0.00 | 13.23 | 6,902.96 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 10/22/19 | 2.00 | 19.80 | ND | 0.00 | 13.72 | 6,902.47 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 02/26/20 | 2.00 | 19.43 | ND | 0.00 | 12.94 | 6,903.25 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 06/26/20 | 2.00 | 19.43 | ND | 0.00 | 13.33 | 6,902.86 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 09/15/20 | 2.00 | 20.09 | ND | 0.00 | 13.90 | 6,902.29 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 11/10/20 | 2.00 | 20.09 | ND | 0.00 | 13.75 | 6,902.44 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 12/04/20 | 2.00 | 20.38 | ND | 0.00 | 13.62 | 6,902.57 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 01/28/21 | 2.00 | 20.38 | ND | 0.00 | 13.54 | 6,902.65 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 02/27/21 | 2.00 | 20.09 | ND | 0.00 | 13.46 | 6,902.73 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 03/31/21 | 2.00 | 20.09 | ND | 0.00 | 13.41 | 6,902.78 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 04/26/21 | 2.00 | 20.09 | ND | 0.00 | 14.14 | 6,902.05 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 05/20/21 | 2.00 | 20.09 | ND | 0.00 | 13.32 | 6,902.87 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-25 | 06/01/21 | 2.00 | 20.09 | ND | 0.00 | 13.56 | 6,902.63 | NA | 6 - 16 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/30/13 | MKTF-26 | 03/11/15 | 2.00 | 17.15 | ND | 0.00 | 8.00 | 6,907.31 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 06/10/15 | 2.00 | 17.15 | ND | 0.00 | 8.57 | 6,906.74 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 08/20/15 | 2.00 | 18.15 | ND | 0.00 | 8.54 | 6,906.77 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 11/04/15 | 2.00 | 17.15 | ND | 0.00 | 8.40 | 6,906.91 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 02/22/16 | 2.00 | 17.15 | ND | 0.00 | 8.17 | 6,907.14 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 06/09/16 | 2.00 | 17.15 | ND | 0.00 | 9.60 | 6,905.71 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 09/07/16 | 2.00 | 18.15 | 9.44 | 1.37 | 10.81 | 6,904.50 | 6,905.60 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 11/04/16 | 2.00 | 17.15 | ND | 0.00 | 8.40 | 6,906.91 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 03/06/17 | 2.00 | 17.15 | 7.44 | 0.75 | 8.19 | 6,907.12 | 6,907.72 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 06/05/17 | 2.00 | 17.15 | 8.03 | 0.96 | 8.99 | 6,906.32 | 6,907.09 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 10/03/17 | 2.00 | 17.15 | 7.77 | 0.83 | 8.60 | 6,906.71 | 6,907.37 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 11/20/17 | 2.00 | 17.15 | 8.09 | 0.84 | 8.93 | 6,906.38 | 6,907.05 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 02/07/18 | 2.00 | 17.15 | 8.53 | 0.83 | 9.36 | 6,905.95 | 6,906.61 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 04/25/18 | 2.00 | 17.05 | 8.56 | 0.81 | 9.37 | 6,905.94 | 6,906.59 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 08/15/18 | 2.00 | 17.17 | 8.73 | 0.84 | 9.57 | 6,905.74 | 6,906.41 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 11/14/18 | 2.00 | 17.15 | 8.45 | 1.45 | 9.90 | 6,905.41 | 6,906.57 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 02/14/19 | 2.00 | 17.15 | 8.38 | 0.77 | 9.15 | 6,906.16 | 6,906.78 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 05/06/19 | 2.00 | 17.15 | 7.80 | 0.85 | 8.65 | 6,906.66 | 6,907.34 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 08/23/19 | 2.00 | 17.17 | 8.22 | 0.83 | 9.05 | 6,906.26 | 6,906.92 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 10/22/19 | 2.00 | 17.15 | 8.63 | 0.73 | 9.36 | 6,905.95 | 6,906.53 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 02/26/20 | 2.00 | 17.15 | 8.35 | 0.76 | 9.11 | 6,906.20 | 6906.81 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 06/26/20 | 2.00 | 17.15 | 8.61 | 0.89 | 9.50 | 6,905.81 | 6906.52 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 09/15/20 | 2.00 | 16.85 | 8.81 | 0.75 | 9.56 | 6,905.75 | 6906.35 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 11/10/20 | 2.00 | 16.85 | 8.65 | 0.71 | 9.36 | 6,905.95 | 6906.52 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 12/04/20 | 2.00 | 17.16 | 7.67 | 1.72 | 9.39 | 6,905.92 | 6907.30 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 01/28/21 | 2.00 | 17.16 | 8.93 | 0.27 | 9.20 | 6,906.11 | 6906.33 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 02/27/21 | 2.00 | 16.90 | 8.88 | 0.17 | 9.05 | 6,906.26 | 6906.40 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 03/31/21 | 2.00 | 16.90 | 9.00 | 0.11 | 9.11 | 6,906.20 | 6906.29 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 04/26/21 | 2.00 | 16.90 | 8.81 | 0.11 | 8.92 | 6,906.39 | 6906.48 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 05/20/21 | 2.00 | 16.90 | 9.02 | 0.12 | 9.14 | 6,906.17 | 6906.27 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-26 | 06/01/21 | 2.00 | 16.90 | 9.10 | 0.09 | 9.19 | 6,906.12 | 6906.19 | 4 - 14 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/30/13 | MKTF-27 | 03/11/15 | 2.00 | 14.72 | ND | 0.00 | 7.10 | 6,910.80 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 06/09/15 | 2.00 | 14.72 | ND | 0.00 | 7.44 | 6,910.46 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 08/20/15 | 2.00 | 15.72 | ND | 0.00 | 7.85 | 6,910.05 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 11/04/15 | 2.00 | 14.72 | ND | 0.00 | 7.53 | 6,910.37 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 02/22/16 | 2.00 | 14.72 | ND | 0.00 | 7.20 | 6,910.70 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 06/08/16 | 2.00 | 14.72 | ND | 0.00 | 7.51 | 6,910.39 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 09/07/16 | 2.00 | 15.72 | ND | 0.00 | 8.06 | 6,909.84 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 11/04/16 | 2.00 | 14.72 | ND | 0.00 | 7.53 | 6,910.37 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 03/06/17 | 2.00 | 14.72 | ND | 0.00 | 6.02 | 6,911.88 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 06/05/17 | 2.00 | 14.72 | ND | 0.00 | 6.32 | 6,911.58 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 10/03/17 | 2.00 | 14.72 | ND | 0.00 | 5.90 | 6,912.00 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 11/20/17 | 2.00 | 14.72 | ND | 0.00 | 5.98 | 6,911.92 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 02/06/18 | 2.00 | 14.72 | ND | 0.00 | 6.25 | 6,911.65 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 04/25/18 | 2.00 | 14.62 | ND | 0.00 | 6.34 | 6,911.56 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 08/15/18 | 2.00 | 14.72 | ND | 0.00 | 6.15 | 6,911.75 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 11/14/18 | 2.00 | 14.72 | ND | 0.00 | 6.31 | 6,911.59 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 02/25/19 | 2.00 | 14.72 | ND | 0.00 | 3.75 | 6,914.15 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 05/06/19 | 2.00 | 14.72 | ND | 0.00 | 5.73 | 6,912.17 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 08/21/19 | 2.00 | 14.72 | ND | 0.00 | 5.66 | 6,912.24 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 10/30/19 | 2.00 | 14.72 | ND | 0.00 | 6.14 | 6,911.76 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 02/24/20 | 2.00 | 14.72 | ND | 0.00 | 3.61 | 6,914.29 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 06/30/20 | 2.00 | 14.72 | ND | 0.00 | 6.70 | 6,911.20 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 09/15/20 | 2.00 | 14.72 | ND | 0.00 | 6.21 | 6,911.69 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 11/10/20 | 2.00 | 14.72 | ND | 0.00 | 6.72 | 6,911.18 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 12/04/20 | 2.00 | 14.74 | ND | 0.00 | 6.47 | 6,911.43 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 01/28/21 | 2.00 | 14.74 | ND | 0.00 | 6.62 | 6,911.28 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 02/28/21 | 2.00 | 14.76 | ND | 0.00 | 5.51 | 6,912.39 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 03/31/21 | 2.00 | 14.76 | ND | 0.00 | 6.48 | 6,911.42 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 04/26/21 | 2.00 | 14.76 | ND | 0.00 | 6.18 | 6,911.72 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 05/20/21 | 2.00 | 14.76 | ND | 0.00 | 6.52 | 6,911.38 | NA | 1 - 12 | Chinle/Alluvium Interface |
| | MKTF-27 | 06/01/21 | 2.00 | 14.76 | ND | 0.00 | 6.69 | 6,911.21 | NA | 1 - 12 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04/02/14 | MKTF-28 | 03/11/15 | 2.00 | 16.16 | ND | 0.00 | 6.64 | 6,914.88 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 06/09/15 | 2.00 | 16.16 | ND | 0.00 | 5.40 | 6,916.12 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 08/20/15 | 2.00 | 17.16 | ND | 0.00 | 6.42 | 6,915.10 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 11/04/15 | 2.00 | 16.16 | ND | 0.00 | 5.74 | 6,915.78 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 02/23/16 | 2.00 | 16.16 | ND | 0.00 | 5.32 | 6,916.20 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 06/08/16 | 2.00 | 16.16 | ND | 0.00 | 5.28 | 6,916.24 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 09/08/16 | 2.00 | 17.16 | ND | 0.00 | 6.40 | 6,915.12 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 11/04/16 | 2.00 | 16.16 | ND | 0.00 | 5.74 | 6,915.78 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 03/06/17 | 2.00 | 16.16 | ND | 0.00 | 4.68 | 6,916.84 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 06/05/17 | 2.00 | 16.16 | ND | 0.00 | 7.90 | 6,913.62 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 10/03/17 | 2.00 | 16.16 | ND | 0.00 | 4.28 | 6,917.24 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 11/20/17 | 2.00 | 16.13 | ND | 0.00 | 7.90 | 6,913.62 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 02/06/18 | 2.00 | 16.13 | ND | 0.00 | 6.73 | 6,914.79 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 04/25/18 | 2.00 | 16.04 | ND | 0.00 | 6.98 | 6,914.54 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 08/15/18 | 2.00 | 16.15 | ND | 0.00 | 4.45 | 6,917.07 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 11/14/18 | 2.00 | 16.13 | ND | 0.00 | 6.12 | 6,915.40 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 02/25/19 | 2.00 | 16.16 | ND | 0.00 | 4.91 | 6,916.61 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 05/06/19 | 2.00 | 16.16 | ND | 0.00 | 9.27 | 6,912.25 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 08/21/19 | 2.00 | 16.15 | ND | 0.00 | 3.82 | 6,917.70 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 10/22/19 | 2.00 | 16.13 | ND | 0.00 | 6.38 | 6,915.14 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 02/24/20 | 2.00 | 16.16 | ND | 0.00 | 4.53 | 6,916.99 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 06/30/20 | 2.00 | 16.16 | ND | 0.00 | 4.84 | 6,916.68 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 09/15/20 | 2.00 | 16.17 | ND | 0.00 | 4.59 | 6,916.93 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 11/10/20 | 2.00 | 16.17 | ND | 0.00 | 8.81 | 6,912.71 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 12/04/20 | 2.00 | 16.16 | ND | 0.00 | 7.13 | 6,914.39 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 01/28/21 | 2.00 | 16.16 | ND | 0.00 | 9.74 | 6,911.78 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 02/28/21 | 2.00 | 16.16 | ND | 0.00 | 8.18 | 6,913.34 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 03/31/21 | 2.00 | 16.16 | ND | 0.00 | 8.51 | 6,913.01 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 04/26/21 | 2.00 | 16.16 | ND | 0.00 | 8.47 | 6,913.05 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 05/20/21 | 2.00 | 16.16 | ND | 0.00 | 7.94 | 6,913.58 | NA | 3 - 13 | Chinle/Alluvium Interface |
| | MKTF-28 | 06/01/21 | 2.00 | 16.16 | ND | 0.00 | 7.87 | 6,913.65 | NA | 3 - 13 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04/02/14 | MKTF-29 | 03/11/15 | 2.00 | 22.84 | ND | 0.00 | 2.04 | 6,899.58 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 06/10/15 | 2.00 | 22.84 | ND | 0.00 | 2.69 | 6,898.93 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 08/20/15 | 2.00 | 23.84 | ND | 0.00 | 2.30 | 6,899.32 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 11/04/15 | 2.00 | 22.84 | ND | 0.00 | 2.40 | 6,899.22 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 02/23/16 | 2.00 | 22.84 | ND | 0.00 | 1.92 | 6,899.70 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 06/09/16 | 2.00 | 22.84 | ND | 0.00 | 2.69 | 6,898.93 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 09/07/16 | 2.00 | 23.84 | ND | 0.00 | 4.52 | 6,897.10 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 11/04/16 | 2.00 | 22.84 | ND | 0.00 | 2.40 | 6,899.22 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 03/06/17 | 2.00 | 22.84 | ND | 0.00 | 0.99 | 6,900.63 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 06/05/17 | 2.00 | 22.84 | ND | 0.00 | 0.95 | 6,900.67 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 10/03/17 | 2.00 | 22.84 | ND | 0.00 | 1.59 | 6,900.03 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 11/20/17 | 2.00 | 22.80 | ND | 0.00 | 1.91 | 6,899.71 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 02/06/18 | 2.00 | 22.81 | ND | 0.00 | 1.93 | 6,899.69 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 04/25/18 | 2.00 | 22.77 | ND | 0.00 | 2.12 | 6,899.50 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 08/15/18 | 2.00 | 22.82 | ND | 0.00 | 3.92 | 6,897.70 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 11/14/18 | 2.00 | 22.80 | ND | 0.00 | 4.09 | 6,897.53 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 02/25/19 | 2.00 | 22.84 | ND | 0.00 | 3.73 | 6,897.89 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 05/06/19 | 2.00 | 22.84 | ND | 0.00 | 3.72 | 6,897.90 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 08/23/19 | 2.00 | 22.82 | ND | 0.00 | 5.83 | 6,895.79 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 10/22/19 | 2.00 | 22.80 | ND | 0.00 | 6.32 | 6,895.30 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 02/24/20 | 2.00 | 22.84 | ND | 0.00 | 4.49 | 6,897.13 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 06/26/20 | 2.00 | 22.84 | ND | 0.00 | 6.42 | 6,895.20 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 09/15/20 | 2.00 | 22.78 | ND | 0.00 | 8.01 | 6,893.61 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 11/10/20 | 2.00 | 22.78 | ND | 0.00 | 6.98 | 6,894.64 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 12/04/20 | 2.00 | 22.85 | ND | 0.00 | 6.40 | 6,895.22 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 01/28/21 | 2.00 | 22.85 | ND | 0.00 | 5.61 | 6,896.01 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 02/28/21 | 2.00 | 22.83 | ND | 0.00 | 5.31 | 6,896.31 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 03/31/21 | 2.00 | 22.83 | ND | 0.00 | 5.20 | 6,896.42 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 04/26/21 | 2.00 | 22.83 | ND | 0.00 | 4.92 | 6,896.70 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 05/20/21 | 2.00 | 22.83 | ND | 0.00 | 5.21 | 6,896.41 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-29 | 06/01/21 | 2.00 | 22.83 | ND | 0.00 | 4.12 | 6,897.50 | NA | 10 - 20 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04/01/14 | MKTF-30 | 03/11/15 | 2.00 | 23.20 | ND | 0.00 | 14.74 | 6,886.06 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 06/10/15 | 2.00 | 23.20 | ND | 0.00 | 14.57 | 6,886.23 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 08/20/15 | 2.00 | 24.20 | ND | 0.00 | 15.29 | 6,885.51 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 11/04/15 | 2.00 | 23.20 | ND | 0.00 | 14.74 | 6,886.06 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 02/23/16 | 2.00 | 23.20 | ND | 0.00 | 14.40 | 6,886.40 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 06/09/16 | 2.00 | 23.20 | ND | 0.00 | 14.01 | 6,886.79 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 09/07/16 | 2.00 | 24.20 | ND | 0.00 | 15.48 | 6,885.32 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 11/04/16 | 2.00 | 23.20 | ND | 0.00 | 14.74 | 6,886.06 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 03/06/17 | 2.00 | 23.20 | ND | 0.00 | 14.13 | 6,886.67 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 06/05/17 | 2.00 | 23.20 | ND | 0.00 | 13.87 | 6,886.93 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 10/03/17 | 2.00 | 23.20 | ND | 0.00 | 15.03 | 6,885.77 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 11/20/17 | 2.00 | 23.19 | ND | 0.00 | 14.91 | 6,885.89 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 02/06/18 | 2.00 | 23.20 | ND | 0.00 | 14.20 | 6,886.60 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 04/25/18 | 2.00 | 23.10 | ND | 0.00 | 13.79 | 6,887.01 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 08/15/18 | 2.00 | 23.20 | ND | 0.00 | 14.65 | 6,886.15 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 11/14/18 | 2.00 | 23.19 | ND | 0.00 | 15.15 | 6,885.65 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 03/28/19 | 2.00 | 23.20 | ND | 0.00 | 13.68 | 6,887.12 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 05/06/19 | 2.00 | 23.20 | ND | 0.00 | 13.81 | 6,886.99 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 08/23/19 | 2.00 | 23.20 | ND | 0.00 | 14.88 | 6,885.92 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 10/22/19 | 2.00 | 23.19 | ND | 0.00 | 15.82 | 6,884.98 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 02/26/20 | 2.00 | 23.20 | ND | 0.00 | 15.31 | 6,885.49 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 06/26/20 | 2.00 | 23.20 | ND | 0.00 | 16.19 | 6,884.61 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 09/15/20 | 2.00 | 23.22 | ND | 0.00 | 16.66 | 6,884.14 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 11/10/20 | 2.00 | 23.22 | ND | 0.00 | 16.87 | 6,883.93 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 12/04/20 | 2.00 | 23.22 | ND | 0.00 | 16.76 | 6,884.04 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 01/28/21 | 2.00 | 23.22 | ND | 0.00 | 16.79 | 6,884.01 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 02/28/21 | 2.00 | 22.95 | ND | 0.00 | 16.33 | 6,884.47 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 03/31/21 | 2.00 | 22.95 | ND | 0.00 | 16.40 | 6,884.40 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 04/26/21 | 2.00 | 22.95 | ND | 0.00 | 16.20 | 6,884.60 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 05/20/21 | 2.00 | 22.95 | ND | 0.00 | 16.39 | 6,884.41 | NA | 10 - 20 | Chinle/Alluvium Interface |
| | MKTF-30 | 06/01/21 | 2.00 | 22.95 | ND | 0.00 | 16.32 | 6,884.48 | NA | 10 - 20 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04/01/14 | MKTF-31 | 03/11/15 | 2.00 | 22.81 | ND | 0.00 | 7.98 | 6,898.89 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 06/10/15 | 2.00 | 22.81 | ND | 0.00 | 7.75 | 6,899.12 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 08/21/15 | 2.00 | 23.81 | ND | 0.00 | 8.09 | 6,898.78 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 11/04/15 | 2.00 | 22.81 | ND | 0.00 | 8.14 | 6,898.73 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 02/23/16 | 2.00 | 22.81 | ND | 0.00 | 7.95 | 6,898.92 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 06/09/16 | 2.00 | 22.81 | ND | 0.00 | 7.75 | 6,899.12 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 09/08/16 | 2.00 | 23.81 | ND | 0.00 | 8.48 | 6,898.39 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 11/04/16 | 2.00 | 22.81 | ND | 0.00 | 8.14 | 6,898.73 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 03/07/17 | 2.00 | 22.81 | ND | 0.00 | 7.84 | 6,899.03 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 06/05/17 | 2.00 | 22.81 | ND | 0.00 | 7.58 | 6,899.29 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 09/25/17 | 2.00 | 23.81 | ND | 0.00 | 8.29 | 6,898.58 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 11/21/17 | 2.00 | 19.30 | ND | 0.00 | 8.15 | 6,898.72 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 02/05/18 | 2.00 | 19.31 | ND | 0.00 | 7.90 | 6,898.97 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 04/25/18 | 2.00 | 19.26 | ND | 0.00 | 7.73 | 6,899.14 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 08/15/18 | 2.00 | 19.35 | ND | 0.00 | 8.25 | 6,898.62 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 11/14/18 | 2.00 | 19.30 | ND | 0.00 | 8.44 | 6,898.43 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 02/14/19 | 2.00 | 22.81 | ND | 0.00 | 8.25 | 6,898.62 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 05/06/19 | 2.00 | 22.81 | ND | 0.00 | 7.72 | 6,899.15 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 08/23/19 | 2.00 | 19.35 | ND | 0.00 | 8.30 | 6,898.57 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 10/22/19 | 2.00 | 19.30 | ND | 0.00 | 8.64 | 6,898.23 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 02/24/20 | 2.00 | 22.81 | ND | 0.00 | 8.10 | 6,898.77 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 06/26/20 | 2.00 | 22.81 | ND | 0.00 | 8.25 | 6,898.62 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 09/15/20 | 2.00 | 19.34 | ND | 0.00 | 8.75 | 6,898.12 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 11/10/20 | 2.00 | 19.34 | ND | 0.00 | 8.79 | 6,898.08 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 12/04/20 | 2.00 | 19.37 | ND | 0.00 | 8.73 | 6,898.14 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 01/28/21 | 2.00 | 13.37 | ND | 0.00 | 8.62 | 6,898.25 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 02/28/21 | 2.00 | 19.36 | ND | 0.00 | 8.53 | 6,898.34 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 03/31/21 | 2.00 | 19.36 | ND | 0.00 | 8.61 | 6,898.26 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 04/26/21 | 2.00 | 19.36 | ND | 0.00 | 8.40 | 6,898.47 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 05/20/21 | 2.00 | 19.36 | ND | 0.00 | 8.51 | 6,898.36 | NA | 6 - 21 | Chinle/Alluvium Interface |
| | MKTF-31 | 06/01/21 | 2.00 | 19.36 | ND | 0.00 | 8.43 | 6,898.44 | NA | 6 - 21 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 03/31/14 | MKTF-32 | 03/12/15 | 2.00 | 27.75 | ND | 0.00 | 15.49 | 6,895.62 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 06/09/15 | 2.00 | 27.75 | ND | 0.00 | 15.49 | 6,895.62 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 08/21/15 | 2.00 | 28.75 | ND | 0.00 | 15.15 | 6,895.96 | NA | 9- 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 11/05/15 | 2.00 | 27.75 | ND | 0.00 | 14.84 | 6,896.27 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 02/24/16 | 2.00 | 27.75 | ND | 0.00 | 14.53 | 6,896.58 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 06/09/16 | 2.00 | 27.75 | ND | 0.00 | 14.31 | 6,896.80 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 09/09/16 | 2.00 | 28.75 | ND | 0.00 | 14.40 | 6,896.71 | NA | 9- 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 11/05/16 | 2.00 | 27.75 | ND | 0.00 | 14.84 | 6,896.27 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 03/07/17 | 2.00 | 27.75 | ND | 0.00 | 13.70 | 6,897.41 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 06/06/17 | 2.00 | 27.75 | ND | 0.00 | 13.79 | 6,897.32 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 09/25/17 | 2.00 | 28.75 | ND | 0.00 | 14.11 | 6,897.00 | NA | 9- 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 11/27/17 | 2.00 | 27.75 | ND | 0.00 | 13.57 | 6,897.54 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 02/07/18 | 2.00 | 27.75 | ND | 0.00 | 13.70 | 6,897.41 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 04/25/18 | 2.00 | 27.66 | ND | 0.00 | 13.48 | 6,897.63 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 08/15/18 | 2.00 | 27.77 | ND | 0.00 | 14.00 | 6,897.11 | NA | 9- 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 11/14/18 | 2.00 | 27.75 | ND | 0.00 | 14.10 | 6,897.01 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 02/13/19 | 2.00 | 27.75 | ND | 0.00 | 13.49 | 6,897.62 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 05/07/19 | 2.00 | 27.75 | ND | 0.00 | 13.25 | 6,897.86 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 08/20/19 | 2.00 | 27.77 | ND | 0.00 | 14.03 | 6,897.08 | NA | 9- 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 10/23/19 | 2.00 | 27.75 | ND | 0.00 | 14.01 | 6,897.10 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 02/26/20 | 2.00 | 27.75 | ND | 0.00 | 13.78 | 6,897.33 | NA | 9- 25 | Chinle/Alluvium Interface |
| | MKTF-32 | 06/29/20 | 2.00 | 27.75 | ND | 0.00 | 14.25 | 6,896.86 | NA | 10 - 24 | Chinle/Alluvium Interface |
| | MKTF-32 | 09/14/20 | 2.00 | 27.46 | ND | 0.00 | 14.58 | 6,896.53 | NA | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 11/10/20 | 2.00 | 27.46 | ND | 0.00 | 14.31 | 6,896.80 | NA | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 12/04/20 | 2.00 | 27.82 | ND | 0.00 | 14.25 | 6,896.86 | NA | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 01/28/21 | 2.00 | 27.82 | 14.08 | 0.01 | 14.08 | 6,897.03 | 6897.04 | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 02/27/21 | 2.00 | 27.79 | 14.01 | 0.01 | 14.02 | 6,897.09 | 6897.10 | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 03/31/21 | 2.00 | 27.79 | ND | 0.00 | 14.11 | 6,897.00 | NA | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 04/26/21 | 2.00 | 27.79 | ND | 0.00 | 13.90 | 6,897.21 | NA | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 05/20/21 | 2.00 | 27.79 | ND | 0.00 | 14.15 | 6,896.96 | NA | 9- 26 | Chinle/Alluvium Interface |
| | MKTF-32 | 06/01/21 | 2.00 | 27.79 | ND | 0.00 | 13.86 | 6,897.25 | NA | 9- 26 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 04/03/14 | MKTF-33 | 03/12/15 | 2.00 | 33.20 | ND | 0.00 | 23.32 | 6,916.43 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 06/09/15 | 2.00 | 33.20 | ND | 0.00 | 23.30 | 6,916.45 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 08/21/15 | 2.00 | 34.20 | ND | 0.00 | 23.32 | 6,916.43 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 11/09/15 | 2.00 | 33.20 | ND | 0.00 | 23.19 | 6,916.56 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 02/25/16 | 2.00 | 33.20 | ND | 0.00 | 23.20 | 6,916.55 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 06/10/16 | 2.00 | 33.20 | ND | 0.00 | 23.29 | 6,916.46 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 09/10/16 | 2.00 | 34.20 | ND | 0.00 | 23.20 | 6,916.55 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 11/09/16 | 2.00 | 33.20 | ND | 0.00 | 23.19 | 6,916.56 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 03/08/17 | 2.00 | 33.20 | ND | 0.00 | 22.16 | 6,917.59 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 06/07/17 | 2.00 | 33.20 | ND | 0.00 | 22.07 | 6,917.68 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 09/25/17 | 2.00 | 33.20 | ND | 0.00 | 22.50 | 6,917.25 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 11/27/17 | 2.00 | 33.22 | ND | 0.00 | 22.27 | 6,917.48 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 02/07/18 | 2.00 | 33.20 | ND | 0.00 | 22.65 | 6,917.10 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 04/26/18 | 2.00 | 33.11 | ND | 0.00 | 22.55 | 6,917.20 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 08/15/18 | 2.00 | 33.23 | ND | 0.00 | 22.85 | 6,916.90 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 11/27/18 | 2.00 | 33.22 | ND | 0.00 | 22.72 | 6,917.03 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 03/25/19 | 2.00 | 33.20 | ND | 0.00 | 22.00 | 6,917.75 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 05/09/19 | 2.00 | 33.20 | ND | 0.00 | 22.04 | 6,917.71 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 08/20/19 | 2.00 | 33.23 | ND | 0.00 | 22.35 | 6,917.40 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 10/24/19 | 2.00 | 33.22 | ND | 0.00 | 22.50 | 6,917.25 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 02/27/20 | 2.00 | 33.20 | ND | 0.00 | 22.71 | 6,917.04 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 06/29/20 | 2.00 | 33.20 | ND | 0.00 | 21.17 | 6,918.58 | NA | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 09/14/20 | 2.00 | 33.15 | 21.61 | 6.41 | 28.02 | 6,911.73 | 6916.86 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 11/10/20 | 2.00 | 33.15 | 21.65 | 6.16 | 27.81 | 6,911.94 | 6916.87 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 12/04/20 | 2.00 | 33.57 | 21.69 | 6.08 | 27.77 | 6,911.98 | 6916.84 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 01/28/21 | 2.00 | 33.57 | 22.58 | 3.38 | 25.96 | 6,913.79 | 6916.49 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 02/27/21 | 2.00 | 33.28 | 23.00 | 0.75 | 23.75 | 6,916.00 | 6916.60 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 03/31/21 | 2.00 | 33.28 | 23.19 | 0.22 | 23.41 | 6,916.34 | 6916.52 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 04/26/21 | 2.00 | 33.28 | 24.16 | 0.61 | 24.77 | 6,914.98 | 6915.47 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 05/20/21 | 2.00 | 33.28 | 23.21 | 0.31 | 23.52 | 6,916.23 | 6916.48 | 20 - 30 | Chinle/Alluvium Interface |
| | MKTF-33 | 06/01/21 | 2.00 | 33.28 | 23.07 | 0.38 | 23.45 | 6,916.30 | 6916.60 | 20 - 30 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 03/31/14 | MKTF-34 | 03/12/15 | 2.00 | 27.68 | ND | 0.00 | 18.77 | 6,926.58 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 06/08/15 | 2.00 | 27.68 | ND | 0.00 | 18.90 | 6,926.45 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 08/18/15 | 2.00 | 28.68 | ND | 0.00 | 18.74 | 6,926.61 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 11/03/15 | 2.00 | 27.68 | ND | 0.00 | 19.00 | 6,926.35 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 02/25/16 | 2.00 | 27.68 | ND | 0.00 | 19.20 | 6,926.15 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 06/10/16 | 2.00 | 27.68 | ND | 0.00 | 18.60 | 6,926.75 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 09/12/16 | 2.00 | 28.68 | ND | 0.00 | 18.03 | 6,927.32 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 11/03/16 | 2.00 | 27.68 | ND | 0.00 | 19.00 | 6,926.35 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 03/01/17 | 2.00 | 27.68 | ND | 0.00 | 16.50 | 6,928.85 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 06/14/17 | 2.00 | 27.68 | ND | 0.00 | 17.63 | 6,927.72 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 09/26/17 | 2.00 | 27.68 | ND | 0.00 | 17.62 | 6,927.73 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 11/30/17 | 2.00 | 27.70 | ND | 0.00 | 18.03 | 6,927.32 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 02/15/18 | 2.00 | 27.71 | ND | 0.00 | 18.80 | 6,926.55 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 04/26/18 | 2.00 | 27.60 | ND | 0.00 | 18.63 | 6,926.72 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 08/15/18 | 2.00 | 27.70 | ND | 0.00 | 18.58 | 6,926.77 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 11/27/18 | 2.00 | 27.70 | ND | 0.00 | 18.95 | 6,926.40 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 03/25/19 | 2.00 | 27.68 | ND | 0.00 | 16.95 | 6,928.40 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 05/09/19 | 2.00 | 27.68 | ND | 0.00 | 18.09 | 6,927.26 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 08/19/19 | 2.00 | 27.70 | ND | 0.00 | 17.70 | 6,927.65 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 10/29/19 | 2.00 | 27.70 | ND | 0.00 | 18.03 | 6,927.32 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 11/12/19 | 2.00 | 27.70 | ND | 0.00 | 18.06 | 6,927.29 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 02/05/20 | 2.00 | 27.70 | ND | 0.00 | 17.78 | 6,927.57 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 06/29/20 | 2.00 | 27.70 | 19.04 | 0.02 | 19.06 | 6,926.29 | 6926.31 | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 09/14/20 | 2.00 | 27.76 | ND | 0.00 | 19.09 | 6,926.26 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 11/10/20 | 2.00 | 27.76 | ND | 0.00 | 19.08 | 6,926.27 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 12/04/20 | 2.00 | 27.78 | 18.91 | 0.01 | 18.92 | 6,926.43 | 6,926.44 | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 01/28/21 | 2.00 | 27.80 | ND | 0.00 | 19.39 | 6,925.96 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 02/28/21 | 2.00 | 27.79 | 18.40 | 0.01 | 18.41 | 6,926.94 | 6,926.95 | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 03/31/21 | 2.00 | 27.79 | ND | 0.00 | 20.61 | 6,924.74 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 04/26/21 | 2.00 | 27.79 | ND | 0.00 | 22.61 | 6,922.74 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 05/20/21 | 2.00 | 27.79 | ND | 0.00 | 20.60 | 6,924.75 | NA | 9 - 24 | Chinle/Alluvium Interface |
| | MKTF-34 | 06/01/21 | 2.00 | 27.79 | ND | 0.00 | 20.23 | 6,925.12 | NA | 9 - 24 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/19/14 | MKTF-35 | 03/17/15 | 2.00 | 16.45 | ND | 0.00 | 8.93 | 6,942.72 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 06/04/15 | 2.00 | 16.45 | ND | 0.00 | 8.93 | 6,942.72 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 08/18/15 | 2.00 | 16.45 | ND | 0.00 | 8.91 | 6,942.74 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 11/03/15 | 2.00 | 16.45 | ND | 0.00 | 9.02 | 6,942.63 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 02/26/16 | 2.00 | 16.45 | ND | 0.00 | 8.40 | 6,943.25 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 06/10/16 | 2.00 | 16.45 | ND | 0.00 | 7.37 | 6,944.28 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 09/12/16 | 2.00 | 16.45 | ND | 0.00 | 6.65 | 6,945.00 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 11/03/16 | 2.00 | 16.45 | ND | 0.00 | 9.02 | 6,942.63 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 03/01/17 | 2.00 | 16.45 | ND | 0.00 | 6.18 | 6,945.47 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 06/14/17 | 2.00 | 16.45 | ND | 0.00 | 7.12 | 6,944.53 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 09/27/17 | 2.00 | 16.45 | ND | 0.00 | 7.70 | 6,943.95 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 11/30/17 | 2.00 | 16.45 | ND | 0.00 | 8.15 | 6,943.50 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 02/15/18 | 2.00 | 16.47 | ND | 0.00 | 8.70 | 6,942.95 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 04/26/18 | 2.00 | 16.40 | ND | 0.00 | 8.53 | 6,943.12 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 08/16/18 | 2.00 | 16.48 | ND | 0.00 | 8.70 | 6,942.95 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 11/27/18 | 2.00 | 16.45 | ND | 0.00 | 9.10 | 6,942.55 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 03/25/19 | 2.00 | 16.45 | ND | 0.00 | 8.54 | 6,943.11 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 05/16/19 | 2.00 | 16.45 | ND | 0.00 | 8.49 | 6,943.16 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 08/19/19 | 2.00 | 16.48 | ND | 0.00 | 8.09 | 6,943.56 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 10/28/19 | 2.00 | 16.45 | ND | 0.00 | 8.42 | 6,943.23 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 10/29/19 | 2.00 | 16.45 | ND | 0.00 | 8.40 | 6,943.25 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 11/12/19 | 2.00 | 16.45 | ND | 0.00 | 8.60 | 6,943.05 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 02/05/20 | 2.00 | 16.45 | ND | 0.00 | 9.28 | 6,942.37 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 06/30/20 | 2.00 | 16.45 | ND | 0.00 | 9.25 | 6,942.40 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 09/14/20 | 2.00 | 16.23 | ND | 0.00 | 8.59 | 6,943.06 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 11/10/20 | 2.00 | 16.23 | ND | 0.00 | 8.86 | 6,942.79 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 12/04/20 | 2.00 | 16.39 | 9.02 | 0.01 | 9.03 | 6,942.62 | 6,942.63 | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 01/28/21 | 2.00 | 16.39 | ND | 0.00 | 9.46 | 6,942.19 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 02/28/21 | 2.00 | 16.55 | ND | 0.00 | 9.17 | 6,942.48 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 03/31/21 | 2.00 | 16.55 | ND | 0.00 | 9.50 | 6,942.15 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 04/26/21 | 2.00 | 16.55 | ND | 0.00 | 10.33 | 6,941.32 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 05/20/21 | 2.00 | 16.55 | ND | 0.00 | 9.60 | 6,942.05 | NA | 6 - 16 | Chinle/Alluvium Interface |
| | MKTF-35 | 06/01/21 | 2.00 | 16.55 | ND | 0.00 | 9.47 | 6,942.18 | NA | 6 - 16 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/19/14 | MKTF-36 | 03/17/15 | 2.00 | 15.45 | ND | 0.00 | 7.71 | 6,942.41 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 06/04/15 | 2.00 | 15.45 | ND | 0.00 | 7.53 | 6,942.59 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 08/18/15 | 2.00 | 15.45 | ND | 0.00 | 7.50 | 6,942.62 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/03/15 | 2.00 | 15.45 | 7.00 | 0.66 | 7.66 | 6,942.46 | 6,942.99 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 03/17/16 | 2.00 | 15.45 | ND | 0.00 | 7.71 | 6,942.41 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 06/10/16 | 2.00 | 15.45 | 6.78 | 0.02 | 6.80 | 6,943.32 | 6,943.34 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 09/13/16 | 2.00 | 15.45 | 6.54 | 0.01 | 6.55 | 6,943.57 | 6,943.58 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/03/16 | 2.00 | 15.45 | 7.00 | 0.66 | 7.66 | 6,942.46 | 6,942.99 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 03/01/17 | 2.00 | 15.45 | ND | 0.00 | 5.56 | 6,944.56 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 06/14/17 | 2.00 | 15.45 | ND | 0.00 | 5.40 | 6,944.72 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 09/27/17 | 2.00 | 15.45 | ND | 0.00 | 5.80 | 6,944.32 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/30/17 | 2.00 | 15.45 | ND | 0.00 | 6.45 | 6,943.67 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 02/15/18 | 2.00 | 15.45 | ND | 0.00 | 6.86 | 6,943.26 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 04/26/18 | 2.00 | 15.40 | ND | 0.00 | 6.56 | 6,943.56 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 09/05/18 | 2.00 | 15.43 | ND | 0.00 | 6.52 | 6,943.60 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/29/18 | 2.00 | NM | NM | 0.00 | NM | NA | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 03/25/19 | 2.00 | NM | NM | 0.00 | NM | NA | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 05/14/19 | 2.00 | NM | NM | 0.00 | NM | NA | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 08/19/19 | 2.00 | NM | NM | 0.00 | NM | NA | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/06/19 | 2.00 | 15.40 | 5.08 | 5.25 | 10.33 | 6,939.79 | 6,943.99 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/07/19 | 2.00 | 15.61 | 4.30 | 5.91 | 10.21 | 6,943.30 | 6,948.03 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/12/19 | 2.00 | 15.61 | 6.80 | 2.85 | 9.65 | 6,943.86 | 6,946.14 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/13/19 | 2.00 | 15.61 | 6.95 | 2.45 | 9.40 | 6,944.11 | 6,946.07 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/14/19 | 2.00 | 15.61 | 7.14 | 2.47 | 9.61 | 6,943.90 | 6,945.88 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/15/19 | 2.00 | 15.61 | 7.31 | 2.15 | 9.46 | 6,944.05 | 6,945.77 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/19/19 | 2.00 | 15.61 | 7.80 | 1.18 | 8.98 | 6,944.53 | 6,945.47 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/21/19 | 2.00 | 15.61 | 8.00 | 0.78 | 8.78 | 6,944.73 | 6,945.35 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 12/02/19 | 2.00 | 15.61 | 8.25 | 0.70 | 8.95 | 6,944.56 | 6,945.12 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 02/03/20 | 2.00 | 15.61 | 7.89 | 0.55 | 8.44 | 6,945.07 | 6945.51 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 06/30/20 | 2.00 | 15.61 | 8.04 | 0.21 | 8.25 | 6,945.26 | 6945.43 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 09/14/20 | 2.00 | 15.58 | ND | 0.00 | 7.87 | 6,945.64 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 11/10/20 | 2.00 | 15.58 | 7.98 | 0.05 | 8.03 | 6,945.48 | 6945.52 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 12/04/20 | 2.00 | 15.58 | 8.10 | 0.07 | 8.17 | 6,945.34 | 6945.40 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 01/28/21 | 2.00 | 15.58 | 8.13 | 0.05 | 8.18 | 6,945.33 | 6945.37 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 02/28/21 | 2.00 | 15.58 | 8.26 | 0.01 | 8.27 | 6,945.24 | 6945.25 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 03/31/21 | 2.00 | 15.58 | ND | 0.00 | 8.36 | 6,945.15 | 6945.15 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 04/26/21 | 2.00 | 15.58 | ND | 0.00 | 8.91 | 6,944.60 | 6944.60 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 05/20/21 | 2.00 | 15.58 | ND | 0.00 | 8.30 | 6,945.21 | 6945.21 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-36 | 06/01/21 | 2.00 | 15.58 | ND | 0.00 | 8.11 | 6,945.40 | 6945.40 | 5 - 15 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/18/14 | MKTF-37 | 03/17/15 | 2.00 | 24.60 | ND | 0.00 | 9.21 | 6,949.66 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 06/04/15 | 2.00 | 24.60 | ND | 0.00 | 9.48 | 6,949.39 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 08/18/15 | 2.00 | 24.60 | ND | 0.00 | 9.45 | 6,949.42 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 11/03/15 | 2.00 | 24.60 | 9.54 | 0.03 | 9.57 | 6,949.30 | 6,949.32 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 03/17/16 | 2.00 | 24.60 | ND | 0.00 | 9.21 | 6,949.66 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 06/10/16 | 2.00 | 24.60 | 8.21 | 0.02 | 8.23 | 6,950.64 | 6,950.66 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 09/12/16 | 2.00 | 24.60 | ND | 0.00 | 7.65 | 6,951.22 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 11/03/16 | 2.00 | 24.60 | 9.54 | 0.03 | 9.57 | 6,949.30 | 6,949.32 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 03/01/17 | 2.00 | 24.60 | ND | 0.00 | 6.90 | 6,951.97 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 06/14/17 | 2.00 | 24.60 | 7.20 | 0.04 | 7.24 | 6,951.63 | 6,951.66 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 09/27/17 | 2.00 | 24.60 | 7.83 | 0.06 | 7.89 | 6,950.98 | 6,951.03 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 11/30/17 | 2.00 | 24.60 | 8.39 | 0.02 | 8.41 | 6,950.46 | 6,950.48 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 02/15/18 | 2.00 | 24.60 | 8.96 | 0.04 | 9.00 | 6,949.87 | 6,949.90 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 04/26/18 | 2.00 | 24.54 | ND | 0.00 | 8.52 | 6,950.35 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 08/16/18 | 2.00 | 24.59 | ND | 0.00 | 8.70 | 6,950.17 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 11/27/18 | 2.00 | 24.60 | 9.40 | 0.12 | 9.52 | 6,949.35 | 6,949.45 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 03/25/19 | 2.00 | 24.60 | ND | 0.00 | 8.39 | 6,950.48 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 05/16/19 | 2.00 | 24.60 | 9.10 | 0.08 | 9.18 | 6,949.69 | 6,949.75 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 08/23/19 | 2.00 | 24.59 | 8.85 | 0.02 | 8.87 | 6,950.00 | 6,950.02 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 10/28/19 | 2.00 | 24.60 | 9.30 | 0.03 | 9.33 | 6,949.54 | 6,949.56 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 10/29/19 | 2.00 | 24.60 | 9.17 | 0.03 | 9.20 | 6,949.67 | 6,949.69 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 11/12/19 | 2.00 | 24.60 | 9.52 | 0.04 | 9.56 | 6,949.31 | 6,949.34 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 02/03/20 | 2.00 | 24.60 | 9.77 | 0.12 | 9.89 | 6,948.98 | 6949.08 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 06/30/20 | 2.00 | 24.60 | 9.61 | 0.02 | 9.63 | 6,949.24 | 6949.26 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 09/14/20 | 2.00 | 24.54 | ND | 0.00 | 8.76 | 6,950.11 | NA | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 11/10/20 | 2.00 | 24.54 | 9.36 | 0.01 | 9.37 | 6,949.50 | 6949.51 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 12/04/20 | 2.00 | 24.61 | 9.64 | 0.01 | 9.65 | 6,949.22 | 6949.23 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 01/28/21 | 2.00 | 24.61 | 9.64 | 0.01 | 9.65 | 6,949.22 | 6949.23 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 02/28/21 | 2.00 | 24.67 | 9.65 | 0.02 | 9.67 | 6,949.20 | 6949.22 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 03/31/21 | 2.00 | 24.67 | 9.83 | 0.02 | 9.85 | 6,949.02 | 6949.04 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 04/26/21 | 2.00 | 24.67 | 10.10 | 0.03 | 10.13 | 6,948.74 | 6948.76 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 05/20/21 | 2.00 | 24.67 | 9.79 | 0.03 | 9.82 | 6,949.05 | 6949.07 | 4 - 24 | Chinle/Alluvium Interface |
| | MKTF-37 | 06/01/21 | 2.00 | 24.67 | 9.86 | 0.04 | 9.90 | 6,948.97 | 6949.00 | 4 - 24 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/20/14 | MKTF-38 | 03/16/15 | 2.00 | 20.29 | ND | 0.00 | 9.00 | 6,945.89 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 06/10/15 | 2.00 | 20.29 | ND | 0.00 | 9.34 | 6,945.55 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 08/24/15 | 2.00 | 20.29 | ND | 0.00 | 9.25 | 6,945.64 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 11/09/15 | 2.00 | 20.29 | ND | 0.00 | 9.45 | 6,945.44 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 02/29/16 | 2.00 | 20.29 | ND | 0.00 | 8.63 | 6,946.26 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 06/08/16 | 2.00 | 20.29 | ND | 0.00 | 8.43 | 6,946.46 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 09/13/16 | 2.00 | 20.29 | ND | 0.00 | 8.00 | 6,946.89 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 11/09/16 | 2.00 | 20.29 | ND | 0.00 | 9.45 | 6,945.44 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 03/14/17 | 2.00 | 20.29 | ND | 0.00 | 6.41 | 6,948.48 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 06/21/17 | 2.00 | 20.29 | ND | 0.00 | 6.40 | 6,948.49 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 09/28/17 | 2.00 | 20.29 | ND | 0.00 | 6.32 | 6,948.57 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 11/30/17 | 2.00 | 20.29 | ND | 0.00 | 7.83 | 6,947.06 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 02/12/18 | 2.00 | 20.30 | ND | 0.00 | 8.40 | 6,946.49 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 04/25/18 | 2.00 | 20.28 | ND | 0.00 | 7.79 | 6,947.10 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 08/16/18 | 2.00 | 20.27 | ND | 0.00 | 8.05 | 6,946.84 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 11/19/18 | 2.00 | 20.29 | ND | 0.00 | 8.99 | 6,945.90 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 03/26/19 | 2.00 | 20.29 | ND | 0.00 | 11.30 | 6,943.59 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 05/14/19 | 2.00 | 20.29 | ND | 0.00 | 8.66 | 6,946.23 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 06/27/19 | 2.00 | 20.29 | ND | 0.00 | 8.75 | 6,946.14 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 08/20/19 | 2.00 | 20.27 | ND | 0.00 | 8.77 | 6,946.12 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 12/03/19 | 2.00 | 20.29 | ND | 0.00 | 9.50 | 6,945.39 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 03/04/20 | 2.00 | 20.31 | ND | 0.00 | 9.61 | 6,945.28 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 06/26/20 | 2.00 | 20.33 | ND | 0.00 | 9.38 | 6,945.51 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 09/14/20 | 2.00 | 20.18 | ND | 0.00 | 8.55 | 6,946.34 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 11/10/20 | 2.00 | 20.18 | ND | 0.00 | 9.12 | 6,945.77 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 12/04/20 | 2.00 | 21.30 | 9.35 | 0.01 | 9.36 | 6,945.53 | 6,945.54 | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 02/28/21 | 2.00 | 21.30 | ND | 0.00 | 9.22 | 6,945.67 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 02/28/21 | 2.00 | 20.34 | ND | 0.00 | 9.17 | 6,945.72 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 03/31/21 | 2.00 | 20.34 | ND | 0.00 | 9.30 | 6,945.59 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 04/26/21 | 2.00 | 20.34 | ND | 0.00 | 8.86 | 6,946.03 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 05/20/21 | 2.00 | 20.34 | ND | 0.00 | 9.31 | 6,945.58 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-38 | 05/20/21 | 2.00 | 20.34 | ND | 0.00 | 8.95 | 6,945.94 | NA | 5 - 20 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/14/14 | MKTF-39 | 03/16/15 | 2.00 | 15.20 | ND | 0.00 | 8.88 | 6,944.87 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 06/10/15 | 2.00 | 15.20 | ND | 0.00 | 9.31 | 6,944.44 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 08/23/15 | 2.00 | 15.20 | ND | 0.00 | 9.24 | 6,944.51 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 11/09/15 | 2.00 | 15.20 | ND | 0.00 | 9.39 | 6,944.36 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 03/03/16 | 2.00 | 15.20 | ND | 0.00 | 8.50 | 6,945.25 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 06/08/16 | 2.00 | 15.20 | ND | 0.00 | 8.33 | 6,945.42 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 09/13/16 | 2.00 | 15.20 | ND | 0.00 | 8.40 | 6,945.35 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 11/09/16 | 2.00 | 15.20 | ND | 0.00 | 9.39 | 6,944.36 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 03/14/17 | 2.00 | 15.20 | ND | 0.00 | 6.44 | 6,947.31 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 06/08/17 | 2.00 | 15.20 | ND | 0.00 | 6.25 | 6,947.50 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 09/28/17 | 2.00 | 15.20 | ND | 0.00 | 7.32 | 6,946.43 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 11/28/17 | 2.00 | 15.18 | ND | 0.00 | 7.55 | 6,946.20 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 02/08/18 | 2.00 | 15.20 | ND | 0.00 | 8.18 | 6,945.57 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 04/25/18 | 2.00 | 15.13 | ND | 0.00 | 7.82 | 6,945.93 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 08/16/18 | 2.00 | 15.20 | ND | 0.00 | 8.30 | 6,945.45 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 11/19/18 | 2.00 | 15.18 | ND | 0.00 | 9.00 | 6,944.75 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 03/28/19 | 2.00 | 15.20 | NM | 0.00 | NM | NA | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 06/05/19 | 2.00 | 15.20 | ND | 0.00 | 8.69 | 6,945.06 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 08/20/19 | 2.00 | 15.20 | ND | 0.00 | 9.04 | 6,944.71 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 11/04/19 | 2.00 | 15.18 | ND | 0.00 | 9.59 | 6,944.16 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 02/03/20 | 2.00 | 15.20 | ND | 0.00 | 10.10 | 6,943.65 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 06/26/20 | 2.00 | 15.00 | ND | 0.00 | 9.63 | 6,944.12 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 09/15/20 | 2.00 | 14.19 | ND | 0.00 | 9.58 | 6,944.17 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 11/10/20 | 2.00 | 14.19 | ND | 0.00 | 10.05 | 6,943.70 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 12/04/20 | 2.00 | 15.19 | ND | 0.00 | 10.15 | 6,943.70 | NA | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 01/28/21 | 2.00 | 15.19 | 9.45 | 2.13 | 11.58 | 6,942.17 | 6,943.87 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 02/28/21 | 2.00 | 15.21 | 9.31 | 0.71 | 10.02 | 6,943.73 | 6,944.30 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 03/31/21 | 2.00 | 15.21 | 9.38 | 0.82 | 10.20 | 6,943.55 | 6,944.21 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 04/26/21 | 2.00 | 15.21 | 11.16 | 0.03 | 11.19 | 6,942.56 | 6,942.58 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 05/20/21 | 2.00 | 15.21 | 9.36 | 0.86 | 10.22 | 6,943.53 | 6,944.22 | 5 - 15 | Chinle/Alluvium Interface |
| | MKTF-39 | 06/01/21 | 2.00 | 15.21 | 9.27 | 0.79 | 10.06 | 6,943.69 | 6,944.32 | 5 - 15 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/13/14 | MKTF-40 | 03/11/15 | 2.00 | 2.00 | ND | 0.00 | 14.60 | 6,879.73 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 06/10/15 | 2.00 | 23.64 | ND | 0.00 | 14.20 | 6,880.13 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 08/21/15 | 2.00 | 23.64 | ND | 0.00 | 13.83 | 6,880.50 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 11/04/15 | 2.00 | 23.64 | ND | 0.00 | 13.91 | 6,880.42 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 02/23/16 | 2.00 | 23.64 | ND | 0.00 | 13.88 | 6,880.45 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 06/09/16 | 2.00 | 23.64 | ND | 0.00 | 13.31 | 6,881.02 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 09/08/16 | 2.00 | 23.64 | ND | 0.00 | 13.52 | 6,880.81 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 11/04/16 | 2.00 | 23.64 | ND | 0.00 | 13.91 | 6,880.42 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 03/07/17 | 2.00 | 23.64 | ND | 0.00 | 13.14 | 6,881.19 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 06/05/17 | 2.00 | 23.64 | ND | 0.00 | 13.29 | 6,881.04 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 09/25/17 | 2.00 | 23.64 | ND | 0.00 | 13.28 | 6,881.05 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 11/21/17 | 2.00 | 23.62 | ND | 0.00 | 13.71 | 6,880.62 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 02/05/18 | 2.00 | 23.62 | ND | 0.00 | 13.18 | 6,881.15 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 04/25/18 | 2.00 | 23.53 | ND | 0.00 | 12.94 | 6,881.39 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 08/15/18 | 2.00 | 23.54 | ND | 0.00 | 12.74 | 6,881.59 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 11/14/18 | 2.00 | 23.62 | ND | 0.00 | 13.64 | 6,880.69 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 02/20/19 | 2.00 | 23.64 | ND | 0.00 | 12.79 | 6,881.54 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 05/06/19 | 2.00 | 23.64 | ND | 0.00 | 12.36 | 6,881.97 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 08/22/19 | 2.00 | 23.54 | ND | 0.00 | 12.15 | 6,882.18 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 10/22/19 | 2.00 | 23.62 | ND | 0.00 | 13.04 | 6,881.29 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 02/27/20 | 2.00 | 23.64 | ND | 0.00 | 13.23 | 6,881.10 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 06/26/20 | 2.00 | 23.64 | ND | 0.00 | 12.75 | 6,881.58 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 09/15/20 | 2.00 | 23.66 | ND | 0.00 | 13.39 | 6,880.94 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 11/10/20 | 2.00 | 23.66 | ND | 0.00 | 13.71 | 6,880.62 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 12/04/20 | 2.00 | 23.67 | ND | 0.00 | 13.99 | 6,880.34 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 01/28/21 | 2.00 | 23.68 | ND | 0.00 | 14.22 | 6,880.11 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 02/28/21 | 2.00 | 23.66 | ND | 0.00 | 14.17 | 6,880.16 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 03/31/21 | 2.00 | 23.66 | ND | 0.00 | 14.65 | 6,879.68 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 04/26/21 | 2.00 | 23.66 | ND | 0.00 | 15.65 | 6,878.68 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 05/20/21 | 2.00 | 23.66 | ND | 0.00 | 14.63 | 6,879.70 | NA | 5 - 20 | Chinle/Alluvium Interface |
| | MKTF-40 | 06/01/21 | 2.00 | 23.66 | ND | 0.00 | 14.70 | 6,879.63 | NA | 5 - 20 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/14/14 | MKTF-41 | 03/12/15 | 2.00 | 40.10 | ND | 0.00 | 20.07 | 6,873.57 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 06/09/15 | 2.00 | 40.10 | ND | 0.00 | 19.77 | 6,873.87 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 08/21/15 | 2.00 | 40.10 | ND | 0.00 | 19.90 | 6,873.74 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 11/05/15 | 2.00 | 40.10 | ND | 0.00 | 19.77 | 6,873.87 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 02/24/16 | 2.00 | 40.10 | ND | 0.00 | 19.90 | 6,873.74 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 06/09/16 | 2.00 | 40.10 | ND | 0.00 | 19.65 | 6,873.99 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 09/09/16 | 2.00 | 40.10 | ND | 0.00 | 20.11 | 6,873.53 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 11/05/16 | 2.00 | 40.10 | ND | 0.00 | 19.77 | 6,873.87 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 03/07/17 | 2.00 | 40.10 | ND | 0.00 | 19.60 | 6,874.04 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 06/06/17 | 2.00 | 40.10 | ND | 0.00 | 18.49 | 6,875.15 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 09/25/17 | 2.00 | 40.10 | ND | 0.00 | 20.25 | 6,873.39 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 11/27/17 | 2.00 | 39.71 | ND | 0.00 | 19.81 | 6,873.83 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 02/07/18 | 2.00 | 39.72 | ND | 0.00 | 20.23 | 6,873.41 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 04/25/18 | 2.00 | 39.91 | ND | 0.00 | 19.97 | 6,873.67 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 08/15/18 | 2.00 | 39.74 | ND | 0.00 | 20.26 | 6,873.38 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 11/14/18 | 2.00 | 39.71 | ND | 0.00 | 20.51 | 6,873.13 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 02/13/19 | 2.00 | 40.10 | ND | 0.00 | 20.10 | 6,873.54 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 05/07/19 | 2.00 | 40.10 | ND | 0.00 | 19.52 | 6,874.12 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 08/22/19 | 2.00 | 39.74 | ND | 0.00 | 19.55 | 6,874.09 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 10/23/19 | 2.00 | 39.71 | ND | 0.00 | 20.02 | 6,873.62 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 02/26/20 | 2.00 | 40.10 | ND | 0.00 | 20.15 | 6,873.49 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 06/29/20 | 2.00 | 40.10 | ND | 0.00 | 19.77 | 6,873.87 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 09/14/20 | 2.00 | 39.66 | ND | 0.00 | 20.72 | 6,872.92 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 11/10/20 | 2.00 | 39.66 | ND | 0.00 | 21.01 | 6,872.63 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 12/04/20 | 2.00 | 39.80 | ND | 0.00 | 20.90 | 6,872.74 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 01/28/21 | 2.00 | 39.94 | ND | 0.00 | 21.21 | 6,872.43 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 02/27/21 | 2.00 | 39.85 | ND | 0.00 | 21.11 | 6,872.53 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 03/31/21 | 2.00 | 39.85 | ND | 0.00 | 21.41 | 6,872.23 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 04/26/21 | 2.00 | 39.85 | ND | 0.00 | 21.41 | 6,872.23 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 05/20/21 | 2.00 | 39.85 | ND | 0.00 | 21.40 | 6,872.24 | NA | 22 - 37 | Chinle/Alluvium Interface |
| | MKTF-41 | 06/01/21 | 2.00 | 39.85 | ND | 0.00 | 21.14 | 6,872.50 | NA | 22 - 37 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/12/14 | MKTF-42 | 03/11/15 | 2.00 | 33.15 | ND | 0.00 | 17.97 | 6,874.98 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 06/09/15 | 2.00 | 33.15 | ND | 0.00 | 17.60 | 6,875.35 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 08/21/15 | 2.00 | 33.15 | ND | 0.00 | 17.44 | 6,875.51 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 11/05/15 | 2.00 | 33.15 | ND | 0.00 | 17.26 | 6,875.69 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 02/24/16 | 2.00 | 33.15 | ND | 0.00 | 17.69 | 6,875.26 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 06/09/16 | 2.00 | 33.15 | ND | 0.00 | 17.30 | 6,875.65 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 09/09/16 | 2.00 | 33.15 | ND | 0.00 | 17.30 | 6,875.65 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 11/05/16 | 2.00 | 33.15 | ND | 0.00 | 17.26 | 6,875.69 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 03/07/17 | 2.00 | 33.15 | ND | 0.00 | 15.72 | 6,877.23 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 06/06/17 | 2.00 | 33.15 | ND | 0.00 | 17.12 | 6,875.83 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 09/25/17 | 2.00 | 33.15 | ND | 0.00 | 16.83 | 6,876.12 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 11/27/17 | 2.00 | 33.18 | ND | 0.00 | 16.81 | 6,876.14 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 02/07/18 | 2.00 | 32.90 | ND | 0.00 | 17.41 | 6,875.54 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 04/25/18 | 2.00 | 33.08 | ND | 0.00 | 17.13 | 6,875.82 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 08/15/18 | 2.00 | 33.20 | ND | 0.00 | 16.77 | 6,876.18 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 11/14/18 | 2.00 | 33.18 | ND | 0.00 | 16.94 | 6,876.01 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 02/13/19 | 2.00 | 33.15 | ND | 0.00 | 17.18 | 6,875.77 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 05/07/19 | 2.00 | 33.15 | ND | 0.00 | 16.68 | 6,876.27 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 08/22/19 | 2.00 | 33.20 | ND | 0.00 | 16.40 | 6,876.55 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 10/23/19 | 2.00 | 33.18 | ND | 0.00 | 16.52 | 6,876.43 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 02/26/20 | 2.00 | 33.15 | ND | 0.00 | 16.79 | 6,876.16 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 06/30/20 | 2.00 | 33.15 | ND | 0.00 | 16.25 | 6,876.70 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 09/14/20 | 2.00 | 33.10 | ND | 0.00 | 16.35 | 6,876.60 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 11/10/20 | 2.00 | 33.10 | ND | 0.00 | 15.30 | 6,877.65 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 12/04/20 | 2.00 | 32.95 | ND | 0.00 | 16.41 | 6,876.54 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 01/28/21 | 2.00 | 32.95 | ND | 0.00 | 16.85 | 6,876.10 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 02/27/21 | 2.00 | 33.24 | ND | 0.00 | 16.83 | 6,876.12 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 03/31/21 | 2.00 | 33.24 | ND | 0.00 | 17.17 | 6,875.78 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 04/26/21 | 2.00 | 33.24 | ND | 0.00 | 18.91 | 6,874.04 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 05/20/21 | 2.00 | 33.24 | ND | 0.00 | 17.10 | 6,875.85 | NA | 10 - 30 | Chinle/Alluvium Interface |
| | MKTF-42 | 06/01/21 | 2.00 | 33.24 | ND | 0.00 | 17.07 | 6,875.88 | NA | 10 - 30 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/14 | MKTF-43 | 03/11/15 | 2.00 | 15.43 | ND | 0.00 | 5.20 | 6,871.70 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 06/10/15 | 2.00 | 15.43 | ND | 0.00 | 3.63 | 6,873.27 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 08/21/15 | 2.00 | 15.43 | ND | 0.00 | 3.80 | 6,873.10 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 11/05/15 | 2.00 | 15.43 | ND | 0.00 | 5.12 | 6,871.78 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 02/24/16 | 2.00 | 15.43 | ND | 0.00 | 5.00 | 6,871.90 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 06/09/16 | 2.00 | 15.43 | ND | 0.00 | 3.67 | 6,873.23 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 09/09/16 | 2.00 | 15.43 | ND | 0.00 | 3.98 | 6,872.92 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 11/05/16 | 2.00 | 15.43 | ND | 0.00 | 5.12 | 6,871.78 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 03/08/17 | 2.00 | 15.43 | ND | 0.00 | 5.34 | 6,871.56 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 06/06/17 | 2.00 | 15.43 | ND | 0.00 | 3.62 | 6,873.28 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 09/25/17 | 2.00 | 15.43 | ND | 0.00 | 4.14 | 6,872.76 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 11/27/17 | 2.00 | 15.38 | ND | 0.00 | 5.65 | 6,871.25 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 02/07/18 | 2.00 | 15.38 | ND | 0.00 | 6.43 | 6,870.47 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 04/25/18 | 2.00 | 15.30 | ND | 0.00 | 5.05 | 6,871.85 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 08/15/18 | 2.00 | 15.41 | ND | 0.00 | 2.66 | 6,874.24 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 11/14/18 | 2.00 | 15.38 | ND | 0.00 | 5.42 | 6,871.48 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 02/13/19 | 2.00 | 15.43 | ND | 0.00 | 5.99 | 6,870.91 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 05/08/19 | 2.00 | 15.43 | ND | 0.00 | 3.97 | 6,872.93 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 08/22/19 | 2.00 | 15.41 | ND | 0.00 | 3.67 | 6,873.23 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 10/24/19 | 2.00 | 15.38 | ND | 0.00 | 4.34 | 6,872.56 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 02/26/20 | 2.00 | 15.43 | ND | 0.00 | 6.33 | 6,870.57 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 06/30/20 | 2.00 | 15.43 | ND | 0.00 | 5.50 | 6,871.40 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 09/14/20 | 2.00 | 16.22 | ND | 0.00 | 6.45 | 6,870.45 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 11/10/20 | 2.00 | 16.22 | ND | 0.00 | 7.48 | 6,869.42 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 12/04/20 | 2.00 | 16.92 | ND | 0.00 | 8.12 | 6,868.78 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 01/28/21 | 2.00 | 16.92 | ND | 0.00 | 8.69 | 6,868.21 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 02/27/21 | 2.00 | 16.95 | ND | 0.00 | 8.67 | 6,868.23 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 03/31/21 | 2.00 | 16.95 | ND | 0.00 | 8.49 | 6,868.41 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 04/26/21 | 2.00 | 16.95 | ND | 0.00 | 8.66 | 6,868.24 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 05/20/21 | 2.00 | 16.95 | ND | 0.00 | 8.47 | 6,868.43 | NA | 2 - 12 | Chinle/Alluvium Interface |
| | MKTF-43 | 06/01/21 | 2.00 | 16.95 | ND | 0.00 | 8.61 | 6,868.29 | NA | 2 - 12 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/11/14 | MKTF-44 | 03/12/15 | 2.00 | 51.15 | ND | 0.00 | 38.44 | 6,831.51 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 06/10/15 | 2.00 | 51.15 | ND | 0.00 | 29.55 | 6,840.40 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 08/17/15 | 2.00 | 51.15 | ND | 0.00 | 31.23 | 6,838.72 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 11/09/15 | 2.00 | 51.15 | ND | 0.00 | 33.32 | 6,836.63 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 02/24/16 | 2.00 | 51.15 | ND | 0.00 | 28.74 | 6,841.21 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 06/09/16 | 2.00 | 51.15 | ND | 0.00 | 27.83 | 6,842.12 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 09/08/16 | 2.00 | 51.15 | ND | 0.00 | 31.34 | 6,838.61 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 11/09/16 | 2.00 | 51.15 | ND | 0.00 | 33.32 | 6,836.63 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 03/08/17 | 2.00 | 51.15 | ND | 0.00 | 25.39 | 6,844.56 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 06/05/17 | 2.00 | 51.15 | ND | 0.00 | 32.90 | 6,837.05 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 09/25/17 | 2.00 | 51.15 | ND | 0.00 | 30.18 | 6,839.77 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 11/27/17 | 2.00 | 51.16 | ND | 0.00 | 33.70 | 6,836.25 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 02/07/18 | 2.00 | 51.16 | ND | 0.00 | 37.56 | 6,832.39 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 04/25/18 | 2.00 | 51.08 | ND | 0.00 | 36.72 | 6,833.23 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 08/15/18 | 2.00 | 51.20 | ND | 0.00 | 35.70 | 6,834.25 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 11/14/18 | 2.00 | 51.16 | ND | 0.00 | 26.42 | 6,843.53 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 02/13/19 | 2.00 | 51.15 | ND | 0.00 | 33.39 | 6,836.56 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 05/08/19 | 2.00 | 51.15 | ND | 0.00 | 34.20 | 6,835.75 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 08/22/19 | 2.00 | 51.20 | ND | 0.00 | 30.96 | 6,838.99 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 10/24/19 | 2.00 | 51.16 | ND | 0.00 | 38.54 | 6,831.41 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 03/04/20 | 2.00 | 51.15 | ND | 0.00 | 30.34 | 6,839.61 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 06/26/20 | 2.00 | 51.15 | ND | 0.00 | 33.08 | 6,836.87 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 09/14/20 | 2.00 | 51.95 | ND | 0.00 | 28.00 | 6,841.95 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 12/04/20 | 2.00 | 51.39 | ND | 0.00 | 39.59 | 6,830.36 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 02/28/21 | 2.00 | 51.50 | ND | 0.00 | 38.50 | 6,831.45 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 03/31/21 | 2.00 | 51.50 | ND | 0.00 | 45.28 | 6,824.67 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 04/26/21 | 2.00 | 51.50 | ND | 0.00 | 45.33 | 6,824.62 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 05/20/21 | 2.00 | 51.50 | ND | 0.00 | 45.11 | 6,824.84 | NA | 38 - 48 | Chinle/Alluvium Interface |
| | MKTF-44 | 06/01/21 | 2.00 | 51.50 | ND | 0.00 | 44.28 | 6,825.67 | NA | 38 - 48 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pre-existing | MKTF-45 | 02/10/15 | 4.00 | 30.24 | 13.58 | 2.94 | 16.52 | 6,933.07 | 6,935.42 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 03/17/15 | 4.00 | 30.24 | 13.14 | 1.80 | 14.94 | 6,934.65 | 6,936.09 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 06/08/15 | 4.00 | 30.24 | 13.20 | 3.55 | 16.75 | 6,932.84 | 6,935.68 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 08/18/15 | 4.00 | 30.24 | 13.50 | 0.11 | 13.61 | 6,935.98 | 6,936.07 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/03/15 | 4.00 | 30.24 | 13.70 | 0.32 | 14.02 | 6,935.57 | 6,935.83 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 03/17/16 | 4.00 | 30.24 | 13.14 | 1.80 | 14.94 | 6,934.65 | 6,936.09 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 06/10/16 | 4.00 | 30.24 | 12.48 | 0.32 | 12.80 | 6,936.79 | 6,937.05 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 09/13/16 | 4.00 | 30.24 | 11.95 | 0.45 | 12.40 | 6,937.19 | 6,937.55 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/03/16 | 4.00 | 30.24 | 13.70 | 0.32 | 14.02 | 6,935.57 | 6,935.83 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 03/01/17 | 4.00 | 30.24 | 10.32 | 0.31 | 10.63 | 6,938.96 | 6,939.21 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 06/14/17 | 4.00 | 30.24 | 11.50 | 0.50 | 12.00 | 6,937.59 | 6,937.99 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 10/03/17 | 4.00 | 30.24 | 11.48 | 0.53 | 12.01 | 6,937.58 | 6,938.00 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/30/17 | 4.00 | 30.24 | 12.76 | 0.47 | 13.23 | 6,936.36 | 6,936.74 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 02/15/18 | 4.00 | 30.24 | 13.09 | 0.15 | 13.24 | 6,936.35 | 6,936.47 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 04/26/18 | 4.00 | 30.28 | 12.87 | 0.43 | 13.30 | 6,936.29 | 6,936.63 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 08/16/18 | 4.00 | 30.33 | 13.15 | 0.43 | 13.58 | 6,936.01 | 6,936.35 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/27/18 | 4.00 | 30.24 | 13.60 | 0.55 | 14.15 | 6,935.44 | 6,935.88 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 03/26/19 | 4.00 | 30.24 | 12.00 | 0.50 | 12.50 | 6,937.09 | 6,937.49 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 05/14/19 | 4.00 | 30.24 | 12.43 | 0.59 | 13.02 | 6,936.57 | 6,937.04 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 08/19/19 | 4.00 | 30.33 | 14.02 | 0.46 | 14.48 | 6,935.11 | 6,935.48 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 10/28/19 | 4.00 | 30.24 | 11.97 | 1.03 | 13.00 | 6,936.59 | 6,937.41 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 10/29/19 | 4.00 | 30.24 | 11.38 | 2.37 | 13.75 | 6,935.84 | 6,937.74 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 10/31/18 | 4.00 | 30.24 | 10.66 | 6.24 | 16.90 | 6,932.69 | 6,937.68 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/06/19 | 4.00 | 30.24 | 9.57 | 12.95 | 22.52 | 6,927.07 | 6,937.43 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/07/19 | 4.00 | 30.24 | 9.00 | 13.25 | 22.25 | 6,927.34 | 6,937.94 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/11/19 | 4.00 | 30.24 | 8.75 | 14.85 | 23.60 | 6,925.99 | 6,937.87 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/12/19 | 4.00 | 30.24 | 9.62 | 14.30 | 23.92 | 6,925.67 | 6,937.11 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/13/19 | 4.00 | 30.24 | 9.70 | 16.23 | 25.93 | 6,923.66 | 6,936.64 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/14/19 | 4.00 | 30.24 | 10.06 | 15.23 | 25.29 | 6,924.30 | 6,936.48 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/15/19 | 4.00 | 30.24 | 10.28 | 14.29 | 24.57 | 6,925.02 | 6,936.45 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/19/19 | 4.00 | 30.24 | 10.84 | 11.91 | 22.75 | 6,926.84 | 6,936.37 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/21/19 | 4.00 | 30.24 | 11.00 | 10.90 | 21.90 | 6,927.69 | 6,936.41 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 12/02/19 | 4.00 | 30.24 | 12.38 | 6.57 | 18.95 | 6,930.64 | 6,935.90 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 02/03/20 | 4.00 | 30.24 | 9.60 | 9.02 | 18.62 | 6,930.97 | 6938.19 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 06/30/20 | 4.00 | 30.24 | 11.08 | 8.00 | 19.08 | 6,930.51 | 6936.91 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 09/14/20 | 4.00 | 37.45 | 13.14 | 5.29 | 18.43 | 6,931.16 | 6935.39 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 11/10/20 | 4.00 | 37.45 | 12.94 | 1.82 | 14.76 | 6,934.83 | 6936.29 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 12/04/20 | 4.00 | 30.45 | 12.66 | 1.85 | 14.51 | 6,935.08 | 6936.56 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 01/28/21 | 4.00 | 30.45 | 16.00 | 0.13 | 16.13 | 6,933.46 | 6933.56 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 02/27/21 | 4.00 | 30.50 | 13.55 | 0.01 | 13.56 | 6,936.03 | 6936.04 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 03/31/21 | 4.00 | 30.50 | 15.55 | 0.02 | 15.57 | 6,934.02 | 6934.04 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 04/26/21 | 4.00 | 30.50 | 16.34 | 0.03 | 16.37 | 6,933.22 | 6933.24 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 05/20/21 | 4.00 | 30.50 | 15.50 | 0.51 | 16.01 | 6,933.58 | 6933.99 | Unknown | Chinle/Alluvium Interface |
| | MKTF-45 | 06/01/21 | 4.00 | 30.50 | 16.03 | 0.02 | 16.05 | 6,933.54 | 6933.56 | Unknown | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/12/19 | MKTF-46 | 10/29/19 | 2.00 | 21.29 | ND | 0.00 | 10.28 | 6,947.32 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 11/12/19 | 2.00 | 21.29 | ND | 0.00 | 10.46 | 6,947.14 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 12/02/19 | 2.00 | 21.29 | ND | 0.00 | 10.70 | 6,946.90 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 03/05/20 | 2.00 | 18.00 | ND | 0.00 | 10.93 | 6,946.67 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 06/30/20 | 2.00 | 18.00 | ND | 0.00 | 11.08 | 6,946.52 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 09/14/20 | 2.00 | 25.29 | ND | 0.00 | 10.18 | 6,947.42 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 11/10/20 | 2.00 | 25.29 | ND | 0.00 | 10.57 | 6,947.03 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 12/04/20 | 2.00 | 21.30 | ND | 0.00 | 10.77 | 6,946.83 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 01/28/21 | 2.00 | 21.30 | ND | 0.00 | 11.32 | 6,946.28 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 02/27/21 | 2.00 | 21.30 | ND | 0.00 | 10.82 | 6,946.78 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 03/31/21 | 2.00 | 21.30 | ND | 0.00 | 10.90 | 6,946.70 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 04/26/21 | 2.00 | 21.30 | ND | 0.00 | 11.13 | 6,946.47 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 05/20/21 | 2.00 | 21.30 | ND | 0.00 | 11.03 | 6,946.57 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-46 | 06/01/21 | 2.00 | 21.30 | ND | 0.00 | 11.09 | 6,946.51 | NA | 3 - 18 | Chinle/Alluvium Interface |
| 10/14/19 | MKTF-47 | 12/02/19 | 2.00 | 14.30 | ND | 0.00 | 9.78 | 6,949.31 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 03/05/20 | 2.00 | 14.00 | ND | 0.00 | 9.89 | 6,949.20 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 06/29/20 | 2.00 | 14.00 | ND | 0.00 | 9.50 | 6,949.59 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 09/15/20 | 2.00 | 14.31 | 8.53 | 0.01 | 8.54 | 6,950.55 | 6950.56 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 11/10/20 | 2.00 | 14.31 | ND | 0.00 | 9.33 | 6,949.76 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 12/04/20 | 2.00 | 14.31 | 9.58 | 0.01 | 9.59 | 6,949.50 | 6949.51 | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 01/28/21 | 2.00 | 14.31 | ND | 0.00 | 9.34 | 6,949.75 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 02/27/21 | 2.00 | 14.30 | ND | 0.00 | 9.15 | 6,949.94 | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 03/31/21 | 2.00 | 14.30 | ND | 0.00 | DRY | NA | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 04/26/21 | 2.00 | 14.30 | ND | 0.00 | DRY | NA | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 05/20/21 | 2.00 | 14.30 | ND | 0.00 | DRY | NA | NA | 4 - 14 | Chinle/Alluvium Interface |
| | MKTF-47 | 06/01/21 | 2.00 | 14.30 | ND | 0.00 | DRY | NA | NA | 4 - 14 | Chinle/Alluvium Interface |
| 10/14/19 | MKTF-48 | 12/02/19 | 2.00 | 20.92 | ND | 0.00 | 11.85 | 6,949.88 | NA | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 03/03/20 | 2.00 | 18.00 | 12.66 | 0.16 | 12.82 | 6,948.91 | 6949.04 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 06/29/20 | 2.00 | 18.00 | ND | 0.00 | 11.58 | 6,950.15 | NA | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 09/15/20 | 2.00 | 19.91 | 11.85 | 0.01 | 11.86 | 6,949.87 | 6949.88 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 11/10/20 | 2.00 | 19.91 | 12.40 | 0.11 | 12.51 | 6,949.22 | 6949.31 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 12/04/20 | 2.00 | 20.94 | 12.77 | 0.33 | 13.10 | 6,948.63 | 6948.89 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 01/28/21 | 2.00 | 21.97 | 12.19 | 0.01 | 12.20 | 6,949.53 | 6949.54 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 02/27/21 | 2.00 | 20.95 | 12.19 | 0.06 | 12.25 | 6,949.48 | 6949.53 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 03/31/21 | 2.00 | 20.95 | 12.41 | 0.24 | 12.65 | 6,949.08 | 6949.27 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 04/26/21 | 2.00 | 20.95 | 13.71 | 0.24 | 13.95 | 6,947.78 | 6947.97 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 05/20/21 | 2.00 | 20.95 | 12.38 | 0.14 | 12.52 | 6,949.21 | 6949.32 | 2 - 17 | Chinle/Alluvium Interface |
| | MKTF-48 | 06/01/21 | 2.00 | 20.95 | 12.64 | 0.24 | 12.88 | 6,948.85 | 6949.04 | 2 - 17 | Chinle/Alluvium Interface |

**APPENDIX B. HISTORICAL DTB/DTW MEASUREMENTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Date of Installation | Well ID Number | Inspection or Sample Date | Casing Diameter (Inch) | Total Well Depth (ft) | Depth to SPH (ft) | SPH Column Thickness (ft) | Depth to Water (ft) | Ground-water Elevation (ft) | Corrected Water Table[1] Elevation (ft-msl) | Screened Interval Depth Top to Bottom ft-bmp) | Stratigraphic unit in which screen exists |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/15/19 | MKTF-49 | 12/03/19 | 2.00 | 24.90 | ND | 0.00 | 19.90 | 6,926.86 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 03/04/20 | 2.00 | 28.00 | ND | 0.00 | 20.27 | 6,926.49 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 06/30/20 | 2.00 | 28.00 | ND | 0.00 | 20.65 | 6,926.11 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 09/15/20 | 2.00 | 24.96 | ND | 0.00 | 20.33 | 6,926.43 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 11/10/20 | 2.00 | 24.96 | ND | 0.00 | 20.75 | 6,926.01 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 12/04/20 | 2.00 | 24.97 | ND | 0.00 | 20.81 | 6,925.95 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 01/28/21 | 2.00 | 24.98 | ND | 0.00 | 21.05 | 6,925.71 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 02/28/21 | 2.00 | 25.02 | ND | 0.00 | 21.05 | 6,925.71 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 03/31/21 | 2.00 | 25.02 | ND | 0.00 | 21.15 | 6,925.61 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 04/26/21 | 2.00 | 25.02 | ND | 0.00 | 20.11 | 6,926.65 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 05/20/21 | 2.00 | 25.02 | ND | 0.00 | 21.21 | 6,925.55 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 06/01/21 | 2.00 | 25.02 | ND | 0.00 | 20.92 | 6,925.84 | NA | 5 - 25 | Chinle/Alluvium Interface |
| | MKTF-49 | 06/16/21 | 2.00 | 25.02 | 21.40 | 0.68 | 22.08 | 6,924.68 | 6925.22 | 5 - 25 | Chinle/Alluvium Interface |
| 10/16/19 | MKTF-50 | 12/03/19 | 2.00 | 21.65 | ND | 0.00 | 15.61 | 6,927.21 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 03/04/20 | 2.00 | 26.00 | ND | 0.00 | 15.87 | 6,926.95 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 06/30/20 | 2.00 | 26.00 | ND | 0.00 | 16.00 | 6,926.82 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 09/15/20 | 2.00 | 22.64 | 15.36 | 0.01 | 15.37 | 6,927.45 | 6927.46 | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 11/10/20 | 2.00 | 22.64 | ND | 0.00 | 16.03 | 6,926.79 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 12/04/20 | 2.00 | 21.63 | ND | 0.00 | 16.17 | 6,926.65 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 01/28/21 | 2.00 | 20.62 | ND | 0.00 | 16.43 | 6,926.39 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 02/28/21 | 2.00 | 21.70 | ND | 0.00 | 16.38 | 6,926.44 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 03/31/21 | 2.00 | 21.70 | ND | 0.00 | 16.48 | 6,926.34 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 04/26/21 | 2.00 | 21.70 | ND | 0.00 | 16.19 | 6,926.63 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 05/20/21 | 2.00 | 21.70 | ND | 0.00 | 16.47 | 6,926.35 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 06/01/21 | 2.00 | 21.70 | ND | 0.00 | 16.66 | 6,926.16 | NA | 3 - 18 | Chinle/Alluvium Interface |
| | MKTF-50 | 06/16/21 | 2.00 | 21.70 | 16.68 | 0.17 | 16.85 | 6,925.97 | 6926.11 | 3 - 18 | Chinle/Alluvium Interface |

Definitions:
DTB - Depth to Bottom
DTW - Depth to Water
SPH = Separate Phase Hydrocarbons
NA = Not Applicable
Negative number in Stick up Length column indicates well is flushmount and located at or below ground level.
Depth to Water Column - if 0.00 is indicated - means water is at top of casing (full) under artesian flow conditions.
Dry indicates no water was detected.

Notes:
1. Corrected Water Table Elevation applies only if SPH thickness column measurement exists. (0.8 X SPH thickness + Groundwater Elevation)
11/29/18 - Not able to locate well to gauge or sample.

# Appendix C - Analytical Results

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-01 | 06/06/14 | 8.7 | 0.92 | 7.1 | 4.3 | 0.42 | 510 | 50 | ND(50) |
| MKTF-01 | 03/11/15 | 9.3 | 0.74 | 2 | 1.9 | 0.37 | 370 | 31 | ND(50) |
| MKTF-01 | 06/09/15 | 9.3 | 0.74 | 1.5 | 1.8 | 0.41 | 110 | 31 | ND(50) |
| MKTF-01 | 08/21/15 | 9.1 | 0.7 | 1 | 0.87 | 0.44 | 34 | 26 | ND(5) |
| MKTF-01 | 11/04/15 | 10 | 0.79 | 1.4 | 1.2 | 0.39 | 200 | 36 | ND(50) |
| MKTF-01 | 02/24/16 | 9.5 | 0.85 | 1.8 | 1 | 0.33 | 3 | 51 | ND(5) |
| MKTF-01R | 09/17/21 | 7.1 J | 0.37 J | 0.17 J | 0.85 | 0.086 J | 1.2 | 19 | ND(0.08) |
| MKTF-01R | 12/22/21 | 6.8 | 0.67 | 0.25 | 1 | 0.09 | 1.4 | 23 | ND(0.08) |
| MKTF-02 | 04/08/14 | 0.11 | 0.0035 | ND(0.002) | 0.0076 | 0.036 | ND(1) | 0.67 | ND(5) |
| MKTF-02 | 06/06/14 | 0.23 | 0.022 | 0.0036 | 0.034 | 0.042 | ND(1) | 1.5 | ND(5) |
| MKTF-02 | 09/18/14 | 2.1 | 0.34 | 0.044 | ND(0.0075) | 0.1 | 1.7 | 6.8 | ND(5) |
| MKTF-02 | 11/14/14 | 0.2 | 0.0029 | 0.0022 | 0.0016 | 0.059 | ND(1) | 0.61 | ND(5) |
| MKTF-02 | 03/11/15 | 0.2 | 0.0041 | ND(0.002) | 0.0076 | 0.044 | ND(1) | 1.3 | ND(5) |
| MKTF-02 | 06/09/15 | 0.47 | 0.062 | 0.011 | 0.039 | 0.037 | ND(1) | 3.5 | ND(5) |
| MKTF-02 | 08/21/15 | 0.37 | 0.011 | 0.0056 | 0.0033 | 0.044 | ND(1) | 2 | ND(5) |
| MKTF-02 | 11/04/15 | 0.44 | 0.072 | 0.013 | 0.0063 | 0.058 | 1 | 2.5 | ND(5) |
| MKTF-02 | 02/24/16 | 0.11 | ND(0.005) | ND(0.005) | ND(0.0075) | 0.036 | ND(1) | 1.2 | ND(5) |
| MKTF-02 | 06/10/16 | 1.2 | 0.21 | 0.026 | 0.16 | 0.087 | 1.2 | 5.2 | ND(5) |
| MKTF-02 | 09/07/16 | 1.8 | 0.16 | 0.017 | 0.028 | 0.11 | 1.5 | 6.2 | ND(5) |
| MKTF-02 | 10/28/16 | 1.6 | 0.095 | 0.02 | 0.0099 | 0.15 | 1.4 | 6.1 | ND(5) |
| MKTF-02 | 03/16/17 | 4 | 0.51 | 0.056 | 0.23 | 0.15 | 2.7 | 14 | ND(5) |
| MKTF-02 | 10/03/17 | 2.7 | 0.15 | 0.028 | 0.037 | 0.13 | 1.5 | 9.3 | ND(5) |
| MKTF-02 | 11/20/17 | 2.9 | 0.28 | 0.05 | 0.069 | 0.13 | 2.7 | 12 | ND(5) |
| MKTF-02 | 02/06/18 | 2.6 | 0.25 | 0.049 | 0.089 | 0.11 | 2.8 | 7.7 | ND(5) |
| MKTF-02 | 05/01/18 | 2.9 | 0.24 | 0.039 | 0.12 | 0.097 | 3.2 | 9.1 | ND(5) |
| MKTF-02 | 08/20/18 | 2.5 | 0.14 | 0.031 | 0.031 | 0.1 | 1.3 | 7.8 | ND(5) |
| MKTF-02 | 11/28/18 | 5.5 | 0.51 | 0.082 | 0.17 | 0.099 | 2.9 | 18 | ND(5) |
| MKTF-02 | 03/28/19 | 0.62 | 0.01 | 0.016 | 0.13 | 0.047 | 3.8 | 4.1 | -- |
| MKTF-02 | 05/06/19 | 0.95 | 0.043 | 0.019 | 0.11 | 0.049 | 3.5 | 5.3 | -- |
| MKTF-02 | 08/23/19 | 0.99 | 0.078 | 0.012 | ND(0.03) | 0.051 | 3.1 | 3.9 | -- |
| MKTF-02 | 11/19/19 | 0.36 | 0.046 | 0.003 | ND(0.0075) | 0.023 | 0.65 | 2.4 | -- |
| MKTF-02 | 02/25/20 | 0.78 | 0.57 | 0.01 | 0.048 | 0.0091 | 1.8 J+ | 7.9 | ND(2.5) |
| MKTF-02 | 09/21/20 | 4 | 0.52 | 0.033 | 0.0063 | 0.061 | 2.1 J+ | 9.8 | ND(0.6) |
| MKTF-02 | 12/18/20 | 0.885 | 0.161 | 0.0119 | ND(0.05) | 0.0317 | 4.55 | -- | -- |
| MKTF-02 | 03/10/21 | 1.6 | 0.3 | 0.023 | 0.046 J | 0.026 | 1.4 | 5.8 | ND(0.6) |
| MKTF-02 | 06/17/21 | 1.4 | 0.34 | 0.025 | 0.063 | 0.029 | 1.8 J | 5.1 | 0.061 J |
| MKTF-02R | 09/17/21 | 0.029 J | ND(0.005) UJ | ND(0.005) UJ | ND(0.0075) | 0.045 J | 0.22 | 0.56 | ND(0.08) |
| MKTF-02R | 12/16/21 | 0.069 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.035 | 0.19 | 0.54 J+ | ND(0.08) |
| MKTF-04 | 04/11/14 | 1 | 0.8 | 0.025 | 1 | 2.4 | 4.5 | 9.4 | ND(5) |
| MKTF-04 | 06/04/14 | 0.67 | 0.57 | 0.019 | 0.68 | 1.8 | 2.9 | 8.2 | ND(5) |
| MKTF-04 | 09/15/14 | 0.15 | 0.14 | ND(0.005) | 0.14 | 1.4 | 1.5 | 3.4 | ND(5) |
| MKTF-04 | 11/13/14 | 0.18 | 0.28 | ND(0.01) | 0.26 | 1.4 | 2 | 4.2 | ND(5) |
| MKTF-04 | 03/16/15 | 0.22 | 0.26 | ND(0.01) | 0.34 | 1.2 | 1.9 | 4.8 | ND(5) |
| MKTF-04 | 06/04/15 | 0.31 | 0.45 | 0.013 | 0.56 | 1.3 | 2.3 | 6.2 | ND(5) |
| MKTF-04 | 08/18/15 | 0.32 | 0.43 | 0.011 | 0.55 | 1.4 | 3.7 | 6.8 | ND(5) |
| MKTF-04 | 11/03/15 | 0.38 | 0.7 | 0.015 | 0.78 | 1.5 | 3 | 8.6 | ND(5) |
| MKTF-04 | 02/29/16 | 0.8 | 0.73 | 0.017 | 0.8 | 2.2 | 3.6 | 9.2 | ND(5) |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-04 | 06/09/16 | **0.63** | 0.58 | 0.015 | **0.72** | **1.8** | **3.9** | **9** | **ND(5)** |
| MKTF-04 | 09/11/16 | **0.88** | 0.67 | 0.015 | **0.76** | **2.4** | **5.3** | **10** | **ND(5)** |
| MKTF-04 | 11/02/16 | **0.88** | 0.64 | 0.018 | **0.85** | **2.1** | **4.1** | **9.8** | **ND(5)** |
| MKTF-04 | 03/02/17 | **0.98** | 0.68 | 0.015 | **0.88** | **2.5** | **5.7** | **12** | **ND(5)** |
| MKTF-04 | 06/08/17 | **0.92** | 0.59 | 0.016 | **0.89** | **2** | **5.7** | **10** | **ND(5)** |
| MKTF-04 | 09/26/17 | **1.1** | **0.82** | 0.019 | **1.1** | **2.3** | **6.6** | **13** | **ND(5)** |
| MKTF-04 | 11/28/17 | **1.2** | **0.82** | 0.019 | **1.1** | **2.3** | **5.6** | **16** | **ND(5)** |
| MKTF-04 | 02/14/18 | **0.9** | 0.6 | 0.014 | **0.71** | **2** | **5** | **9.6** | **ND(5)** |
| MKTF-04 | 05/02/18 | **1.1** | **0.74** | 0.016 | **0.89** | **2.3** | **4.9** | **12** | **ND(5)** |
| MKTF-04 | 09/04/18 | **1.1** | **0.7** | 0.014 | **0.86** | **1.8** | **4.7** | **12** | **ND(5)** |
| MKTF-04 | 11/20/18 | **1.1** | 0.61 | 0.011 | **0.65** | **2.2** | **4.5** | **7.6** | **ND(5)** |
| MKTF-04 | 05/13/19 | **0.77** | 0.62 | 0.013 | **0.73** | **1.7** | **5.4** | **9.6** | -- |
| MKTF-04 | 08/21/19 | **0.53** | 0.42 | 0.0091 | 0.44 | **1.6** | **4.3** | **6.4** | -- |
| MKTF-04 | 10/30/19 | **0.93** | **0.71** | 0.012 | **0.74** | **1.8** | **0.73** | **10** | -- |
| MKTF-04 | 03/03/20 | **0.8** | 0.47 | 0.01 | 0.56 | **2.1** | **1.8** | **8.2** | **ND(2.5)** |
| MKTF-04R | 09/17/21 | **1.1 J** | 0.2 J | 0.013 J | 0.25 | **1.6 J** | **2.2** | **5.2** | **0.096** |
| MKTF-04R | 12/22/21 | **0.19** | 0.033 | 0.0029J/ND(0.005)U* | 0.052 | **0.86** | **1.2** | **2.1** | ND(0.08) |
| MKTF-09 | 04/14/14 | **1.1** | 0.14 | 0.038 | 0.075 | **1.2** | **3.6** | **5.7** | **ND(5)** |
| MKTF-09 | 06/05/14 | **1.3** | 0.2 | 0.052 | 0.098 | **1.2** | **2.7** | **6.2** | **ND(5)** |
| MKTF-09 | 09/18/14 | **0.75** | 0.096 | 0.027 | 0.043 | **0.76** | **1.4** | **5.6** | **ND(5)** |
| MKTF-09 | 11/14/14 | **0.81** | 0.15 | 0.033 | 0.11 | **0.77** | **2.1** | **4.4** | **ND(5)** |
| MKTF-09 | 03/16/15 | **0.49** | 0.08 | 0.013 | 0.018 | **0.5** | **ND(1)** | **3.3** | **ND(5)** |
| MKTF-09 | 06/04/15 | **0.89** | 0.15 | 0.025 | 0.039 | **0.43** | **1.8** | **4.1** | **ND(5)** |
| MKTF-09 | 08/18/15 | **1.2** | 0.2 | 0.035 | 0.063 | **0.6** | **4.7** | **7.1** | **ND(5)** |
| MKTF-09 | 11/03/15 | **1.5** | 0.23 | 0.036 | 0.07 | **0.63** | **5.3** | **9.8** | **ND(5)** |
| MKTF-09 | 02/29/16 | **1.6** | 0.24 | 0.029 | 0.064 | **0.69** | **2.5** | **7.4** | **ND(5)** |
| MKTF-09 | 06/09/16 | **1.4** | 0.21 | 0.029 | 0.056 | **0.53** | **1.7** | **7.8** | **ND(5)** |
| MKTF-09 | 09/11/16 | **2** | 0.22 | 0.03 | 0.059 | **0.62** | **2.3** | **6.7** | **ND(5)** |
| MKTF-09 | 11/02/16 | **1.6** | 0.21 | 0.026 | 0.052 | **0.5** | **1.6** | **7.8** | **ND(5)** |
| MKTF-09 | 03/15/17 | **2.4** | 0.3 | 0.032 | 0.083 | **0.61** | **3.9** | **12** | **ND(5)** |
| MKTF-09 | 06/12/17 | **3** | 0.3 | 0.032 | 0.086 | **0.68** | **2.4** | **11** | **ND(5)** |
| MKTF-09 | 09/28/17 | **3** | 0.3 | 0.03 | 0.097 | **0.53** | **4.2** | **13** | **ND(5)** |
| MKTF-09 | 11/28/17 | **3.2** | 0.26 | 0.027 | 0.086 | **0.51** | **2.6** | **11** | **ND(5)** |
| MKTF-09 | 02/14/18 | **2.7** | 0.25 | 0.024 | 0.084 | **0.48** | **2.2** | **8.7** | **ND(5)** |
| MKTF-09 | 05/02/18 | **2.8** | 0.28 | 0.025 | 0.098 | **0.49** | **2.6** | **8.2** | **ND(5)** |
| MKTF-09 | 09/04/18 | **2.7** | 0.25 | 0.019 | 0.084 | **0.43** | **2.4** | **11** | **ND(5)** |
| MKTF-09 | 11/28/18 | **3.3** | 0.19 | ND(0.02) | 0.073 | **0.56** | **1.8** | **9.1** | **ND(5)** |
| MKTF-09 | 05/13/19 | **3.2** | 0.28 | 0.025 | 0.095 | **0.31** | **3.1** | **8.4** | -- |
| MKTF-09 | 08/28/19 | **3.5** | 0.27 | 0.021 | 0.098 | **0.42** | **3.9** | **12** | -- |
| MKTF-09 | 11/18/19 | **3.7** | 0.23 | 0.014 | 0.069 | **0.45** | **1** | **10** | -- |
| MKTF-09 | 03/03/20 | **3.3** | 0.19 | 0.0099J/ND(0.02)U* | 0.055 | **0.53** | **0.96** | **7.9** | **ND(2.5)** |
| MKTF-10 | 04/11/14 | **14** | **1.5** | **19** | **6.9** | ND(0.05) | **5.9** | **88** | **ND(5)** |
| MKTF-10 | 06/06/14 | **12** | **0.74** | **14** | **3.4** | 0.019 | **5.5** | **64** | **ND(5)** |
| MKTF-10 | 09/18/14 | **11** | **0.93** | **15** | **4** | ND(0.05) | **7.7** | **88** | **ND(5)** |
| MKTF-10 | 11/14/14 | **11** | **1.7** | **20** | **7.6** | ND(0.02) | **74** | **84** | **ND(50)** |
| MKTF-10 | 03/16/15 | **11** | **1.6** | **21** | **6.8** | ND(0.05) | **32** | **80** | **ND(5)** |
| MKTF-10 | 06/04/15 | **10** | **1.5** | **20** | **6.5** | ND(0.05) | **23** | **79** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-10 | 08/18/15 | 9.2 | 1.5 | 19 | 6.5 | ND(0.05) | 55 | 130 | ND(5) |
| MKTF-10 | 11/03/15 | 12 | 1.6 | 22 | 6.8 | ND(0.05) | 8 | 100 | ND(5) |
| MKTF-10 | 02/29/16 | 11 | 1.7 | 23 | 7.7 | ND(0.1) | 14 | 110 | ND(5) |
| MKTF-10 | 06/09/16 | 15 | 1.7 | 22 | 8.9 | 0.018 | 8 | 110 | ND(5) |
| MKTF-10 | 09/11/16 | 16 | 1.6 | 20 | 7.3 | ND(0.1) | 6 | 110 | ND(5) |
| MKTF-10 | 11/02/16 | 17 | 1.7 | 22 | 8 | ND(0.1) | 3.8 | 100 | ND(5) |
| MKTF-10 | 03/02/17 | 18 | 1.6 | 21 | 7.8 | 0.028 | 5.3 | 110 | ND(5) |
| MKTF-10 | 06/08/17 | 12 | 1.8 | 20 | 8.2 | ND(0.1) | 3.5 | 100 | ND(5) |
| MKTF-10 | 09/28/17 | 9.5 | 1.8 | 8.8 | 8.7 | ND(0.1) | 3.6 | 74 | ND(5) |
| MKTF-10 | 11/28/17 | 9.8 | 1.8 | 4.7 | 8.3 | 0.035 | 3.5 | 83 | ND(5) |
| MKTF-10 | 02/14/18 | 10 | 1.8 | 3.7 | 8.3 | 0.014 | 2.6 | 74 | ND(5) |
| MKTF-10 | 05/02/18 | 13 | 2.1 | 4.9 | 9.6 | 0.03 | 3.7 | 100 | ND(5) |
| MKTF-10 | 09/04/18 | 10 | 1.8 | 2.4 | 8.1 | ND(0.05) | 2.5 | 57 | ND(5) |
| MKTF-10 | 11/20/18 | 11 | 1.9 | 1.9 | 8 | ND(0.02) | 2.8 | 53 | ND(5) |
| MKTF-10 | 05/13/19 | 5.5 | 1.7 | 0.9 | 7.9 | 0.024 | 3.5 | 48 | -- |
| MKTF-10 | 08/22/19 | 4.6 | 1.6 | 0.66 | 7.4 | 0.019 | 3 | 35 | -- |
| MKTF-10 | 10/30/19 | 5.5 | 1.7 | 0.57 | 7.2 | 0.017 | 0.35 | 40 | -- |
| MKTF-10 | 03/03/20 | 4.8 | 1.7 | 0.65 | 8.2 | 0.0094 J | 1.3 | 40 | ND(2.5) |
| MKTF-10 | 12/18/20 | 4.67 | 1.8 | 0.284 | 8.6 | ND(0.025) | 5.54 | -- | -- |
| MKTF-10 | 03/10/21 | 5.1 | 1.5 | 0.28 | 7 J | 0.009 | 1.4 | 40 | ND(0.6) |
| MKTF-10 | 06/23/21 | 5.8 | 1.9 | 0.59 | 8.4 | 0.012 | 2.1 | 45 | ND(0.08) |
| MKTF-10 | 09/15/21 | 3.7 | 1.1 | 0.25 | 4.3 | 0.0058 J | 1.8 | 48 | ND(0.08) |
| MKTF-10 | 12/16/21 | 6 | 1.7 | 0.2 | 6.7 | 0.008 J | 2.3 | 37 J+ | ND(0.08) |
| MKTF-11 | 04/11/14 | 15 | 0.93 | 7.6 | 2.2 | 0.15 | 2.7 | 53 | ND(5) |
| MKTF-11 | 06/05/14 | 12 | 0.75 | 7.8 | 2.2 | 0.096 | 2.6 | 48 | ND(5) |
| MKTF-11 | 09/15/14 | 9.5 | 0.72 | 7.1 | 2 | 0.083 | 1.8 | 57 | ND(5) |
| MKTF-11 | 11/13/14 | 9.5 | 0.77 | 8.2 | 2.3 | 0.08 | 1.8 | 35 | ND(5) |
| MKTF-11 | 03/16/15 | 10 | 0.93 | 11 | 3.7 | 0.048 | 2.6 | 55 | ND(5) |
| MKTF-11 | 06/04/15 | 12 | 1.2 | 13 | 4.9 | 0.041 | 2.8 | 71 | ND(5) |
| MKTF-11 | 08/18/15 | 3.7 | 0.5 | 4.2 | 1.5 | 0.082 | 1.6 | 36 | ND(5) |
| MKTF-11 | 11/03/15 | 11 | 0.96 | 13 | 3.9 | 0.056 | 2.9 | 71 | ND(5) |
| MKTF-11 | 02/29/16 | 5.1 | 0.67 | 6.4 | 2.2 | 0.12 | 1.5 | 42 | ND(5) |
| MKTF-11 | 06/09/16 | 4.5 | 0.57 | 5.8 | 1.8 | 0.078 | 1.4 | 39 | ND(5) |
| MKTF-11 | 09/11/16 | 4.5 | 0.53 | 4.8 | 1.6 | 0.081 | 1.7 | 29 | ND(5) |
| MKTF-11 | 11/02/16 | 3.9 | 0.52 | 4.5 | 1.6 | 0.071 | 1.6 | 27 | ND(5) |
| MKTF-11 | 03/02/17 | 3.9 | 0.59 | 3.4 | 1.6 | 0.065 | 1.7 | 27 | ND(5) |
| MKTF-11 | 06/08/17 | 4.5 | 0.47 | 4.7 | 1.5 | 0.05 | 1.8 | 30 | ND(5) |
| MKTF-11 | 09/26/17 | 10 | 0.81 | 10 | 2.8 | 0.054 | 2.8 | 63 | ND(5) |
| MKTF-11 | 11/28/17 | 9.9 | 0.84 | 8.8 | 2.6 | 0.068 | 2.1 | 59 | ND(5) |
| MKTF-11 | 02/08/18 | 13 | 1 | 12 | 3.1 | 0.059 | 2.2 | 69 | ND(5) |
| MKTF-11 | 05/02/18 | 13 | 1.2 | 12 | 3.8 | 0.075 | 2.5 | 72 | ND(5) |
| MKTF-11 | 09/04/18 | 10 | 0.81 | 5.7 | 2.5 | 0.064 | 1.6 | 53 | ND(5) |
| MKTF-11 | 11/20/18 | 11 | 0.47 | 4.7 | 2.5 | 0.071 | 1.7 | 41 | ND(5) |
| MKTF-11 | 05/13/19 | 6.1 | 0.57 | 3.4 | 1.8 | 0.046 | 1.5 | 28 | -- |
| MKTF-11 | 08/21/19 | 9.1 | 0.67 | 1.4 | 1.7 | 0.028 | 1.4 | 35 | -- |
| MKTF-11 | 10/30/19 | 13 | 0.85 | 1.5 | 2.2 | 0.041 | 0.18 | 32 | -- |
| MKTF-11 | 03/03/20 | 6 | 0.32 | 0.86 | 1.1 | 0.059 | 0.5 | 18 | ND(2.5) |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-11 | 03/10/21 | 4.9 | 0.21 | 0.25 | 0.69 J | 0.052 | 0.62 | 14 | ND(0.6) |
| MKTF-11 | 06/17/21 | 6.2 | 0.45 | 0.36 | 1.6 | 0.049 | 1 J | 19 | ND(0.08) |
| MKTF-11 | 09/15/21 | 7.8 | 0.48 | 0.4 | 1.7 | 0.041 | 0.88 | 25 | ND(0.08) |
| MKTF-11 | 12/16/21 | 4.3 | 0.19 | 0.17 | 0.91 | 0.039 | 0.77 | 12 J+ | ND(0.08) |
| MKTF-13 | 03/15/17 | 3 | 0.87 | 0.21 | 4 | 2.3 | 48 | 28 | ND(5) |
| MKTF-13 | 05/10/18 | 4.8 | 0.87 | 0.15 | 4 | 2 | 30 | 28 | ND(5) |
| MKTF-13 | 08/30/18 | 3.5 | 0.65 | 0.12 | 3.2 | 1.2 | 5.5 | 26 | ND(5) |
| MKTF-13 | 11/28/18 | 4.5 | 0.53 | 0.13 | 2.8 | 1.4 | 4.5 | 24 | ND(5) |
| MKTF-13 | 03/26/19 | 3.5 | 0.6 | 0.14 | 3.5 | 0.44 | 8.1 | 27 | -- |
| MKTF-13 | 05/09/19 | 3.2 | 0.32 | 0.12 | 2.6 | 0.48 | 63 | 19 | -- |
| MKTF-13 | 10/29/19 | 4.7 | 0.6 | 0.11 | 2.6 | 0.33 | 7.3 | 23 | -- |
| MKTF-15 | 04/10/14 | 16 | 1.2 | 2.4 | 6.1 | 0.27 | 4.1 | 71 | ND(5) |
| MKTF-15 | 06/05/14 | 12 | 1.3 | 8.8 | 3.7 | 0.27 | 10 | 57 | ND(5) |
| MKTF-15 | 09/17/14 | 11 | 1.4 | 7 | 4.3 | 0.38 | 17 | 88 | ND(5) |
| MKTF-15 | 09/11/16 | 24 | 2 | 16 | 7.3 | 0.093 | 17 | 110 | ND(5) |
| MKTF-15 | 11/02/16 | 20 | 2.1 | 16 | 7.6 | 0.099 | 6.2 | 110 | ND(5) |
| MKTF-15 | 03/02/17 | 24 | 2.1 | 17 | 7.7 | 0.16 | 8.8 | 140 | ND(5) |
| MKTF-15 | 06/08/17 | 23 | 2.6 | 22 | 8.7 | 0.13 | 5.9 | 150 | ND(5) |
| MKTF-15 | 11/28/17 | 18 | 2.2 | 15 | 7.7 | 0.16 | 5.3 | 130 | ND(5) |
| MKTF-15 | 05/02/18 | 16 | 2.4 | 11 | 7.9 | 0.18 | 4 | 97 | ND(5) |
| MKTF-15 | 08/28/18 | 17 | 1.8 | 4.6 | 5.8 | 0.14 | 2.7 | 78 | ND(5) |
| MKTF-15 | 05/13/19 | 18 | 1.8 | 4.9 | 5.8 | 0.068 | 9.7 | 72 | -- |
| MKTF-16 | 04/10/14 | 11 | 1.1 | 7.5 | 3.6 | 0.27 | 3.5 | 67 | ND(5) |
| MKTF-16 | 06/05/14 | 18 | 1.7 | 3.7 | 8.1 | 2 | 5.7 | 71 | ND(5) |
| MKTF-16 | 09/17/14 | 17 | 1.2 | 1.4 | 5.3 | 2.1 | 4.6 | 66 | ND(5) |
| MKTF-16 | 11/18/14 | 20 | 1.3 | 1.2 | 5.8 | 1.4 | 2.7 | 53 | ND(5) |
| MKTF-16 | 03/16/15 | 19 | 1.4 | 0.45 | 5.4 | 1.6 | 2.9 | 61 | ND(5) |
| MKTF-16 | 06/08/15 | 23 | 1.4 | 1.3 | 5.3 | 2 | 4.3 | 69 | ND(5) |
| MKTF-16 | 08/23/15 | 24 | 1.4 | 0.64 | 5.6 | 2.1 | 3.7 | 83 | ND(5) |
| MKTF-16 | 11/03/15 | 28 | 1.7 | 0.62 | 6.6 | 1.7 | 3.1 | 91 | ND(5) |
| MKTF-16 | 02/29/16 | 19 | 1 | 0.28 | 3.9 | 1.4 | 2.6 | 73 | ND(5) |
| MKTF-16 | 06/09/16 | 16 | 1.1 | 0.34 | 3.6 | 1.4 | 3 | 69 | ND(5) |
| MKTF-16 | 09/12/16 | 23 | 1.3 | 0.24 | 4.3 | 1.7 | 3.5 | 62 | ND(5) |
| MKTF-16 | 11/03/16 | 19 | 0.88 | 0.22 | 3.4 | 0.97 | 3.3 | 70 | ND(5) |
| MKTF-16 | 03/14/17 | 22 | 1.7 | 0.34 | 4.9 | 0.72 | 5.9 | 85 | ND(5) |
| MKTF-16 | 06/08/17 | 19 | 0.71 | 0.22 | 2.8 | 0.82 | 4.3 | 60 | ND(5) |
| MKTF-16 | 09/26/17 | 23 | 1.6 | 0.24 | 3.9 | 0.92 | 4.7 | 78 | ND(5) |
| MKTF-16 | 11/29/17 | 21 | 1.4 | 0.21 | 3.2 | 0.8 | 4 | 70 | ND(5) |
| MKTF-16 | 02/15/18 | 1.8 | 0.015 | 0.024 | 0.23 | 0.04 | 2.4 | 8.4 | ND(5) |
| MKTF-16 | 05/11/18 | 19 | 1.6 | 0.17 | 2 | 0.64 | 2.9 | 47 | ND(5) |
| MKTF-16 | 08/31/18 | 17 | 1.3 | 0.13 | 1.4 | 0.64 | 3.3 | 50 | ND(5) |
| MKTF-16 | 11/29/18 | 17 | 0.89 | 0.12 | 0.72 | 0.69 | 2.6 | 34 | ND(5) |
| MKTF-16 | 02/20/19 | 21 | 1.4 | 0.19 | 1.6 | 0.61 | 2.2 | 48 | -- |
| MKTF-16 | 05/14/19 | 14 | 0.71 | 0.11 | 0.62 | 0.62 | 3.4 | 30 | -- |
| MKTF-16 | 08/22/19 | 9.8 | 0.48 | 0.043 | 0.11 | 0.55 | 3.6 | 20 | -- |
| MKTF-16 | 10/30/19 | 15 | 1.5 | 0.095 | 0.43 | 0.62 | 0.24 | 33 | -- |
| MKTF-16 | 12/23/20 | 14.7 | 1.32 | 0.129 | ND(1) | 0.279 | -- | -- | -- |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-16 | 03/11/21 | **4.5** | 0.55 | ND(0.1) | 0.16 | **0.16** | -- | **17** | -- |
| MKTF-16 | 09/24/21 | **4.8** | 0.43 | ND(0.05) | 0.027 J | **0.17** | **ND(1.7) UJ** | **13** | **ND(8.3) UJ** |
| MKTF-16 | 12/28/21 | **0.016** | 0.0036 | ND(0.001) | ND(0.0015) | 0.004 | **0.35** | **0.061** | **0.23** |
| MKTF-17 | 04/09/14 | **3.5** | 0.58 | ND(0.01) | 0.27 | **1.3** | **2.6** | **8.6** | **ND(5)** |
| MKTF-17 | 06/06/14 | **2.6** | 0.48 | ND(0.01) | 0.068 | **1.1** | **4.2** | **8.3** | **ND(5)** |
| MKTF-17 | 09/18/14 | **0.55** | 0.24 | ND(0.01) | ND(0.015) | **0.69** | **1.5** | **3.3** | **ND(5)** |
| MKTF-17 | 11/18/14 | **0.14** | 0.078 | ND(0.001) | ND(0.0015) | **0.57** | **1.4** | **1.2** | **ND(5)** |
| MKTF-17 | 03/12/15 | 0.0028 | 0.0059 | ND(0.001) | ND(0.0015) | **0.59** | **ND(1)** | **0.8** | **ND(5)** |
| MKTF-17 | 06/08/15 | **0.011** | 0.018 | ND(0.001) | ND(0.0015) | **0.5** | **1.3** | **0.77** | **ND(5)** |
| MKTF-17 | 08/18/15 | **0.036** | 0.3 | 0.0011 | 0.0018 | **0.64** | **1.1** | **1.7** | **ND(5)** |
| MKTF-17 | 11/03/15 | **0.029** | 0.31 | ND(0.002) | ND(0.003) | **0.77** | **1.5** | **2.5** | **ND(5)** |
| MKTF-17 | 02/26/16 | **0.26** | 0.018 | ND(0.005) | 0.023 | **0.64** | **ND(1)** | **1.6** | **ND(5)** |
| MKTF-17 | 06/10/16 | **1.9** | 0.52 | 0.006 | 0.24 | **0.49** | **2.1** | **9.2** | **ND(5)** |
| MKTF-17 | 09/13/16 | **1.3** | 0.55 | 0.0021 | ND(0.015) | **0.38** | **1.6** | **7.5** | **ND(5)** |
| MKTF-17 | 11/08/16 | **0.76** | 0.39 | 0.0019 | 0.0043 | **0.36** | **1.3** | **4.5** | **ND(5)** |
| MKTF-17 | 03/15/17 | **0.29** | 0.23 | 0.0022 | 0.07 | **0.28** | **2.4** | **3.5** | **ND(5)** |
| MKTF-17 | 06/14/17 | **0.26** | 0.58 | 0.0017 | 0.0048 | **0.39** | **2.2** | **4** | **ND(5)** |
| MKTF-17 | 09/26/17 | **0.047** | 0.68 | 0.0011 | ND(0.0075) | **0.94** | **2** | **4.3** | **ND(5)** |
| MKTF-17 | 12/01/17 | **0.14** | 0.17 | 0.0008 | ND(0.0075) | **1.5** | **1.1** | **2.5** | **ND(5)** |
| MKTF-17 | 02/16/18 | **0.22** | 0.21 | 0.00098 | ND(0.0075) | **4.9** | **1.3** | **3.7** | **ND(5)** |
| MKTF-17 | 05/04/18 | **0.047** | 0.14 | 0.0011 | 0.002 | **7.4** | **1.4** | **7.1** | **ND(5)** |
| MKTF-17 | 08/24/18 | 0.0027 | 0.12 | ND(0.005) | ND(0.0075) | **5.3** | **ND(1)** | **4.7** | **ND(5)** |
| MKTF-17 | 11/28/18 | **ND(0.005)** | 0.028 | ND(0.005) | ND(0.0075) | **5.7** | **1.6** | **3** | **ND(5)** |
| MKTF-17 | 05/09/19 | **2.2** | 0.49 | 0.0022 | 0.15 | **4.3** | **7.6** | **9.1** | -- |
| MKTF-17 | 08/20/19 | **0.87** | 0.64 | 0.0026 | 0.078 | **4.3** | **3.3** | **7.6** | -- |
| MKTF-17 | 10/29/19 | **12** | **1.1** | **23** | **3.1** | **2.5** | **0.7** | **78** | -- |
| MKTF-17R | 09/17/21 | **1.6 J** | 0.28 J | **5.4 J** | **2.7** | **3.9 J** | **1.8** | **29** | **ND(0.8)** |
| MKTF-17R | 12/21/21 | **1.5** | 0.46 | **5.8** | **2.3** | **4.3** | **1.8** | **28** | ND(0.08) |
| MKTF-18 | 04/14/14 | **0.29** | 0.058 | 0.015 | 0.044 | **0.15** | **4.4** | **2.2** | **ND(5)** |
| MKTF-18 | 06/06/14 | **0.29** | 0.036 | 0.014 | 0.055 | **0.14** | **7.8** | **2.2** | **ND(5)** |
| MKTF-18 | 09/18/14 | **0.12** | 0.069 | 0.013 | 0.042 | **0.12** | **3.1** | **1.4** | **ND(5)** |
| MKTF-18 | 11/18/14 | **0.096** | 0.09 | 0.0076 | 0.047 | **0.1** | **2.3** | **1.4** | **ND(5)** |
| MKTF-18 | 03/17/15 | **0.058** | 0.017 | ND(0.005) | 0.029 | 0.091 | **5.4** | **1.8** | **ND(5)** |
| MKTF-18 | 06/08/15 | **0.05** | 0.049 | 0.0033 | 0.031 | 0.082 | **3.3** | **1.4** | **ND(5)** |
| MKTF-18 | 08/18/15 | **0.032** | 0.054 | 0.0016 | 0.019 | **0.1** | **34** | **1.3** | **ND(5)** |
| MKTF-18 | 11/03/15 | **0.019** | 0.041 | ND(0.002) | 0.017 | 0.083 | **2.5** | **1.3** | **ND(5)** |
| MKTF-18 | 02/26/16 | **0.017** | 0.034 | ND(0.001) | 0.0056 | 0.071 | **3** | **0.79** | **ND(5)** |
| MKTF-18 | 06/10/16 | **0.016** | 0.021 | 0.00048 | 0.0025 | 0.092 | **1.9** | **0.71** | **ND(5)** |
| MKTF-18 | 09/13/16 | **0.016** | 0.015 | 0.00037 | 0.0013 | 0.074 | **2.2** | **0.56** | **ND(5)** |
| MKTF-18 | 11/08/16 | **0.016** | 0.014 | 0.0003 | 0.00076 | 0.081 | **1.7** | **0.6** | **ND(5)** |
| MKTF-18 | 03/01/17 | **0.027** | 0.026 | 0.00033 | 0.00085 | 0.093 | **2.7** | **0.81** | **ND(5)** |
| MKTF-18 | 06/14/17 | **0.03** | 0.022 | ND(0.002) | ND(0.003) | **0.1** | **7.1** | **0.83** | **ND(5)** |
| MKTF-18 | 02/16/18 | **0.13** | 0.021 | 0.00033 | ND(0.003) | **0.16** | **2.8** | **0.85** | **ND(5)** |
| MKTF-18 | 05/04/18 | **0.11** | 0.014 | ND(0.002) | 0.00073 | **0.14** | **2.4** | **0.8** | **ND(5)** |
| MKTF-18 | 08/24/18 | **0.19** | 0.011 | ND(0.002) | ND(0.003) | **0.11** | **1.6** | **0.97** | **ND(5)** |
| MKTF-18 | 11/28/18 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | **0.13** | **ND(1)** | **0.12** | **ND(5)** |
| MKTF-18 | 05/16/19 | **0.14** | 0.0023 | ND(0.002) | ND(0.003) | **0.13** | **3.3** | **0.69** | -- |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-18 | 10/29/19 | **0.16** | 0.00083 | ND(0.002) | ND(0.003) | 0.088 | **0.2** | **0.73** | -- |
| MKTF-18 | 02/06/20 | **0.19 J-** | ND(0.002) | 0.024 | 0.0026 J | **0.11** | **ND(0.4)** | **0.82** | **ND(2.5)** |
| MKTF-18 | 12/16/20 | **0.371** | ND(0.002) | ND(0.002) | ND(0.02) | 0.0967 | **2.93** | -- | -- |
| MKTF-18 | 03/11/21 | **0.56 J** | 0.0014 | 0.0013 | 0.0021 | 0.098 | **5.8** | **1.5** | **2.2** |
| MKTF-18 | 06/23/21 | **0.72** | 0.0015J/ND(0.005)U* | 0.0015J/ND(0.005)U* | 0.0029J/ND(0.0075)U* | **0.11** | **1.5** | **1.9** | ND(0.08) |
| MKTF-18R | 09/17/21 | **3.7 J** | 0.039 J | **1.8 J** | 0.37 J | **0.2 J** | **4.6 J** | **13 J** | **ND(0.8)** |
| MKTF-18R | 12/21/21 | **1.9** | 0.063 | 0.8 | 0.31 | **0.13** | **4.4** | **6.7** | **ND(0.8)** |
| MKTF-19 | 04/09/14 | **1.4** | 0.68 | ND(0.05) | 0.61 | **9.7** | **17** | **18** | **ND(5)** |
| MKTF-19 | 09/24/14 | **1.8** | **0.73** | ND(0.05) | **0.76** | **11** | **61** | **16** | **ND(5)** |
| MKTF-19 | 11/18/14 | **2.3** | **0.74** | ND(0.05) | 0.36 | **9.7** | **13** | **20** | **ND(5)** |
| MKTF-19 | 03/12/15 | **1.4** | 0.43 | ND(0.01) | 0.15 | **9.7** | **9.3** | **14** | **ND(5)** |
| MKTF-19 | 06/08/15 | **1.8** | 0.59 | 0.013 | 0.31 | **9.1** | **9.9** | **19** | **ND(5)** |
| MKTF-19 | 08/18/15 | **2.4** | **0.74** | 0.015 | 0.45 | **8.8** | **27** | **20** | **ND(5)** |
| MKTF-19 | 11/03/15 | **2.8** | **0.76** | 0.022 | **0.93** | **8.4** | **13** | **34** | **ND(5)** |
| MKTF-19 | 02/25/16 | **1.5** | **0.79** | ND(0.02) | **0.67** | **8.6** | **7.8** | **22** | **ND(5)** |
| MKTF-19 | 06/10/16 | **1.5** | 0.69 | 0.0064 | **0.66** | **7.9** | **7.2** | **21** | **ND(5)** |
| MKTF-19 | 09/13/16 | **1.4** | 0.69 | 0.0075 | **0.92** | **8.9** | **7.6** | **25** | **ND(5)** |
| MKTF-19 | 11/08/16 | **1.3** | **0.7** | 0.0068 | **1** | **10** | **6.7** | **26** | **ND(5)** |
| MKTF-19 | 03/15/17 | **1.8** | 0.6 | 0.0098 | **0.92** | **9** | **14** | **25** | **ND(5)** |
| MKTF-19 | 06/14/17 | **2.3** | **0.78** | 0.0084 | **0.9** | **10** | **11** | **23** | **ND(5)** |
| MKTF-19 | 09/26/17 | **3.2** | **0.8** | 0.014 | **0.87** | **12** | **11** | **29** | **ND(5)** |
| MKTF-19 | 12/01/17 | **1.9** | **0.75** | 0.0059 | **0.75** | **11** | **13** | **24** | **ND(5)** |
| MKTF-19 | 02/16/18 | **1.9** | **0.74** | 0.0037 | **0.64** | **10** | **11** | **16** | **ND(5)** |
| MKTF-19 | 05/04/18 | **2** | **0.87** | 0.0057 | **0.82** | **11** | **9.3** | **23** | **ND(5)** |
| MKTF-19 | 08/24/18 | **1.7** | **0.71** | 0.0043 | **0.74** | **9.7** | **7.9** | **22** | **ND(5)** |
| MKTF-19 | 11/28/18 | **1.9** | 0.63 | ND(0.02) | 0.57 | **10** | **7.8** | **15** | **ND(5)** |
| MKTF-19 | 05/09/19 | **1.8** | **0.77** | ND(0.02) | 0.61 | **7.8** | **11** | **19** | -- |
| MKTF-19 | 08/19/19 | **1.4** | **0.72** | ND(0.02) | **0.69** | **8.3** | **13** | **18** | -- |
| MKTF-19 | 10/29/19 | **1.6** | 0.61 | 0.013 | 0.61 | **7.9** | **1** | **17** | -- |
| MKTF-20 | 04/11/14 | **25** | **2.8** | **17** | **14** | **0.38** | **16** | **120** | **ND(5)** |
| MKTF-20 | 11/18/14 | **4.4** | 0.48 | **1.3** | **10** | 0.083 | **24** | **45** | **ND(5)** |
| MKTF-20 | 03/16/15 | **7** | 0.089 | **2.3** | **9.6** | ND(0.05) | **4.5** | **37** | **ND(5)** |
| MKTF-20 | 06/08/15 | **5.9** | 0.14 | 0.62 | **7.3** | 0.065 | **9.9** | **30** | **ND(5)** |
| MKTF-20 | 03/01/16 | **13** | **1.1** | 0.47 | **9.2** | **0.13** | **6.9** | **73** | **ND(5)** |
| MKTF-20 | 06/09/16 | **11** | **0.85** | 0.39 | **7.9** | **0.16** | **9** | **63** | **ND(5)** |
| MKTF-20 | 09/12/16 | **18** | **1.3** | 0.48 | **8.8** | **0.16** | **8.7** | **72** | **ND(5)** |
| MKTF-20 | 11/03/16 | **13** | **1.1** | 0.4 | **9.2** | **0.19** | **9.4** | **65** | **ND(5)** |
| MKTF-20 | 03/14/17 | **17** | 0.26 | **2.2** | **9.8** | **0.23** | **16** | **90** | **ND(5)** |
| MKTF-20 | 06/12/17 | **21** | **0.7** | **3.5** | **14** | **0.16** | **5.3** | **95** | **ND(5)** |
| MKTF-20 | 09/26/17 | **16** | 0.58 | 0.34 | **11** | **0.17** | **3.9** | **78** | **ND(5)** |
| MKTF-20 | 11/29/17 | **17** | **0.8** | 0.24 | **11** | **0.1** | **22** | **91** | **ND(5)** |
| MKTF-20 | 02/15/18 | **12** | **0.96** | 0.19 | **12** | 0.055 | **5.1** | **79** | **ND(5)** |
| MKTF-20 | 05/11/18 | **13** | **1.3** | 0.14 | **13** | **0.13** | **9.7** | **76** | **ND(5)** |
| MKTF-20 | 08/31/18 | **9.9** | **0.77** | 0.064 | **9.1** | 0.096 | **11** | **70** | **ND(5)** |
| MKTF-20 | 11/29/18 | **3** | 0.12 | 0.02 | **2.5** | 0.026 | **6.9** | **17** | **ND(5)** |
| MKTF-20 | 02/20/19 | **2.1** | 0.23 | 0.0021 | 0.14 | **0.22** | **9.8** | **7.3** | -- |
| MKTF-20 | 05/14/19 | **2.3** | **1** | ND(0.01) | **3.5** | 0.032 | **5.4** | **25** | -- |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-20 | 08/21/19 | **4.8** | **1.1** | 0.009 | **3.7** | 0.035 | **5.1** | **28** | -- |
| MKTF-20 | 11/05/19 | **2.4** | 0.26 | ND(0.01) | 0.096 | **0.17** | **1.5** | **7** | -- |
| MKTF-20 | 02/05/20 | **0.62 J-** | 0.058 | 0.0039 J | 0.53 | 0.0057 J | **1** | **4.6** | **ND(2.5)** |
| MKTF-21 | 04/11/14 | **7.2** | **2.1** | **13** | **11** | **0.58** | **27** | **78** | **ND(5)** |
| MKTF-21 | 03/16/15 | **3.7** | 0.013 | 0.26 | 0.27 | **0.63** | **3.8** | **16** | **ND(5)** |
| MKTF-21 | 06/10/15 | **6.2** | 0.18 | 0.48 | **0.81** | **0.82** | -- | -- | -- |
| MKTF-21 | 03/01/16 | **4.6** | 0.15 | 0.34 | **1.3** | **0.48** | **3.6** | **24** | **ND(5)** |
| MKTF-21 | 06/09/16 | **7.5** | 0.25 | 0.17 | **1.3** | **0.55** | **3.9** | **32** | **ND(5)** |
| MKTF-21 | 09/12/16 | **9.3** | 0.48 | 0.059 | **2** | **0.68** | **3.9** | **28** | **ND(5)** |
| MKTF-21 | 11/03/16 | **7.6** | 0.4 | 0.068 | **2.3** | **0.77** | **3.4** | **34** | **ND(5)** |
| MKTF-21 | 03/14/17 | **8** | 0.46 | 0.038 | **2** | **0.61** | **4** | **37** | **ND(5)** |
| MKTF-21 | 06/21/17 | **10** | 0.69 | 0.041 | **2.6** | **1.2** | **6.2** | **30** | **ND(5)** |
| MKTF-21 | 09/26/17 | **6.3** | 0.61 | 0.016 | **0.83** | **0.63** | **2** | **24** | **ND(5)** |
| MKTF-21 | 11/28/17 | **4.9** | 0.52 | 0.018 | **1.4** | **0.52** | **2.6** | **25** | **ND(5)** |
| MKTF-21 | 02/15/18 | **3.4** | 0.31 | 0.0035 | 0.39 | **0.39** | **3.2** | **12** | **ND(5)** |
| MKTF-21 | 05/11/18 | **4.8** | 0.47 | 0.0074 | **0.67** | **0.52** | **3.6** | **17** | **ND(5)** |
| MKTF-21 | 08/31/18 | **5.9** | **0.8** | 0.013 | **0.99** | **0.5** | **2.9** | **22** | **ND(5)** |
| MKTF-21 | 11/29/18 | **2** | 0.11 | ND(0.02) | 0.14 | **0.22** | **3.8** | **7.2** | **ND(5)** |
| MKTF-21 | 02/20/19 | **2** | **1.2** | 0.016 | **7.1** | 0.015 | **20** | **40** | -- |
| MKTF-21 | 05/14/19 | **2.4** | 0.28 | ND(0.02) | 0.22 | **0.29** | **9.4** | **8.5** | -- |
| MKTF-21 | 08/22/19 | **5.4** | 0.68 | ND(0.02) | 0.5 | **0.29** | **7.4** | **17** | -- |
| MKTF-21 | 11/05/19 | **5.6** | **1.1** | 0.0082 | **2.8** | 0.029 | **2.7** | **27** | -- |
| MKTF-21 | 02/05/20 | **0.058** | 0.0026 J | ND(0.005) | ND(0.0075) | 0.05 | **0.31 J** | **0.74** | **ND(2.5)** |
| MKTF-21 | 03/11/21 | **0.018 J** | 0.0063 | 0.00041 J | 0.0043 | 0.03 | -- | **1.8 J+** | -- |
| MKTF-22 | 04/10/14 | **2.3** | 0.28 | 0.021 | 0.032 | **3.7** | **2.6** | **10** | **ND(5)** |
| MKTF-22 | 11/17/14 | **1.6** | 0.09 | ND(0.01) | ND(0.015) | **3.9** | **1.6** | **6.8** | **ND(5)** |
| MKTF-22 | 03/12/15 | **2.6** | 0.25 | ND(0.02) | ND(0.03) | **5.1** | **2.5** | **13** | **ND(5)** |
| MKTF-22 | 06/09/15 | **2.9** | 0.32 | 0.022 | 0.047 | **5.7** | **2.5** | **15** | **ND(5)** |
| MKTF-22 | 08/20/15 | **1.2** | 0.097 | ND(0.02) | ND(0.03) | **4.8** | **ND(1)** | **9.3** | **ND(5)** |
| MKTF-22 | 11/09/15 | **2.7** | 0.35 | ND(0.02) | ND(0.03) | **5.5** | **1.6** | **14** | **ND(5)** |
| MKTF-22 | 02/25/16 | **4** | 0.57 | 0.032 | 0.07 | **7.2** | **2.7** | **24** | **ND(5)** |
| MKTF-22 | 06/10/16 | **3.8** | 0.5 | 0.035 | 0.062 | **6.5** | **2.5** | **27** | **ND(5)** |
| MKTF-22 | 09/10/16 | **4.2** | 0.43 | 0.03 | 0.049 | **8.8** | **2.7** | **17** | **ND(5)** |
| MKTF-22 | 11/01/16 | **3.7** | 0.46 | 0.032 | 0.054 | **8** | **2.1** | **26** | **ND(5)** |
| MKTF-22 | 03/08/17 | **3.5** | 0.42 | 0.03 | 0.046 | **6.5** | **3** | **23** | **ND(5)** |
| MKTF-22 | 06/08/17 | **2.9** | 0.18 | 0.014 | 0.022 | **5.9** | **3** | **14** | **ND(5)** |
| MKTF-22 | 10/03/17 | **2.4** | 0.28 | 0.018 | 0.037 | **4.9** | **2.5** | **13** | **ND(5)** |
| MKTF-22 | 11/28/17 | **2.5** | 0.18 | 0.013 | 0.025 | **6** | **2.4** | **13** | **ND(5)** |
| MKTF-22 | 02/08/18 | **2.3** | 0.14 | 0.0093 | 0.018 | **5.7** | **2.9** | **10** | **ND(5)** |
| MKTF-22 | 05/10/18 | **2.5** | 0.15 | 0.0088 | 0.014 | **5.9** | **3.5** | **11** | **ND(5)** |
| MKTF-22 | 08/30/18 | **2.2** | 0.12 | 0.0056 | ND(0.03) | **5.4** | **3.1** | **11** | **ND(5)** |
| MKTF-22 | 11/28/18 | **3** | 0.17 | ND(0.02) | ND(0.03) | **6** | **2** | **11** | **ND(5)** |
| MKTF-22 | 05/09/19 | **3.5** | 0.33 | 0.0091 | ND(0.03) | **3.3** | **2.6** | **11** | -- |
| MKTF-22 | 08/20/19 | **3.2** | 0.26 | 0.0087 | 0.014 | **2.7** | **2.4** | **8.2** | -- |
| MKTF-22 | 10/24/19 | **3.4** | 0.27 | ND(0.02) | ND(0.03) | **2.6** | **0.28** | **9** | -- |
| MKTF-23 | 09/23/14 | **2.7** | 0.34 | **1.4** | **1.6** | **0.48** | **14** | **23** | **ND(5)** |
| MKTF-23 | 11/17/14 | **3.6** | 0.47 | **3** | **4.5** | **0.57** | **7.7** | **26** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-23 | 03/12/15 | **3.3** | 0.6 | **4.8** | **8.1** | **1.1** | **14** | **35** | **ND(5)** |
| MKTF-23 | 06/09/15 | **2.9** | 0.51 | **3** | **6.5** | **1.1** | **23** | **32** | **ND(5)** |
| MKTF-23 | 08/21/15 | **3** | 0.42 | **2.7** | **6.2** | **1.2** | **35** | **29** | **ND(5)** |
| MKTF-23 | 11/09/15 | **2.6** | 0.57 | **3** | **7.8** | **1.4** | **71** | **34** | **ND(5)** |
| MKTF-23 | 02/25/16 | **3.1** | 0.31 | **1.2** | **6.7** | **1.6** | **56** | **32** | **ND(5)** |
| MKTF-23 | 06/10/16 | **3.2** | 0.3 | 0.98 | **6.1** | **1.4** | **710** | **38** | **ND(50)** |
| MKTF-23 | 10/29/19 | **4.8** | **1.2** | **8.3** | **7.1** | **0.33** | **2200** | **55** | -- |
| MKTF-24 | 04/08/14 | **0.45** | 0.065 | 0.0067 | 0.0023 | **0.18** | **ND(1)** | **4.2** | **ND(5)** |
| MKTF-24 | 09/24/14 | **1.6** | 0.058 | 0.0087 | ND(0.003) | **0.17** | **ND(1)** | **6.3** | **ND(5)** |
| MKTF-24 | 11/14/14 | **1.6** | 0.049 | 0.0095 | 0.0029 | 0.063 | **ND(1)** | **5.7** | **ND(5)** |
| MKTF-24 | 03/11/15 | **2.6** | 0.031 | 0.012 | ND(0.0075) | **0.17** | **ND(1)** | **9.2** | **ND(5)** |
| MKTF-24 | 06/10/15 | **2.9** | 0.046 | 0.015 | ND(0.0075) | **0.17** | **ND(1)** | **9.8** | **ND(5)** |
| MKTF-24 | 08/20/15 | **2.7** | 0.056 | ND(0.02) | ND(0.03) | **0.2** | **ND(1)** | **9.5** | **ND(5)** |
| MKTF-24 | 11/04/15 | **2.8** | 0.054 | ND(0.02) | ND(0.03) | **0.21** | **ND(1)** | **10** | **ND(5)** |
| MKTF-24 | 02/22/16 | **5.6** | 0.31 | 0.027 | ND(0.03) | **0.21** | **1.5** | **29** | **ND(5)** |
| MKTF-24 | 06/08/16 | **3** | 0.074 | 0.018 | 0.006 | **0.21** | **ND(1)** | **14** | **ND(5)** |
| MKTF-24 | 09/07/16 | **5.3** | 0.21 | 0.021 | 0.011 | **0.17** | **1.2** | **19** | **ND(5)** |
| MKTF-24 | 10/28/16 | **6.1** | 0.3 | 0.025 | 0.015 | **0.23** | **1.1** | **30** | **ND(5)** |
| MKTF-24 | 03/29/17 | **3** | 0.042 | 0.015 | ND(0.03) | **0.19** | **0.74** | **8.2** | **ND(5)** |
| MKTF-24 | 06/05/17 | **6** | 0.3 | 0.024 | 0.0083 | **0.2** | **1.8** | **23** | **ND(5)** |
| MKTF-24 | 10/03/17 | **2.6** | 0.071 | 0.019 | ND(0.03) | **0.16** | **0.56** | **10** | **ND(5)** |
| MKTF-24 | 11/20/17 | **5.5** | 0.32 | 0.023 | 0.018 | **0.16** | **1** | **28** | **ND(5)** |
| MKTF-24 | 02/06/18 | **6.3** | 0.41 | 0.03 | ND(0.03) | **0.17** | **1.1** | **21** | **ND(5)** |
| MKTF-24 | 05/01/18 | **5.5** | 0.3 | 0.029 | 0.0065 | **0.13** | **1.4** | **23** | **ND(5)** |
| MKTF-24 | 08/20/18 | **4.8** | 0.32 | 0.025 | ND(0.03) | **0.12** | **1.4** | **23** | **ND(5)** |
| MKTF-24 | 10/10/18 | **2.5** | 0.038 | 0.014 | 0.0048 | **0.12** | -- | -- | -- |
| MKTF-24 | 11/15/18 | **4.8** | 0.2 | 0.021 | ND(0.03) | **0.12** | **1.5** | **16** | **ND(5)** |
| MKTF-24 | 05/06/19 | **3** | 0.12 | 0.014 | ND(0.03) | **0.11** | **0.65** | **8.6** | -- |
| MKTF-24 | 08/23/19 | **4.1** | 0.24 | 0.022 | 0.012 | **0.11** | **0.94** | **15** | -- |
| MKTF-24 | 10/23/19 | **5** | 0.31 | 0.024 | ND(0.03) | **0.11** | **ND(0.4)** | **17** | -- |
| MKTF-24 | 02/25/20 | **2.9** | 0.083 | 0.011 J | ND(0.03) | **0.11** | **0.71** | **7.2** | **ND(2.5)** |
| MKTF-24 | 09/19/20 | **6.1** | 0.24 | 0.024 | ND(0.03) | **0.12** | **0.38 J-** | **15** | **ND(0.6) UJ** |
| MKTF-24 | 12/18/20 | **5.02** | 0.223 | ND(0.025) | ND(0.25) | 0.0989 | **2.47** | -- | -- |
| MKTF-24 | 03/09/21 | **4.9** | 0.18 | 0.02 | ND(0.015) | **0.11** | **0.48** | **15** | **ND(0.6)** |
| MKTF-24 | 06/16/21 | **5.7** | 0.17 | 0.022 | ND(0.015) | 0.097 | **0.69 J** | **1.4** | ND(0.08) |
| MKTF-24 | 09/21/21 | **6.4** | 0.26 | 0.027 | 0.0076 J | **0.1** | **0.65 J** | **18** | ND(0.08) |
| MKTF-24 | 12/16/21 | **5.4** | 0.28 | 0.018 | 0.0077 J | 0.081 | **0.67** | **12 J+** | ND(0.08) |
| MKTF-25 | 04/08/14 | **1** | 0.13 | 0.0092 | 0.013 | **0.27** | **1.2** | **6.9** | **ND(5)** |
| MKTF-25 | 09/23/14 | **0.53** | 0.012 | ND(0.01) | ND(0.015) | **0.23** | **ND(1)** | **5.8** | **ND(5)** |
| MKTF-25 | 11/14/14 | **0.58** | 0.023 | ND(0.005) | ND(0.0075) | **0.18** | **ND(1)** | **4.8** | **ND(5)** |
| MKTF-25 | 03/11/15 | **0.97** | 0.17 | 0.012 | ND(0.0075) | **0.27** | **1.1** | **10** | **ND(5)** |
| MKTF-25 | 06/10/15 | **1** | 0.099 | 0.0066 | 0.016 | **0.21** | **ND(1)** | **11** | **ND(5)** |
| MKTF-25 | 08/21/15 | **1.2** | 0.13 | 0.0099 | 0.0089 | **0.24** | **1.1** | **8.7** | **ND(5)** |
| MKTF-25 | 11/05/15 | **1.1** | 0.14 | 0.0087 | 0.016 | **0.25** | **1.2** | **12** | **ND(5)** |
| MKTF-25 | 02/23/16 | **1.2** | 0.19 | 0.011 | ND(0.0075) | **0.2** | **1.1** | **14** | **ND(5)** |
| MKTF-25 | 06/09/16 | **0.99** | 0.19 | 0.013 | 0.018 | **0.48** | **0.89** | **13** | **ND(5)** |
| MKTF-25 | 09/09/16 | **0.92** | 0.018 | 0.005 | ND(0.015) | **0.15** | **0.94** | **7.1** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-25 | 11/01/16 | **0.96** | 0.046 | 0.006 | 0.0046 | **0.19** | **0.88** | **10** | **ND(5)** |
| MKTF-25 | 03/29/17 | **0.78** | 0.024 | 0.0045 | 0.0043 | **0.12** | **0.95** | **7.8** | **ND(5)** |
| MKTF-25 | 06/05/17 | **0.62** | 0.021 | 0.0028 | 0.003 | **0.12** | **1.2** | **8.4** | **ND(5)** |
| MKTF-25 | 09/25/17 | **1.6** | 0.13 | 0.01 | 0.014 | **0.23** | **1** | **16** | **ND(5)** |
| MKTF-25 | 11/21/17 | **1.6** | 0.14 | 0.011 | 0.013 | **0.2** | **0.78** | **17** | **ND(5)** |
| MKTF-25 | 02/05/18 | **2** | 0.11 | 0.01 | 0.0097 | **0.25** | **ND(1)** | **16** | **ND(5)** |
| MKTF-25 | 05/06/18 | **3.4** | 0.15 | 0.015 | 0.009 | **0.26** | **1.1** | **12** | **ND(5)** |
| MKTF-25 | 08/17/18 | **4.5** | 0.026 | 0.017 | ND(0.015) | **0.25** | **1** | **17** | **ND(5)** |
| MKTF-25 | 11/15/18 | **1.7** | ND(0.01) | ND(0.01) | ND(0.015) | **0.2** | **ND(1)** | **5** | **ND(5)** |
| MKTF-25 | 05/06/19 | **0.37** | ND(0.01) | ND(0.01) | ND(0.015) | **0.29** | **0.4** | **3.6** | -- |
| MKTF-25 | 08/27/19 | **0.13** | ND(0.005) | ND(0.005) | ND(0.0075) | **0.85** | **ND(1)** | **1.7** | -- |
| MKTF-25 | 10/23/19 | **0.37** | 0.00081 | ND(0.005) | ND(0.0075) | **0.88** | **ND(0.4)** | **3** | -- |
| MKTF-25 | 02/27/20 | **0.42** | ND(0.005) | ND(0.005) | ND(0.0075) | **0.62** | **0.32 J** | **2.5** | **ND(2.5)** |
| MKTF-25 | 12/18/20 | **0.629** | ND(0.005) | ND(0.005) | ND(0.05) | **0.795** | **1.86** | -- | -- |
| MKTF-25 | 03/05/21 | **0.76** | ND(0.01) | 0.0027 J | ND(0.015) | **0.98** | **0.32** | **4.1** | **ND(0.6)** |
| MKTF-25 | 06/17/21 | **0.89** | 0.0083J/ND(0.01)U* | 0.0033J/ND(0.01)U* | ND(0.015) | **0.64** | **0.54 J** | **4.4** | ND(0.08) |
| MKTF-25 | 09/21/21 | **0.76** | ND(0.01) | ND(0.01) | ND(0.015) | **0.66** | **0.63 J** | **2.9** | ND(0.08) |
| MKTF-25 | 12/17/21 | **0.7** | ND(0.01) | 0.0021 J | ND(0.015) | **0.5** | **0.6** | **3.3** | ND(0.08) |
| MKTF-26 | 04/08/14 | **0.017** | ND(0.001) | ND(0.001) | ND(0.0015) | 0.049 | **ND(1)** | **0.2** | **ND(5)** |
| MKTF-26 | 09/24/14 | **1.6** | 0.012 | 0.019 | 0.0016 | 0.084 | **ND(1)** | **2.8** | **ND(5)** |
| MKTF-26 | 11/14/14 | **0.97** | ND(0.005) | 0.011 | ND(0.0075) | 0.094 | **ND(1)** | **2** | **ND(5)** |
| MKTF-26 | 03/11/15 | **0.8** | 0.0071 | 0.0078 | ND(0.0075) | 0.099 | **ND(1)** | **2.5** | **ND(5)** |
| MKTF-26 | 06/10/15 | **0.8** | 0.0069 | 0.0087 | ND(0.0075) | 0.079 | **ND(1)** | **2.5** | **ND(5)** |
| MKTF-26 | 08/20/15 | **0.38** | ND(0.005) | 0.005 | ND(0.0075) | 0.065 | **ND(1)** | **1.5** | **ND(5)** |
| MKTF-26 | 11/04/15 | **0.76** | 0.0069 | 0.0072 | ND(0.0075) | 0.094 | **ND(1)** | **2.3** | **ND(5)** |
| MKTF-26 | 02/22/16 | **0.15** | ND(0.005) | ND(0.005) | ND(0.0075) | 0.055 | **ND(1)** | **1.5** | **ND(5)** |
| MKTF-26 | 06/09/16 | **0.33** | 0.0036 | 0.019 | 0.0077 | 0.082 | **ND(1)** | **1.5** | **ND(5)** |
| MKTF-27 | 04/08/14 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.038 | **ND(1)** | **ND(0.1)** | **ND(5)** |
| MKTF-27 | 09/24/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.011 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 11/14/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.019 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0089 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 06/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.034 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 08/20/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.033 | **ND(1)** | **0.064** | **ND(5)** |
| MKTF-27 | 11/04/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.031 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 02/22/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.015 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 06/08/16 | 0.00015 | 0.00015 | 0.0004 | 0.00091 | 0.042 | **ND(1)** | **0.084** | **ND(5)** |
| MKTF-27 | 09/07/16 | 0.00031 | ND(0.001) | 0.00021 | ND(0.0015) | 0.026 | **ND(1)** | **0.068** | **ND(5)** |
| MKTF-27 | 10/28/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.021 | **ND(1)** | **0.034** | **ND(5)** |
| MKTF-27 | 03/29/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.022 | **ND(1)** | **0.022** | **ND(5)** |
| MKTF-27 | 06/05/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.031 | **ND(1)** | **0.03** | **ND(5)** |
| MKTF-27 | 10/03/17 | 0.00013 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.025 | **ND(1)** | **0.013** | **ND(5)** |
| MKTF-27 | 11/20/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.023 | **ND(1)** | **0.036** | **ND(5)** |
| MKTF-27 | 02/06/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.018 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 05/01/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.025 | **ND(1)** | **0.028** | **ND(5)** |
| MKTF-27 | 08/20/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.014 | **ND(1)** | **0.033** | **ND(5)** |
| MKTF-27 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.021 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-27 | 03/28/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0018 | **0.48** | **ND(0.05)** | -- |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-27 | 05/06/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.019 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-27 | 08/21/19 | **0.0097** | ND(0.001) | ND(0.001) | ND(0.0015) | 0.024 | **ND(1)** | **0.035** | -- |
| MKTF-27 | 10/23/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.014 | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-27 | 02/25/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.006 | **ND(0.4)** | 0.0068 J | **ND(2.5)** |
| MKTF-27 | 09/20/20 | 0.00086 J | ND(0.001) | ND(0.001) | ND(0.0015) | 0.029 | **0.19** | **ND(0.05)** | **ND(0.6)** |
| MKTF-27 | 12/18/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | 0.0044 | **1.34** | -- | -- |
| MKTF-27 | 03/05/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0041 | **0.11** | **0.025J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-27 | 06/16/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0075 | **0.13 JB** | **0.029J/ND(0.05)U*** | ND(0.08) |
| MKTF-27 | 09/15/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0052 J | **0.15 JB** | **ND(0.05)** | **0.093** |
| MKTF-27 | 12/14/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.016 | **0.12** | **0.021** | ND(0.08) |
| MKTF-28 | 09/24/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.016 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 11/14/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.013 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 06/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 08/20/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0014 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 11/04/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.01 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 02/23/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 06/08/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00054 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 09/08/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0021 | **ND(1)** | **0.023** | **ND(5)** |
| MKTF-28 | 10/28/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0052 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 03/29/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00097 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 06/05/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00044 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 10/03/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00035 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 11/20/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0033 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 02/06/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 05/01/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00094 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 08/20/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.008 | **ND(1)** | **0.024** | **ND(5)** |
| MKTF-28 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0028 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-28 | 03/28/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00082 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-28 | 05/06/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00074 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-28 | 08/21/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0045 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-28 | 10/22/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0049 | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-28 | 02/25/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **0.011 J** | **ND(2.5)** |
| MKTF-28 | 09/20/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0023 | **0.11** | **ND(0.05)** | **ND(0.6)** |
| MKTF-28 | 12/18/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | ND(0.001) | **0.336** | -- | -- |
| MKTF-28 | 03/05/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0006 J | **0.087** | **0.023J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-28 | 06/16/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0012 | **0.12 JB** | **ND(0.05)** | ND(0.08) |
| MKTF-28 | 09/15/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.15 JB** | **ND(0.05)** | 0.078 J |
| MKTF-28 | 12/14/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00063 | **0.15** | **ND(0.05)** | ND(0.08) |
| MKTF-29 | 04/09/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.012 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 09/24/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.013 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.017 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 06/10/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.014 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 08/20/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.011 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 11/04/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.01 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 02/23/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.012 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0088 | **ND(1)** | **ND(0.05)** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-29 | 09/07/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0024 | **ND(1)** | **0.029** | **ND(5)** |
| MKTF-29 | 10/28/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.005 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 03/29/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0094 | **0.43** | **0.012** | **ND(5)** |
| MKTF-29 | 06/05/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0058 | **1** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 10/03/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0072 | **0.37** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 11/20/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0095 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 02/06/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.011 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 05/01/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0073 | **0.66** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 08/20/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0047 | **ND(1)** | **0.021** | **ND(5)** |
| MKTF-29 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0037 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-29 | 03/28/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0041 | **0.51** | **ND(0.05)** | -- |
| MKTF-29 | 05/06/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0048 | **0.36** | **ND(0.05)** | -- |
| MKTF-29 | 08/23/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0086 | **0.39** | **ND(0.05)** | -- |
| MKTF-29 | 10/22/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.012 | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-29 | 02/25/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.015 | **0.21 J** | **0.013 J** | **ND(2.5)** |
| MKTF-29 | 09/20/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.019 | **0.26** | **ND(0.05)** | **ND(0.6)** |
| MKTF-29 | 12/15/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | 0.016 | **0.847** | -- | -- |
| MKTF-29 | 03/09/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.023 | **0.94** | **0.024J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-29 | 06/15/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.021 | **0.2** | **0.054** | ND(0.08) |
| MKTF-29 | 09/15/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.026 | **0.28 JB** | **ND(0.05)** | 0.071 J |
| MKTF-29 | 12/14/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.023 | **0.34** | **0.029** | 0.055 |
| MKTF-30 | 04/09/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.021 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-30 | 09/24/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0059 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-30 | 11/17/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0037 | **ND(1)** | **0.054** | **ND(5)** |
| MKTF-30 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0019 | **ND(1)** | **0.053** | **ND(5)** |
| MKTF-30 | 06/10/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0027 | **ND(1)** | **0.071** | **ND(5)** |
| MKTF-30 | 08/20/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0019 | **ND(1)** | **0.17** | **ND(5)** |
| MKTF-30 | 11/04/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0025 | **ND(1)** | **0.11** | **ND(5)** |
| MKTF-30 | 02/23/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0023 | **ND(1)** | **0.13** | **ND(5)** |
| MKTF-30 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0036 | **ND(1)** | **0.095** | **ND(5)** |
| MKTF-30 | 09/07/16 | 0.0006 | 0.00019 | ND(0.001) | ND(0.0015) | 0.00084 | **ND(1)** | **0.23** | **ND(5)** |
| MKTF-30 | 10/28/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.002 | **ND(1)** | **0.14** | **ND(5)** |
| MKTF-30 | 03/29/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0028 | **ND(1)** | **0.14** | **ND(5)** |
| MKTF-30 | 06/05/17 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.002 | **ND(1)** | **0.048** | **ND(5)** |
| MKTF-30 | 10/03/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0011 | **ND(1)** | **0.1** | **ND(5)** |
| MKTF-30 | 11/20/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0014 | **ND(1)** | **0.075** | **ND(5)** |
| MKTF-30 | 02/06/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0028 | **ND(1)** | **0.1** | **ND(5)** |
| MKTF-30 | 05/01/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0018 | **ND(1)** | **0.023** | **ND(5)** |
| MKTF-30 | 08/20/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0018 | **ND(1)** | **0.12** | **ND(5)** |
| MKTF-30 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0021 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-30 | 03/28/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0013 | **ND(1)** | **0.036** | -- |
| MKTF-30 | 05/06/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0018 | **ND(1)** | **0.043** | -- |
| MKTF-30 | 08/23/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.001 | **ND(1)** | **0.047** | -- |
| MKTF-30 | 10/23/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0015 | **ND(0.4)** | **0.031** | -- |
| MKTF-30 | 02/27/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.002 | **ND(0.4)** | **0.051** | **ND(2.5)** |
| MKTF-30 | 09/20/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0035 | **ND(0.07)** | **0.03 J** | **ND(0.6)** |
| MKTF-30 | 12/15/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | 0.00364 | **0.368** | -- | -- |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-30 | 03/09/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.006 | **ND(0.085)** | **0.071 JB** | **ND(0.6)** |
| MKTF-30 | 06/15/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.003 | **0.083** | **0.065** | ND(0.08) |
| MKTF-30 | 09/15/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0028 | **0.1 JB** | **0.043 J** | ND(0.08) |
| MKTF-30 | 12/14/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0042 | **0.11** | **0.05** | ND(0.08) |
| MKTF-31 | 04/08/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.055 | **ND(1)** | **0.11** | **ND(5)** |
| MKTF-31 | 09/23/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.055 | **ND(1)** | **0.061** | **ND(5)** |
| MKTF-31 | 11/17/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.058 | **ND(1)** | **0.068** | **ND(5)** |
| MKTF-31 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.054 | **ND(1)** | **0.077** | **ND(5)** |
| MKTF-31 | 06/10/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.056 | **ND(1)** | **0.11** | **ND(5)** |
| MKTF-31 | 08/21/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.064 | **ND(1)** | **0.1** | **ND(5)** |
| MKTF-31 | 11/04/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.079 | **1.3** | **0.086** | **ND(5)** |
| MKTF-31 | 02/23/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.061 | **ND(1)** | **0.1** | **ND(5)** |
| MKTF-31 | 06/09/16 | 0.00075 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.08 | **ND(1)** | **0.16** | **ND(5)** |
| MKTF-31 | 09/08/16 | 0.00077 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.063 | **ND(1)** | **0.23** | **ND(5)** |
| MKTF-31 | 10/31/16 | 0.00048 | ND(0.001) | 0.00015 | ND(0.0015) | 0.07 | **ND(1)** | **0.16** | **ND(5)** |
| MKTF-31 | 03/07/17 | 0.00062 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.074 | **ND(1)** | **0.19** | **ND(5)** |
| MKTF-31 | 06/05/17 | 0.00066 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.072 | **0.47** | **0.15** | **ND(5)** |
| MKTF-31 | 09/25/17 | 0.00085 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.076 | **ND(1)** | **0.2** | **ND(5)** |
| MKTF-31 | 11/21/17 | 0.00062 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.066 | **ND(1)** | **0.23** | **ND(5)** |
| MKTF-31 | 02/05/18 | 0.0013 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.085 | **ND(1)** | **0.19** | **ND(5)** |
| MKTF-31 | 05/06/18 | 0.00099 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.11** | **ND(1)** | **0.32** | **ND(5)** |
| MKTF-31 | 08/17/18 | 0.00073 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.088 | **ND(1)** | **0.22** | **ND(5)** |
| MKTF-31 | 11/15/18 | 0.0011 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.088 | **ND(1)** | **0.12** | **ND(5)** |
| MKTF-31 | 02/20/19 | 0.001 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.12** | **ND(1)** | **0.14** | -- |
| MKTF-31 | 05/06/19 | 0.00045 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.09 | **ND(1)** | **0.13** | -- |
| MKTF-31 | 08/23/19 | 0.00072 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.11** | **0.84** | **0.14** | -- |
| MKTF-31 | 10/22/19 | 0.0006 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.1** | **ND(0.4)** | **0.096** | -- |
| MKTF-31 | 02/25/20 | 0.00092 J | ND(0.001) | ND(0.001) | ND(0.0015) | **0.18** | **ND(0.4)** | **0.22** | **ND(2.5)** |
| MKTF-31 | 09/19/20 | 0.00066 J | ND(0.001) | ND(0.001) | ND(0.0015) | **0.19** | **0.2 J-** | **0.074** | **ND(0.6) UJ** |
| MKTF-31 | 12/18/20 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.02) | **0.247** | **0.8** | -- | -- |
| MKTF-31 | 03/05/21 | **ND(0.005)** | ND(0.005) | ND(0.005) | ND(0.0075) | **0.34** | **0.11** | **0.22JD/ND(0.25)U*** | **ND(0.6)** |
| MKTF-31 | 06/17/21 | **0.0014J/ND(0.005)U*** | ND(0.005) | ND(0.005) | ND(0.0075) | **0.42** | **0.2 JB** | **0.23J/ND(0.25)U*** | ND(0.08) |
| MKTF-31 | 09/16/21 | **ND(0.005)** | ND(0.005) | ND(0.005) | ND(0.0075) | **0.41** | **0.21** | **0.11 J** | ND(0.08) |
| MKTF-31 | 12/16/21 | 0.0013 J | ND(0.005) | ND(0.005) | ND(0.0075) | **0.44** | **0.22** | **0.43 J+** | ND(0.08) |
| MKTF-32 | 04/09/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | **0.15** | **ND(1)** | **0.22** | **ND(5)** |
| MKTF-32 | 09/23/14 | **ND(0.005)** | ND(0.005) | ND(0.005) | ND(0.0075) | **0.32** | **ND(1)** | **0.23** | **ND(5)** |
| MKTF-32 | 11/17/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | **0.4** | **ND(1)** | **0.28** | **ND(5)** |
| MKTF-32 | 03/12/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | **0.54** | **ND(1)** | **0.46** | **ND(5)** |
| MKTF-32 | 06/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | **0.59** | **ND(1)** | **0.58** | **ND(5)** |
| MKTF-32 | 08/21/15 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | **0.49** | **ND(1)** | **0.42** | **ND(5)** |
| MKTF-32 | 11/05/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | **0.59** | **ND(1)** | **0.57** | **ND(5)** |
| MKTF-32 | 02/24/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | **0.62** | **ND(1)** | **0.88** | **ND(5)** |
| MKTF-32 | 06/09/16 | 0.00081 | ND(0.002) | ND(0.002) | ND(0.003) | **0.64** | **ND(1)** | **0.81** | **ND(5)** |
| MKTF-32 | 09/09/16 | 0.00047 | ND(0.002) | ND(0.002) | ND(0.003) | **0.75** | **ND(1)** | **0.79** | **ND(5)** |
| MKTF-32 | 10/31/16 | 0.00049 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.63** | **ND(1)** | **0.92** | **ND(5)** |
| MKTF-32 | 03/07/17 | 0.00045 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.66** | **ND(1)** | **0.92** | **ND(5)** |
| MKTF-32 | 06/06/17 | 0.00042 | ND(0.001) | ND(0.001) | ND(0.0015) | **0.64** | **ND(1)** | **0.71** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-32 | 09/25/17 | 0.00038 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.69 | ND(1) | 0.73 | ND(5) |
| MKTF-32 | 11/27/17 | 0.00028 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.6 | ND(1) | 0.86 | ND(5) |
| MKTF-32 | 02/07/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.74 | ND(1) | 0.65 | ND(5) |
| MKTF-32 | 05/09/18 | 0.0004 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.82 | ND(1) | 0.64 | ND(5) |
| MKTF-32 | 08/28/18 | 0.00076 | ND(0.002) | ND(0.002) | ND(0.003) | 0.78 | ND(1) | 0.7 | ND(5) |
| MKTF-32 | 11/15/18 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.81 | ND(1) | 0.56 | ND(5) |
| MKTF-32 | 02/13/19 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.84 | ND(1) | 0.43 | -- |
| MKTF-32 | 05/07/19 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.74 | ND(1) | 0.47 | -- |
| MKTF-32 | 08/20/19 | 0.00031 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.61 | ND(1) | 0.5 | -- |
| MKTF-32 | 10/23/19 | 0.00036 | ND(0.002) | ND(0.002) | ND(0.003) | 0.67 | ND(0.4) | 0.28 | -- |
| MKTF-32 | 02/27/20 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.9 | ND(0.4) | 0.6 | ND(2.5) |
| MKTF-32 | 09/21/20 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 1.1 | 0.22 J+ | 0.028 J | ND(0.6) |
| MKTF-32 | 12/15/20 | ND(0.005) | ND(0.005) | ND(0.005) | ND(0.05) | 0.897 | 0.631 | -- | -- |
| MKTF-32 | 06/15/21 | 0.0005 | ND(0.002) | ND(0.002) | ND(0.003) | 1.2 | 0.14 | 0.096 | ND(0.08) |
| MKTF-32 | 09/14/21 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 1.3 | 0.21 JB | 0.053 J | ND(0.08) |
| MKTF-32 | 12/09/21 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 1.1 | 0.22 | 0.93 | ND(0.13) |
| MKTF-33 | 04/10/14 | 0.028 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.36 | ND(1) | 0.21 | ND(5) |
| MKTF-33 | 09/23/14 | ND(0.005) | ND(0.005) | ND(0.005) | ND(0.0075) | 0.45 | ND(1) | 0.25 | ND(5) |
| MKTF-33 | 11/17/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.41 | ND(1) | 0.36 | ND(5) |
| MKTF-33 | 03/12/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.48 | ND(1) | 0.35 | ND(5) |
| MKTF-33 | 06/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.49 | ND(1) | 0.42 | ND(5) |
| MKTF-33 | 08/21/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.63 | ND(1) | 0.47 | ND(5) |
| MKTF-33 | 11/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.58 | ND(1) | 0.53 | ND(5) |
| MKTF-33 | 02/25/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.31 | ND(1) | 0.35 | ND(5) |
| MKTF-33 | 06/10/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.4 | ND(1) | 0.69 | ND(5) |
| MKTF-33 | 09/10/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.27 | ND(1) | 5.2 | ND(5) |
| MKTF-33 | 11/01/16 | ND(0.001) | 0.00019 | 0.00015 | ND(0.0015) | 0.2 | ND(1) | 0.31 | ND(5) |
| MKTF-33 | 03/08/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.23 | ND(1) | 0.3 | ND(5) |
| MKTF-33 | 06/08/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.22 | ND(1) | 0.25 | ND(5) |
| MKTF-33 | 09/25/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.25 | ND(1) | 0.26 | ND(5) |
| MKTF-33 | 11/28/17 | 0.00011 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.53 | ND(1) | 0.35 | ND(5) |
| MKTF-33 | 02/08/18 | ND(0.001) | ND(0.001) | ND(0.001) | 0.00055 | 0.41 | ND(1) | 0.22 | ND(5) |
| MKTF-33 | 05/10/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.57 | 1.5 | 0.5 | ND(5) |
| MKTF-33 | 08/30/18 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.58 | 1.3 | 0.49 | ND(5) |
| MKTF-33 | 11/28/18 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.45 | ND(1) | 0.24 | ND(5) |
| MKTF-33 | 05/09/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.3 | ND(1) | 0.21 | -- |
| MKTF-33 | 08/20/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.73 | ND(1) | 0.53 | -- |
| MKTF-33 | 10/24/19 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | 0.67 | ND(0.4) | 0.49 | -- |
| MKTF-33 | 02/28/20 | 0.082 | ND(0.002) | 0.0026 JB | 0.015 | 0.8 | ND(0.4) | 0.73 | ND(2.5) |
| MKTF-34 | 04/09/14 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | ND(0.002) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 09/24/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 11/17/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 03/12/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 06/08/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 08/18/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 11/03/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |
| MKTF-34 | 02/25/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | ND(1) | ND(0.05) | ND(5) |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-34 | 06/10/16 | 0.00045 | 0.00026 | ND(0.001) | ND(0.0015) | 0.00058 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 09/13/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00035 | **ND(1)** | **0.033** | **ND(5)** |
| MKTF-34 | 11/08/16 | 0.00014 | 0.00016 | ND(0.001) | ND(0.0015) | 0.00097 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 03/01/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00058 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 06/14/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00038 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 09/26/17 | 0.0003 | 0.00014 | ND(0.001) | ND(0.0015) | 0.00078 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 12/01/17 | 0.000096 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00075 | **ND(1)** | **0.027** | **ND(5)** |
| MKTF-34 | 02/16/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00066 | **ND(1)** | **0.012** | **ND(5)** |
| MKTF-34 | 05/04/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00087 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 08/24/18 | 0.00024 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00087 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 11/28/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.001 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-34 | 05/09/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-34 | 08/19/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-34 | 10/29/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00058 | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-34 | 02/05/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **ND(0.05)** | **ND(2.5)** |
| MKTF-34 | 02/28/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **ND(0.05)** | **ND(2.5)** |
| MKTF-34 | 09/16/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.07) UJ** | **0.04 J** | **ND(0.6) UJ** |
| MKTF-34 | 06/24/21 | 0.0042 | ND(0.001) | 0.00095 JB | 0.0015 | 0.00087 J | **0.068 JB** | **0.37** | ND(0.08) |
| MKTF-34 | 09/14/21 | 0.0032 | ND(0.002) | 0.00064 J | 0.0011 J | ND(0.002) | **0.068 JB** | **0.33** | ND(0.08) |
| MKTF-34 | 12/09/21 | **0.0076** | ND(0.002) | ND(0.002) | 0.0028 | ND(0.002) | **0.15** | **0.48** | **ND(0.13)** |
| MKTF-35 | 11/21/14 | **0.039** | 0.052 | ND(0.001) | 0.073 | 0.066 | **3.3** | **1.6** | **ND(5)** |
| MKTF-35 | 03/17/15 | **0.47** | 0.32 | 0.0052 | 0.17 | 0.033 | **6** | **3.7** | **ND(5)** |
| MKTF-35 | 06/04/15 | **0.79** | 0.19 | 0.0023 | 0.0021 | 0.027 | **2.3** | **2.9** | **ND(5)** |
| MKTF-35 | 08/18/15 | **0.97** | 0.16 | ND(0.005) | ND(0.0075) | 0.061 | **2.9** | **4.7** | **ND(5)** |
| MKTF-35 | 11/03/15 | **0.19** | 0.039 | ND(0.001) | 0.0023 | 0.048 | **2.8** | **1.5** | **ND(5)** |
| MKTF-35 | 02/26/16 | **0.046** | 0.034 | ND(0.005) | ND(0.0075) | 0.02 | **ND(1)** | **0.87** | **ND(5)** |
| MKTF-35 | 06/10/16 | **0.067** | 0.012 | 0.00027 | 0.0055 | 0.019 | **ND(1)** | **1.4** | **ND(5)** |
| MKTF-35 | 09/13/16 | **0.37** | 0.025 | 0.00052 | 0.011 | 0.012 | **ND(1)** | **2** | **ND(5)** |
| MKTF-35 | 11/03/16 | **0.065** | 0.055 | 0.00026 | 0.01 | 0.01 | **ND(1)** | **1.7** | **ND(5)** |
| MKTF-35 | 03/01/17 | **0.053** | 0.0027 | 0.00011 | ND(0.0015) | 0.0079 | **2.1** | **0.73** | **ND(5)** |
| MKTF-35 | 06/14/17 | 0.0023 | 0.0011 | ND(0.001) | ND(0.0015) | 0.033 | **2.1** | **0.6** | **ND(5)** |
| MKTF-35 | 09/27/17 | 0.0015 | 0.00015 | ND(0.001) | ND(0.0015) | 0.077 | **1.7** | **0.57** | **ND(5)** |
| MKTF-35 | 11/30/17 | 0.0015 | 0.00029 | 0.0001 | ND(0.0015) | **0.11** | **0.92** | **0.47** | **ND(5)** |
| MKTF-35 | 02/15/18 | 0.0024 | 0.00038 | 0.0034 | ND(0.0015) | 0.078 | **0.94** | **0.37** | **ND(5)** |
| MKTF-35 | 05/03/18 | **0.0099** | 0.00074 | ND(0.001) | ND(0.0015) | 0.056 | **1.3** | **0.44** | **ND(5)** |
| MKTF-35 | 08/23/18 | **0.011** | 0.00068 | ND(0.001) | ND(0.0015) | 0.063 | **ND(1)** | **0.49** | **ND(5)** |
| MKTF-35 | 11/28/18 | **0.019** | 0.0012 | ND(0.001) | ND(0.0015) | 0.077 | **ND(1)** | **0.72** | **ND(5)** |
| MKTF-35 | 05/16/19 | **0.014** | 0.0024 | ND(0.001) | ND(0.0015) | 0.042 | **1.6** | **0.57** | -- |
| MKTF-35 | 08/19/19 | **0.022** | 0.003 | ND(0.001) | 0.00066 | 0.026 | **0.72** | **0.56** | -- |
| MKTF-35 | 10/29/19 | **0.056** | 0.0022 | ND(0.001) | ND(0.0015) | **0.12** | **0.48** | **0.73** | -- |
| MKTF-35 | 02/06/20 | **6.1** | **0.8** | **5.3** | **1.8** | **0.32** | **ND(0.4)** | **33** | **ND(2.5)** |
| MKTF-35 | 09/16/20 | **4** | 0.64 | 0.13 | **0.91** | **0.16** | **1.1 JB** | **13** | **ND(0.6)** |
| MKTF-35 | 03/11/21 | **3.4 J** | 0.52 | 0.1 | **0.94** | **0.11** | **0.82** | **15** | **ND(0.6)** |
| MKTF-35 | 06/23/21 | **5.4** | 0.59 | 0.17 | **0.7** | **0.18** | **1.4** | **14** | ND(0.08) |
| MKTF-35 | 09/14/21 | **7** | 0.69 | 0.07 | 0.33 | **0.24** | **1.3 J-** | **19** | **ND(0.093) R** |
| MKTF-35 | 12/21/21 | **9.6** | **0.93** | **4.1** | **1.5** | **0.39** | **1.6** | **29** | ND(0.08) |
| MKTF-36 | 11/21/14 | **8.4** | **1.5** | 0.032 | 0.56 | **7.2** | **6.8** | **25** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-36 | 03/17/15 | **8.3** | **1.4** | 0.023 | 0.078 | **8.3** | **10** | **38** | **ND(5)** |
| MKTF-36 | 06/04/15 | **8.1** | **1.6** | 0.034 | 0.14 | **8.4** | **13** | **30** | **ND(5)** |
| MKTF-36 | 08/18/15 | **9** | **1.6** | 0.033 | 0.064 | **8** | **14** | **39** | **ND(5)** |
| MKTF-36 | 11/08/16 | **8.4** | **1.3** | 0.021 | 0.13 | **6** | **11** | **40** | **ND(5)** |
| MKTF-36 | 03/01/17 | **8.6** | **1.4** | 0.013 | 0.032 | **8** | **13** | **35** | **ND(5)** |
| MKTF-36 | 06/14/17 | **9.4** | **1.6** | 0.017 | 0.27 | **3.9** | **14** | **34** | **ND(5)** |
| MKTF-36 | 09/27/17 | **9.1** | **1.6** | 0.023 | 0.067 | **2.3** | **24** | **31** | **ND(50)** |
| MKTF-36 | 11/30/17 | **9.5** | **1.7** | 0.03 | 0.22 | **2.9** | **12** | **31** | **ND(5)** |
| MKTF-36 | 02/15/18 | **8.4** | **1.5** | 0.02 | 0.16 | **2.5** | **10** | **27** | **ND(5)** |
| MKTF-36 | 05/03/18 | **9.4** | **1.9** | 0.03 | 0.19 | **2.1** | **10** | **26** | **ND(5)** |
| MKTF-36 | 09/05/18 | **7.4** | **1.5** | 0.019 | 0.11 | **1.3** | **5.6** | **25** | **ND(5)** |
| MKTF-36 | 09/18/20 | **9.7 J** | **2.1 J** | **22 J** | **4.4 J** | **0.94 J** | **15 J** | **100 J-** | **ND(6) UJ** |
| MKTF-36 | 06/23/21 | **14** | **1.9** | **12** | **4.2** | **1.2** | **8.2** | **75** | **ND(1.6)** |
| MKTF-37 | 11/21/14 | **0.14** | 0.0093 | 0.2 | **1.3** | 0.027 | **ND(1)** | **8.7** | **ND(5)** |
| MKTF-37 | 03/17/15 | **0.82** | 0.029 | 0.27 | 0.49 | 0.057 | **4.5** | **11** | **ND(5)** |
| MKTF-37 | 06/04/15 | **1.2** | 0.017 | 0.058 | **0.93** | 0.054 | **5.7** | **12** | **ND(5)** |
| MKTF-37 | 08/18/15 | **0.76** | 0.024 | 0.14 | **1.6** | 0.05 | **39** | **11** | **ND(5)** |
| MKTF-37 | 11/03/16 | **0.96** | 0.014 | 0.012 | **0.84** | 0.03 | **9.3** | **13** | **ND(5)** |
| MKTF-37 | 03/01/17 | **2** | 0.024 | 0.18 | **0.96** | 0.032 | **6.2** | **15** | **ND(5)** |
| MKTF-37 | 05/03/18 | **2.1** | 0.078 | 0.05 | 0.58 | 0.041 | **6.1** | **16** | **ND(5)** |
| MKTF-37 | 08/23/18 | **1.3** | 0.036 | 0.014 | 0.37 | 0.037 | **3** | **17** | **ND(5)** |
| MKTF-37 | 05/14/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-37 | 09/17/20 | **1.3 J** | 0.081 J | 0.026 J | 0.42 J | 0.033 J | **3.5 J** | **16 J-** | **ND(0.6) UJ** |
| MKTF-38 | 11/21/14 | 0.0028 | 0.0029 | ND(0.001) | 0.0031 | 0.0074 | **3.8** | **0.12** | **ND(5)** |
| MKTF-38 | 03/16/15 | **0.0092** | ND(0.001) | 0.018 | ND(0.0015) | 0.006 | **ND(1)** | **0.33** | **ND(5)** |
| MKTF-38 | 06/10/15 | **0.0054** | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0076 | **ND(1)** | **0.2** | **ND(5)** |
| MKTF-38 | 08/24/15 | 0.0017 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0073 | **ND(1)** | **0.099** | **ND(5)** |
| MKTF-38 | 11/09/15 | 0.0013 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0043 | **ND(1)** | **0.12** | **ND(5)** |
| MKTF-38 | 02/29/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **0.14** | **ND(5)** |
| MKTF-38 | 06/08/16 | 0.0012 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00052 | **ND(1)** | **0.06** | **ND(5)** |
| MKTF-38 | 09/13/16 | 0.00093 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0006 | **ND(1)** | **0.09** | **ND(5)** |
| MKTF-38 | 11/01/16 | 0.00039 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.001 | **ND(1)** | **0.065** | **ND(5)** |
| MKTF-38 | 03/14/17 | 0.00017 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00048 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-38 | 06/21/17 | 0.00079 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00068 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-38 | 09/28/17 | 0.002 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00049 | **ND(1)** | **0.03** | **ND(5)** |
| MKTF-38 | 11/30/17 | 0.0012 | ND(0.001) | 0.000074 | ND(0.0015) | 0.001 | **ND(1)** | **0.026** | **ND(5)** |
| MKTF-38 | 02/12/18 | 0.00018 | 0.00013 | 0.00019 | 0.00057 | 0.001 | **ND(1)** | **0.015** | **ND(5)** |
| MKTF-38 | 05/03/18 | 0.0003 | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00078 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-38 | 08/21/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00036 | **ND(1)** | **0.025** | **ND(5)** |
| MKTF-38 | 11/20/18 | 0.0012 | ND(0.001) | 0.053 | ND(0.0015) | ND(0.001) | **ND(1)** | **0.13** | **ND(5)** |
| MKTF-38 | 06/27/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-38 | 08/20/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00056 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-38 | 03/05/20 | ND(0.001) | ND(0.001) | **1.3** | ND(0.0015) | ND(0.001) | **ND(0.4) UJ** | **1.7** | **ND(2.5)** |
| MKTF-38 | 09/19/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.12** | **ND(0.05)** | **ND(0.6)** |
| MKTF-38 | 03/11/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00046 J | **ND(0.085)** | **0.02J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-38 | 06/23/21 | 0.00053J/ND(0.001)U* | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.032J/ND(0.064)U*** | **0.028J/ND(0.05)U*** | ND(0.08) |
| MKTF-38 | 09/22/21 | 0.00029 J+ | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.085)** | **ND(0.05)** | **ND(0.6)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-38 | 12/21/21 | 0.00095 J | ND(0.001) | 0.00045 J | 0.00037 J | 0.0011 | **0.15 JB** | **0.024 J** | ND(0.08) |
| MKTF-39 | 11/18/14 | **0.02** | 0.06 | ND(0.005) | ND(0.0075) | ND(0.005) | **15** | **0.39** | **ND(5)** |
| MKTF-39 | 03/16/15 | **0.016** | 0.039 | ND(0.002) | ND(0.003) | ND(0.002) | **6.2** | **0.21** | **ND(5)** |
| MKTF-39 | 06/10/15 | **0.025** | 0.064 | ND(0.002) | ND(0.003) | ND(0.002) | **44** | **0.44** | **ND(5)** |
| MKTF-39 | 08/23/15 | **0.023** | 0.06 | ND(0.001) | 0.0016 | ND(0.001) | **13** | **0.93** | **ND(5)** |
| MKTF-39 | 11/09/15 | **0.021** | 0.064 | ND(0.001) | ND(0.0015) | ND(0.001) | **23** | **0.44** | **ND(5)** |
| MKTF-39 | 03/03/16 | **0.019** | 0.064 | ND(0.001) | ND(0.0015) | ND(0.001) | **13** | **0.46** | **ND(5)** |
| MKTF-39 | 06/08/16 | **0.016** | 0.061 | ND(0.001) | 0.00069 | 0.00036 | **19** | **0.67** | **ND(5)** |
| MKTF-39 | 09/13/16 | **0.016** | 0.06 | ND(0.005) | ND(0.0075) | ND(0.005) | **10** | **1.1** | **ND(5)** |
| MKTF-39 | 11/01/16 | **0.013** | 0.059 | ND(0.005) | ND(0.0075) | ND(0.005) | **17** | **0.36** | **ND(5)** |
| MKTF-39 | 03/14/17 | **0.012** | 0.063 | ND(0.005) | ND(0.0075) | ND(0.005) | **28** | **1.5** | **ND(5)** |
| MKTF-39 | 06/08/17 | **0.012** | 0.057 | ND(0.005) | ND(0.0075) | ND(0.005) | **56** | **0.73** | **ND(5)** |
| MKTF-39 | 09/28/17 | **0.01** | 0.049 | ND(0.005) | ND(0.0075) | ND(0.005) | **28** | **0.37** | **ND(5)** |
| MKTF-39 | 11/28/17 | **0.013** | 0.05 | ND(0.005) | ND(0.0075) | ND(0.005) | **14** | **0.9** | **ND(5)** |
| MKTF-39 | 02/08/18 | **0.013** | 0.048 | 0.0024 | 0.0021 | ND(0.005) | **17** | **0.7** | **ND(5)** |
| MKTF-39 | 05/06/18 | **0.012** | 0.056 | ND(0.005) | ND(0.0075) | ND(0.005) | **17** | **0.7** | **ND(5)** |
| MKTF-39 | 08/21/18 | **0.0083** | 0.045 | ND(0.001) | ND(0.0015) | ND(0.001) | **11** | **0.91** | **ND(5)** |
| MKTF-39 | 11/20/18 | **0.0084** | 0.03 | ND(0.001) | 0.0039 | ND(0.001) | **11** | **0.25** | **ND(5)** |
| MKTF-39 | 06/05/19 | **0.0091** | 0.034 | 0.0008 | 0.016 | ND(0.001) | **46** | **0.34** | -- |
| MKTF-39 | 08/20/19 | **0.0083** | 0.038 | ND(0.005) | ND(0.0075) | ND(0.005) | **17** | **0.65** | -- |
| MKTF-39 | 11/05/19 | **0.01** | 0.041 | ND(0.001) | 0.0014 | ND(0.001) | **16** | **0.48** | -- |
| MKTF-39 | 02/05/20 | **0.0094** | 0.038 | ND(0.002) | ND(0.003) | ND(0.002) | **1.4** | **0.57 J+** | **ND(2.5)** |
| MKTF-39 | 09/19/20 | **0.018** | 0.043 | ND(0.002) | ND(0.003) | ND(0.002) | **11** | **0.66** | **ND(0.6)** |
| MKTF-39 | 12/16/20 | **0.0144** | 0.0334 | ND(0.001) | ND(0.01) | ND(0.001) | **6.82** | -- | -- |
| MKTF-40 | 11/21/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 06/10/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 08/21/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 11/04/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 02/23/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00062 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 09/08/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 10/31/16 | ND(0.001) | ND(0.001) | 0.00015 | ND(0.0015) | 0.0003 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 03/07/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00041 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 06/05/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00046 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 09/25/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00046 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 11/21/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 02/05/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 05/06/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 08/17/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **0.019** | **ND(5)** |
| MKTF-40 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-40 | 02/20/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-40 | 05/06/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-40 | 08/22/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-40 | 10/22/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00072 | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-40 | 02/28/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00076 J | **ND(0.4)** | **ND(0.05)** | **ND(2.5)** |
| MKTF-40 | 09/19/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00058 J | **0.18** | **ND(0.05)** | **ND(0.6)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-40 | 12/17/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | 0.00103 | **0.223** | -- | -- |
| MKTF-40 | 03/05/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0012 | **ND(0.085)** | **0.024J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-40 | 06/17/21 | 0.00037J/ND(0.001)U* | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0013 | **0.063J/ND(0.064)U*** | **0.029J/ND(0.05)U*** | ND(0.08) |
| MKTF-40 | 09/21/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00094 J | **0.04J/ND(0.064)U*** | **ND(0.05)** | ND(0.08) |
| MKTF-40 | 12/17/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.001 | **0.044J/ND(0.064)U*** | **ND(0.05)** | ND(0.08) |
| MKTF-41 | 11/18/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 03/12/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 06/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 08/21/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 11/05/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 02/24/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.003 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 09/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00041 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 10/31/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00091 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 03/07/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0012 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 06/06/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0012 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 09/25/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0012 | **ND(1)** | **0.029** | **ND(5)** |
| MKTF-41 | 11/27/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00081 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 02/07/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0014 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 05/09/18 | ND(0.001) | ND(0.001) | ND(0.001) | 0.00047 | 0.0016 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 08/29/18 | ND(0.001) | ND(0.001) | ND(0.001) | 0.00082 | 0.0011 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0014 | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-41 | 02/13/19 | ND(0.001) | ND(0.001) | ND(0.001) | 0.0013 | 0.00099 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-41 | 05/07/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.00087 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-41 | 08/22/19 | ND(0.001) | ND(0.001) | ND(0.001) | 0.00063 | 0.0012 | **ND(1)** | **ND(0.05)** | -- |
| MKTF-41 | 10/23/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | 0.0013 | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-41 | 02/27/20 | ND(0.001) | ND(0.001) | ND(0.001) | 0.0028 | 0.0012 | **0.35 J** | **0.028 J** | **ND(2.5)** |
| MKTF-41 | 09/21/20 | ND(0.001) | 0.00036 J | ND(0.001) | 0.0043 | 0.001 | **0.52 J+** | **0.022 J** | **ND(0.6)** |
| MKTF-41 | 12/15/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | ND(0.001) | **3.4** | -- | -- |
| MKTF-41 | 03/04/21 | 0.00035 J | 0.00063 J | ND(0.001) | 0.0062 | 0.00056 J | **0.6** | **0.056 JB** | **ND(0.6)** |
| MKTF-41 | 06/15/21 | 0.00033 | 0.0005 | ND(0.001) | 0.004 | 0.0011 | **0.81** | **0.045** | **ND(0.8)** |
| MKTF-41 | 09/14/21 | 0.00024 J | 0.00075 J | ND(0.001) | 0.0073 | 0.00051 J | **1.4** | **0.047 J** | **0.26** |
| MKTF-41 | 12/09/21 | 0.00037 | 0.0012 | ND(0.001) | 0.01 | 0.00057 | **1.6** | **0.082** | **ND(0.13)** |
| MKTF-42 | 11/18/14 | **0.012** | ND(0.01) | ND(0.01) | 0.056 | ND(0.01) | **44** | **ND(0.5)** | **ND(5)** |
| MKTF-42 | 03/11/15 | 0.0017 | ND(0.001) | ND(0.001) | 0.01 | ND(0.001) | **27** | **ND(0.5)** | **ND(5)** |
| MKTF-42 | 06/09/15 | 0.0016 | ND(0.001) | ND(0.001) | 0.011 | ND(0.001) | **60** | **0.1** | **ND(5)** |
| MKTF-42 | 08/21/15 | 0.0028 | 0.001 | ND(0.001) | 0.017 | ND(0.001) | **52** | **0.21** | **ND(5)** |
| MKTF-42 | 11/05/15 | 0.0033 | 0.0017 | ND(0.001) | 0.022 | ND(0.001) | **45** | **0.11** | **ND(5)** |
| MKTF-42 | 02/24/16 | 0.0041 | 0.0011 | ND(0.001) | 0.026 | ND(0.001) | **52** | **0.12** | **ND(5)** |
| MKTF-42 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **60** | **0.16** | **ND(5)** |
| MKTF-42 | 09/09/16 | 0.004 | 0.0018 | 0.00033 | 0.025 | 0.00056 | **62** | **0.7** | **ND(50)** |
| MKTF-42 | 10/31/16 | 0.0034 | 0.0019 | 0.00049 | 0.027 | 0.00067 | **62** | **0.11** | **ND(5)** |
| MKTF-42 | 03/07/17 | 0.0049 | 0.0011 | 0.00044 | 0.024 | 0.0011 | **79** | **0.14** | **ND(5)** |
| MKTF-42 | 06/06/17 | 0.0049 | 0.0011 | 0.00037 | 0.021 | 0.0014 | **72** | **0.15** | **ND(5)** |
| MKTF-42 | 09/25/17 | **0.0093** | 0.0039 | 0.00098 | 0.046 | 0.002 | **72** | **0.21** | **ND(50)** |
| MKTF-42 | 11/27/17 | **0.0071** | 0.0026 | 0.0008 | 0.037 | 0.002 | **77** | **0.19** | **ND(5)** |
| MKTF-42 | 02/07/18 | **0.0084** | 0.0015 | ND(0.001) | 0.032 | 0.0033 | **79** | **0.46** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-42 | 05/09/18 | **0.0093** | 0.0016 | 0.00076 | 0.031 | 0.0038 | **72** | **0.4** | **ND(5)** |
| MKTF-42 | 08/29/18 | **0.011** | 0.0018 | 0.0007 | 0.032 | 0.0043 | **64** | **0.21** | **ND(5)** |
| MKTF-42 | 11/15/18 | **0.03** | 0.0087 | 0.0021 | 0.11 | 0.005 | **63** | **0.56** | **ND(5)** |
| MKTF-42 | 02/13/19 | **0.017** | 0.0031 | 0.00087 | 0.051 | 0.0044 | **67** | **0.34** | -- |
| MKTF-42 | 05/07/19 | **0.007** | 0.00033 | ND(0.002) | 0.015 | 0.004 | **59** | **0.16** | -- |
| MKTF-42 | 08/22/19 | **0.0096** | 0.0011 | ND(0.002) | 0.022 | 0.0041 | **57** | **0.22** | -- |
| MKTF-42 | 10/23/19 | **0.011** | 0.0011 | ND(0.002) | 0.021 | 0.0044 | **8.6** | **0.14** | -- |
| MKTF-42 | 02/27/20 | **0.022** | 0.0037 | 0.00099J/ND(0.001)U* | 0.07 | 0.0042 | **35** | **0.7** | **ND(2.5)** |
| MKTF-42 | 09/21/20 | **0.029** | 0.0037 | 0.0011 | 0.08 | 0.0035 | **26 J+** | **0.41** | **ND(6)** |
| MKTF-42 | 12/16/20 | **0.0142 J** | 0.00125 J | ND(0.001) | 0.0265 J | 0.00251 | **42.5** | -- | -- |
| MKTF-42 | 03/04/21 | **0.016** | 0.0015 | 0.00066J/ND(0.001)U* | 0.03 | 0.0029 | **17** | **0.21 JB** | **ND(6)** |
| MKTF-42 | 06/15/21 | **0.014** | 0.0015 | 0.00062 | 0.03 | 0.0038 | **18** | **0.21** | **ND(8)** |
| MKTF-42 | 09/14/21 | **0.026** | 0.0029 | 0.00086 J | 0.063 | 0.0028 | **21** | **0.39** | **ND(4)** |
| MKTF-42 | 12/09/21 | **0.023** | 0.0033 | 0.0013 | 0.066 | 0.0027 | **26** | **0.5** | **ND(4)** |
| MKTF-43 | 11/18/14 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 03/11/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 06/10/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 08/21/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 11/05/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 02/24/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 09/09/16 | 0.00014 | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **0.026** | **ND(5)** |
| MKTF-43 | 10/31/16 | ND(0.001) | ND(0.001) | 0.00013 | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 03/08/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 06/06/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 09/25/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 11/27/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 02/07/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 05/09/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 08/30/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-43 | 02/13/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-43 | 05/08/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-43 | 08/22/19 | 0.00035 | ND(0.001) | ND(0.001) | 0.0007 | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-43 | 10/24/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-43 | 02/27/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | 0.01 J | **ND(2.5)** |
| MKTF-43 | 09/21/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.072 J+** | **ND(0.05)** | **ND(0.6)** |
| MKTF-43 | 12/15/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | ND(0.001) | **0.276** | -- | -- |
| MKTF-43 | 03/04/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.079 J+** | **0.024J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-43 | 06/24/21 | 0.00024J/ND(0.001)U* | 0.00094 J | 0.00085J/ND(0.001)U* | 0.0074 | ND(0.001) | **0.15** | **0.06** | ND(0.08) |
| MKTF-43 | 09/23/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.13 JB** | **ND(0.05)** | 0.058J/ND(0.08)U* |
| MKTF-43 | 12/08/21 | ND(0.001) | ND(0.001) | 0.00032 | ND(0.0015) | ND(0.001) | **0.16** | **ND(0.05)** | ND(0.08) |
| MKTF-44 | 11/21/14 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | ND(0.002) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 03/12/15 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | ND(0.002) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 06/10/15 | ND(0.002) | ND(0.002) | ND(0.002) | ND(0.003) | ND(0.002) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 08/17/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.1)** | **ND(5)** |
| MKTF-44 | 11/09/15 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-44 | 02/24/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 06/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 09/09/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **0.023** | **ND(5)** |
| MKTF-44 | 11/01/16 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 03/08/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 06/05/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 09/25/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 11/28/17 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **0.017** | **ND(5)** |
| MKTF-44 | 02/08/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | 0.01 | **ND(5)** |
| MKTF-44 | 05/10/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 08/30/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **1.7** | **0.015** | **ND(5)** |
| MKTF-44 | 11/15/18 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | **ND(5)** |
| MKTF-44 | 02/13/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **0.022** | -- |
| MKTF-44 | 05/08/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-44 | 08/22/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(1)** | **ND(0.05)** | -- |
| MKTF-44 | 10/24/19 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **ND(0.05)** | -- |
| MKTF-44 | 03/05/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4) UJ** | **ND(0.05)** | **ND(2.5)** |
| MKTF-44 | 09/21/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.07)** | **ND(0.05)** | **ND(0.6)** |
| MKTF-44 | 12/23/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | ND(0.001) | **0.171** | -- | -- |
| MKTF-44 | 03/11/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.085)** | **0.015J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-44 | 06/24/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.064)** | **ND(0.05)** | ND(0.08) |
| MKTF-44 | 09/30/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.059** | **ND(0.05)** | ND(0.08) |
| MKTF-44 | 12/23/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.018J/ND(0.064)U*** | **ND(0.05)** | ND(0.08) |
| MKTF-46 | 03/06/20 | 0.0004 J | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **ND(0.05)** | **ND(2.5)** |
| MKTF-46 | 09/17/20 | ND(0.001) UJ | ND(0.001) UJ | ND(0.001) UJ | ND(0.0015) UJ | ND(0.001) UJ | **ND(0.07) UJ** | **ND(0.05) UJ** | **ND(0.6) UJ** |
| MKTF-46 | 12/16/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.01) | ND(0.001) | **ND(0.152)** | -- | -- |
| MKTF-46 | 03/04/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.085)** | **0.024J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-46 | 06/16/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.043J/ND(0.064)U*** | **ND(0.05)** | ND(0.08) |
| MKTF-46 | 09/14/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.059J/ND(0.064)U*** | **ND(0.05)** | ND(0.08) |
| MKTF-46 | 12/09/21 | 0.00023 | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **0.17** | **0.04** | **ND(0.14)** |
| MKTF-47 | 03/06/20 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.4)** | **ND(0.05)** | **ND(2.5)** |
| MKTF-47 | 03/11/21 | ND(0.001) | ND(0.001) | ND(0.001) | ND(0.0015) | ND(0.001) | **ND(0.085)** | **0.016J/ND(0.05)U*** | **ND(0.6)** |
| MKTF-49 | 03/05/20 | **20** | **1.3** | **8.4** | **6.8** | 0.011 | **1.1 J+** | **77** | **ND(2.5)** |
| MKTF-49 | 09/20/20 | **23** | **1.5** | **9.9** | **7.5** | ND(0.05) | **0.76 J-** | **97** | **ND(0.6) UJ** |
| MKTF-49 | 12/23/20 | **21.8** | **1.43** | **10** | **7.45** | **ND(0.1)** | **5.75** | -- | -- |
| MKTF-49 | 03/09/21 | **18** | **1.2** | **7.9** | **6.4 J** | 0.014 J | **2.2** | **86** | **ND(0.6)** |

**APPENDIX C. ANALYTICAL RESULTS FOR WELLS MKTF-01 THROUGH MKTF-50**
**WESTERN REFINING SOUTHWEST, LLC.**
**MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO**

| Location ID | Date Sampled | Benzene[1] (mg/L) | Ethylbenzene[1] (mg/L) | Toluene[1] (mg/L) | Xylenes, Total[1] (mg/L) | MTBE[1] (mg/L) | Diesel Range Organics[2] (mg/L) | Gasoline Range Organics[2] (mg/L) | Oil Range Organics[2] (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MKTF-50 | 03/05/20 | **12** | **1.3** | 0.042 | 0.081 J | 0.0045 J | **2.9 J+** | **22** | **ND(2.5)** |
| MKTF-50 | 12/16/20 | **5.97** | **1.13** | 0.0273 | 0.286 | 0.0225 | **7.41** | -- | -- |
| MKTF-50 | 03/09/21 | **1.4** | **0.89** | 0.035 | 0.56 J | 0.042 | **2.5** | **21** | **ND(0.6)** |
| **Applicable Screening Level (mg/L)*:** | | **0.005** | **0.7** | **1** | **0.62** | **0.1** | **0.0167** | **0.0101** | **0.0858** |

Notes:
MDL - method detection limit
mg/L - milligrams per liter
ND - not detected (MDL provided in parentheses)
J - estimated concentration
J+ - estimated concentration biased low
J- - estimated concentration biased high
UJ - estimated reporting limit
-- - not sampled/not analyzed
0.016 J/ND(0.5) U* - Detection result determined to be from blank contamination

**highlight/bold - exceeds applicable screening level (includes MDL exceedances)**

***Screening Level Sources:**

[1]NMED GW Cleanup Levels - New Mexico Environment Department Groundwater Cleanup Levels, New Mexico Administrative Code 20.6.2.3103

[2]NMED TPH Levels – New Mexico Environment Department, Total Petroleum Hydrocarbons Screening Levels, Risk Assessment Guidance for Investigations and Remediation, Table 6-4, February 2019




# Appendix D - C-141 Form – Gasoline Release

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

| | |
|---|---|
| Incident ID | |
| District RP | |
| Facility ID | |
| Application ID | |

# Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party: Marathon – Gallup Refinery | OGRID |
| Contact Name: JOHN MOORE | Contact Telephone: 505-722-0205 |
| Contact email: JMOORE5@MARATHONPETROLEUM.COM | Incident # *(assigned by OCD)* |
| Contact mailing address: 92 Giant Crossing Road, Gallup, NM 87301 | |

## Location of Release Source

Latitude 35°29'29.70"N *(NAD 83 in decimal degrees to 5 decimal places)*

Longitude 108°25'25.00"W

| | |
|---|---|
| Site Name: Gallup Refinery | Site Type: Refinery |
| Date Release Discovered: 10/27/19 | API# *(if applicable)* |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| SWNE | 33 | 15N | 15W | McKinley |

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

## Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Produced Water | Volume Released (bbls) | Volume Recovered (bbls) |
| | Is the concentration of dissolved chloride in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☒ Other (describe) Unleaded Gasoline | Volume/Weight Released (provide units) Estimated greater than 100 BBLS Gasoline to ground | Volume/Weight Recovered (provide units) No significant recovery to date |

Cause of Release
On 10/27/19 staining, that was initially thought to be historic, was discovered on the ground W of the truck rack. Hydrocarbon was found to be seeping out of the ground into a stormwater ditch. An earthen berm was placed to stop flow in the ditch and a vac truck was used to vacuum up any hydrocarbon and water accumulating. There has been no significant amount of hydrocarbon accumulating. Once it was determined that the leak was from an underground transfer line, the line was blocked in. Repair of the line is in progress.

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br>The quantity is estimated to be greater than 25 BBLS. |
| If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?<br>John Moore notified Carl Chavez, OCD, on 11/5/19, after it was determined the leak was likely greater than 100 BBLS. | |

## Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: JOHN MOORE Title: ENVIRONMENTAL SUPERINTENDENT

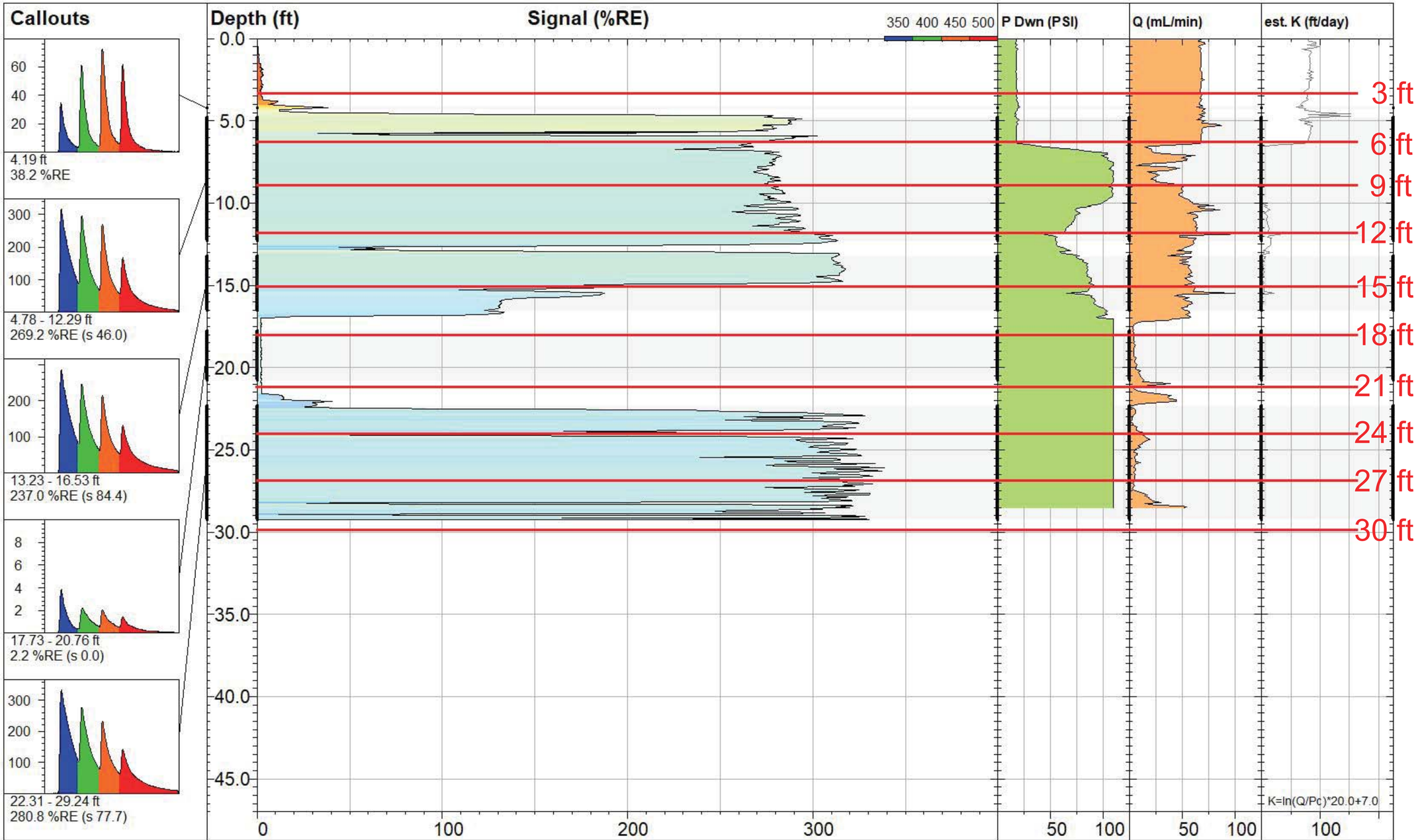
Signature: [signature] Date: 11-7-19

email: jmoore5@marathonpetroleum.com Telephone: 505-863-3205

**OCD Only**

Received by: _____ Date: _____

# Appendix E - UVOST Boring Logs

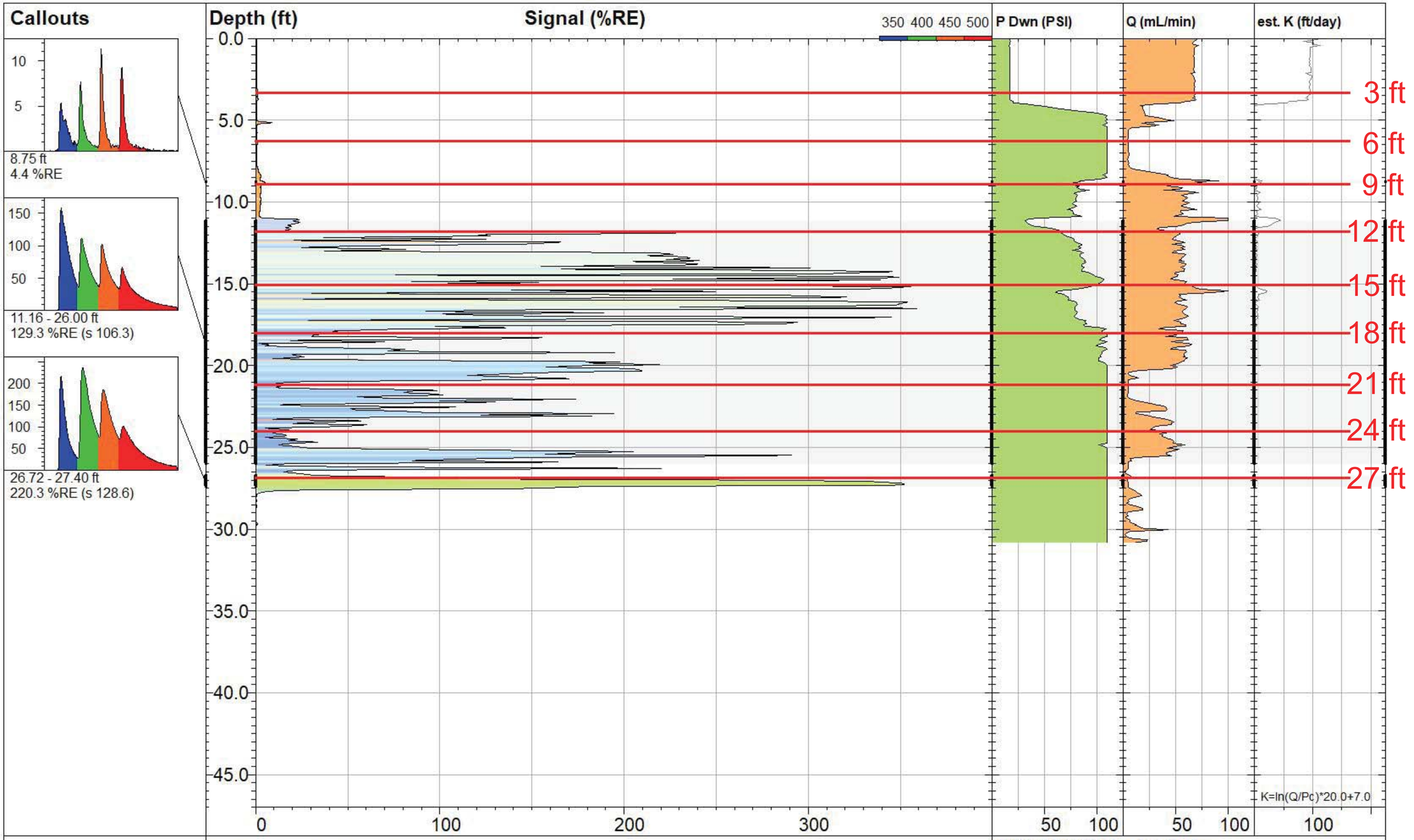



DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-37

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

| | | |
|---|---|---|
| *Site:* **Eastern Boundry LIF Investigation** | *Y Coord.(Lat-N) / System:* **Unavailable / NA** | *Final depth:* **29.24 ft** |
| *Client / Job:* **Trihydro / 0408.19** | *X Coord.(Lng-E) / Fix:* **Unavailable / NA** | *Max signal:* **338.7 %RE @ 26.08 ft** |
| *Operator / Unit:* **DS / CP / UVOST1003** | *Elevation:* **Unavailable** | *Date & Time:* **2019-11-19 15:14 MST** |

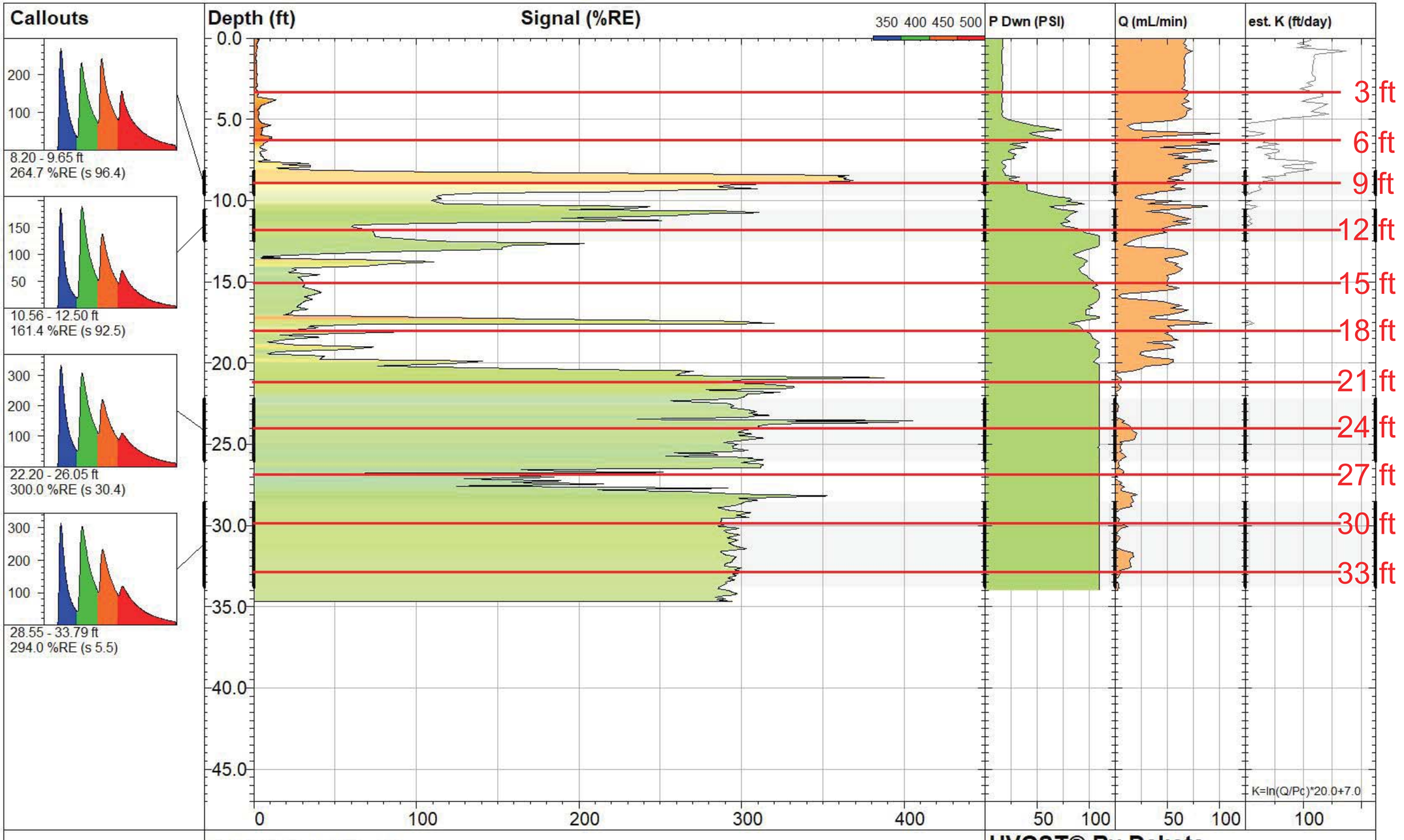



DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-42

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

| | | |
|---|---|---|
| *Site:*<br>**Eastern Boundry LIF Investigation** | *Y Coord.(Lat-N) / System:*<br>**Unavailable / NA** | *Final depth:*<br>**31.51 ft** |
| *Client / Job:*<br>**Trihydro / 0408.19** | *X Coord.(Lng-E) / Fix:*<br>**Unavailable / NA** | *Max signal:*<br>**366.7 %RE @ 16.50 ft** |
| *Operator / Unit:*<br>**DS / CP / UVOST1003** | *Elevation:*<br>**Unavailable** | *Date & Time:*<br>**2019-11-19 15:53 MST** |

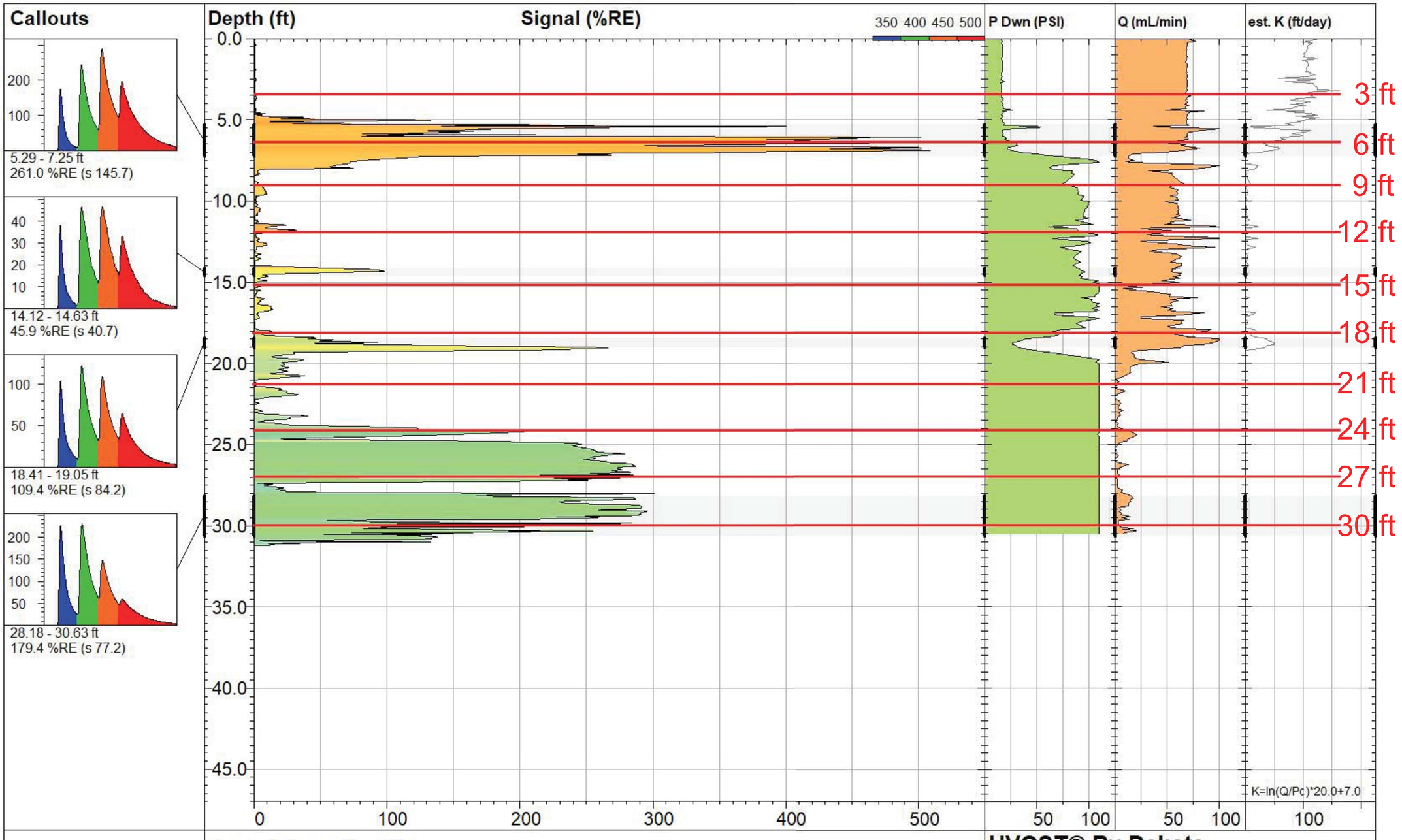



DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-46

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

| | | |
|---|---|---|
| *Site:* **Eastern Boundry LIF Investigation** | *Y Coord.(Lat-N) / System:* **Unavailable / NA** | *Final depth:* **34.66 ft** |
| *Client / Job:* **Trihydro / 0408.19** | *X Coord.(Lng-E) / Fix:* **Unavailable / NA** | *Max signal:* **409.2 %RE @ 23.54 ft** |
| *Operator / Unit:* **BG / CP / UVOST1003** | *Elevation:* **Unavailable** | *Date & Time:* **2019-11-24 13:15 MST** |

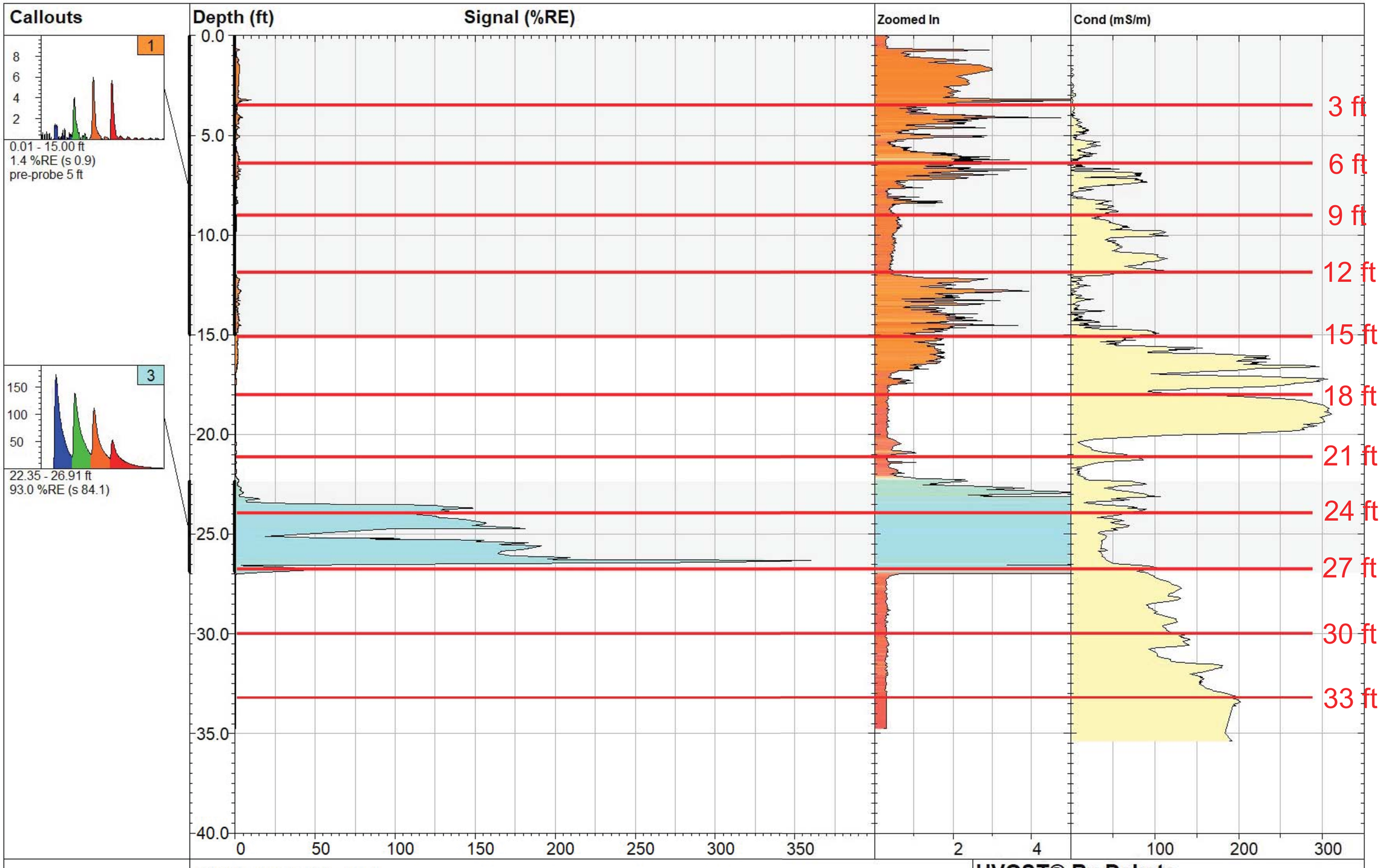



DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-47

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

| | | |
|---|---|---|
| *Site:* **Eastern Boundry LIF Investigation** | *Y Coord.(Lat-N) / System:* **Unavailable / NA** | *Final depth:* **31.20 ft** |
| *Client / Job:* **Trihydro / 0408.19** | *X Coord.(Lng-E) / Fix:* **Unavailable / NA** | *Max signal:* **515.2 %RE @ 6.05 ft** |
| *Operator / Unit:* **DS / CP / UVOST1003** | *Elevation:* **Unavailable** | *Date & Time:* **2019-11-22 13:45 MST** |

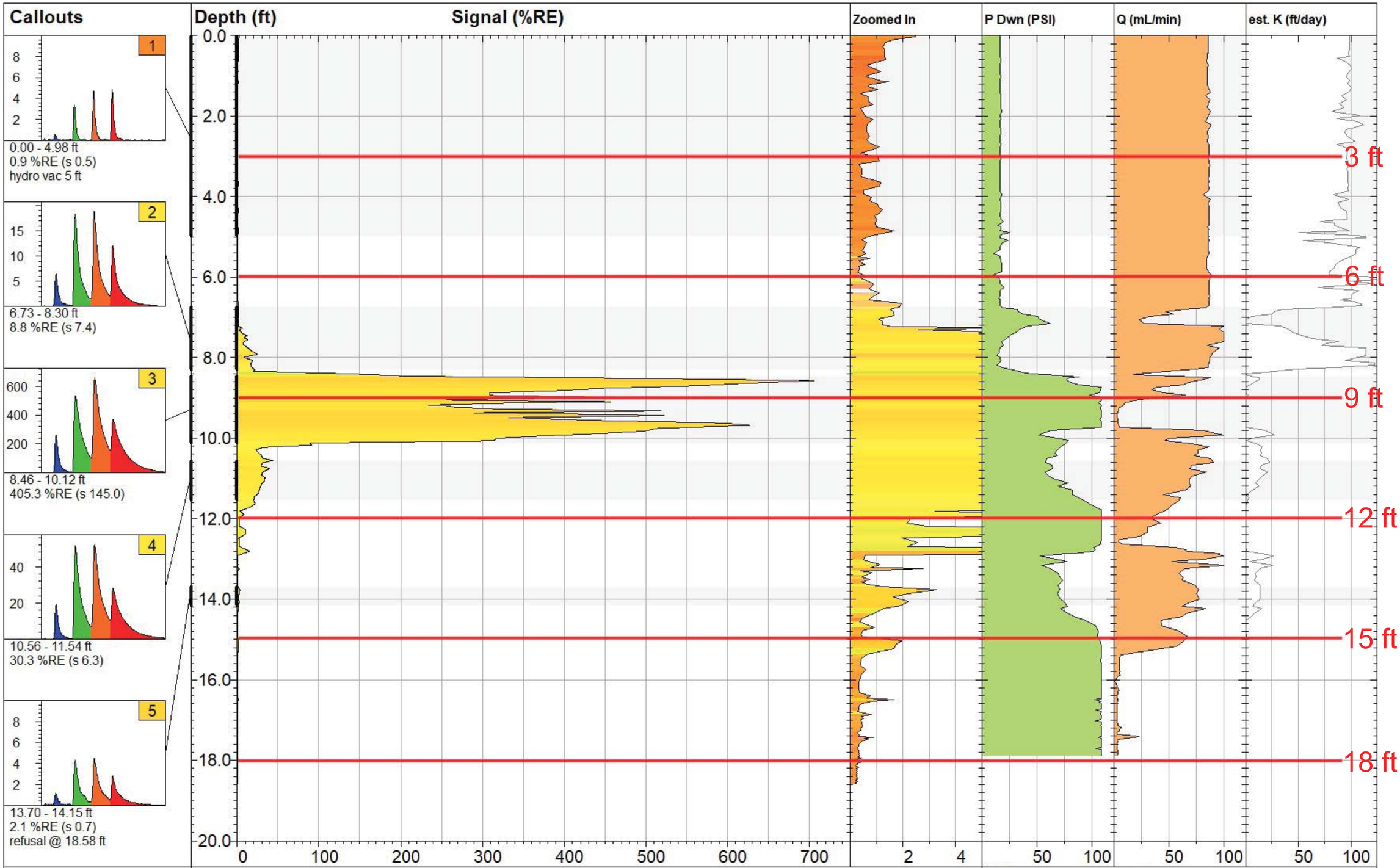



DAKOTA TECHNOLOGIES
www.DakotaTechnologies.com

# MKTF-LIF-62

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

| | | |
|---|---|---|
| Site:<br>**Marathon Marketing Tank Farm** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**34.76 ft** |
| Client / Job:<br>**TriHydro / 0049.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**361.3 %RE @ 26.32 ft** |
| Operator / Unit:<br>**A. Nagle / UVOST1613** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-02-03 11:18 MST** |

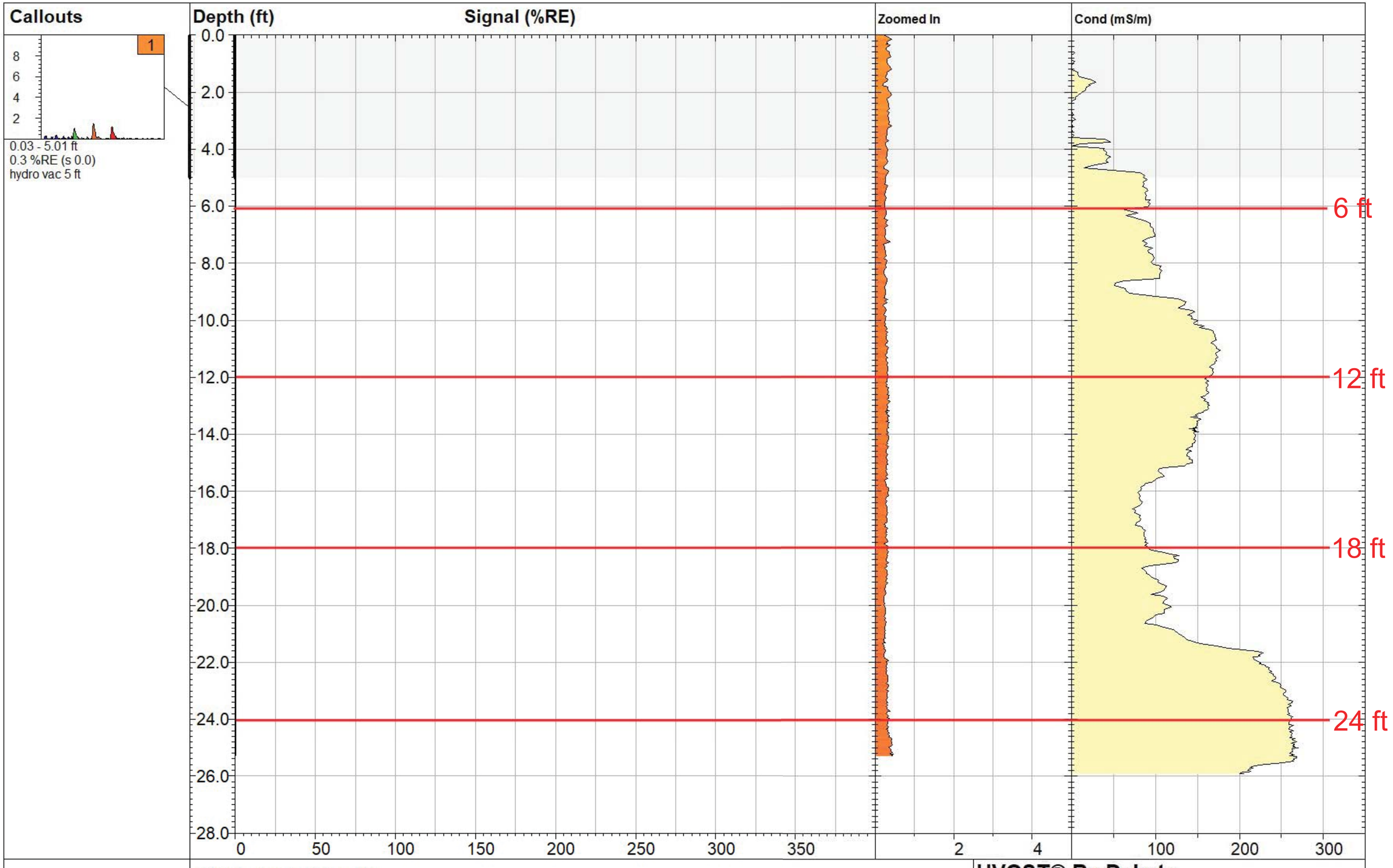



DAKOTA TECHNOLOGIES
www.DakotaTechnologies.com

# MKTF-LIF-66

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

| | | |
|---|---|---|
| Site:<br>**Marathon Marketing Tank Farm** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**18.58 ft** |
| Client / Job:<br>**TriHydro / 0049.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**708.9 %RE @ 8.57 ft** |
| Operator / Unit:<br>**A. Nagle / UVOST1613** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-02-01 14:28 MST** |

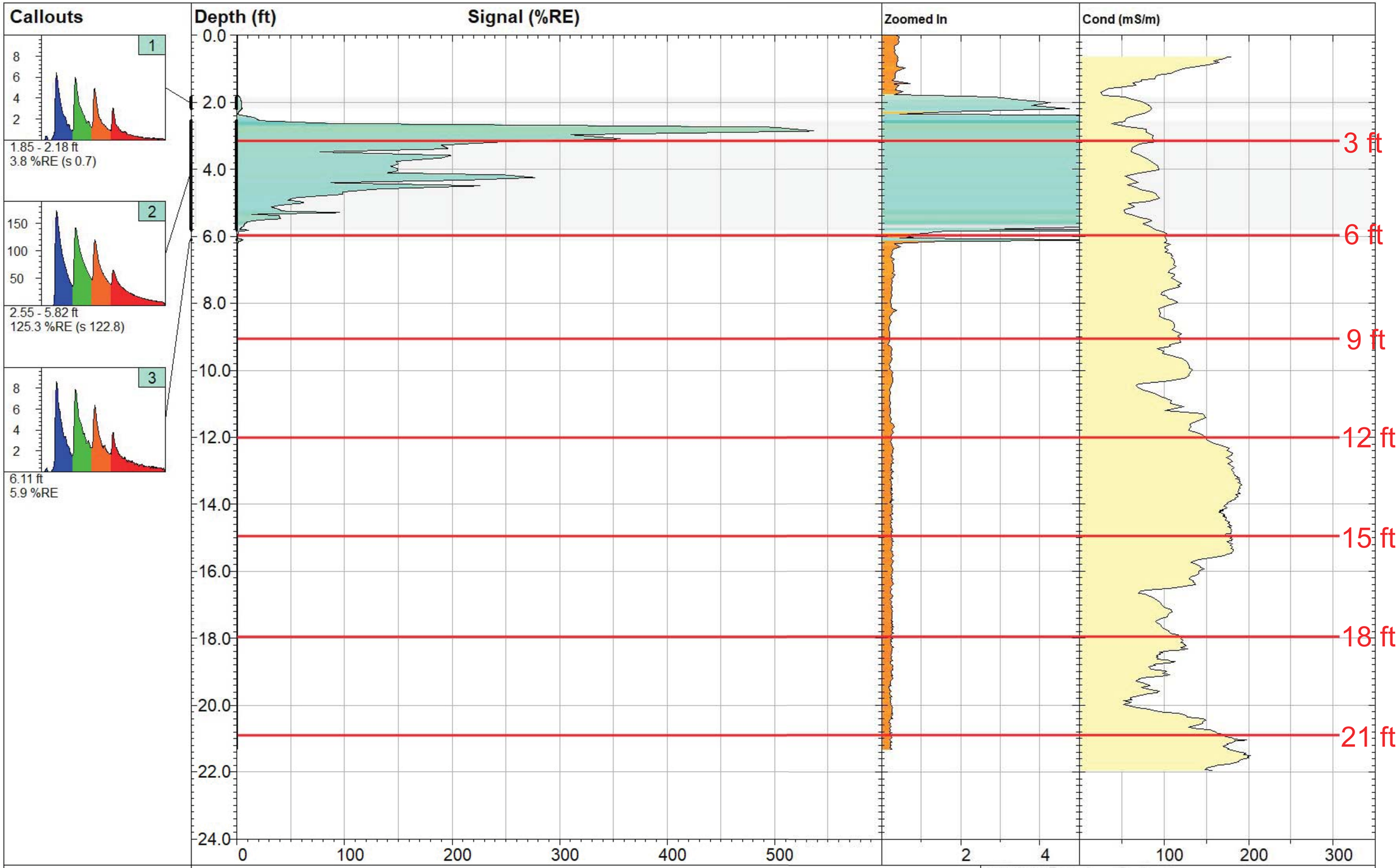



DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-71

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

| | | |
|---|---|---|
| Site:<br>**Marathon Marketing Tank Farm** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**25.29 ft** |
| Client / Job:<br>**TriHydro / 0049.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**0.5 %RE @ 25.24 ft** |
| Operator / Unit:<br>**A. Nagle / UVOST1613** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-02-04 07:54 MST** |

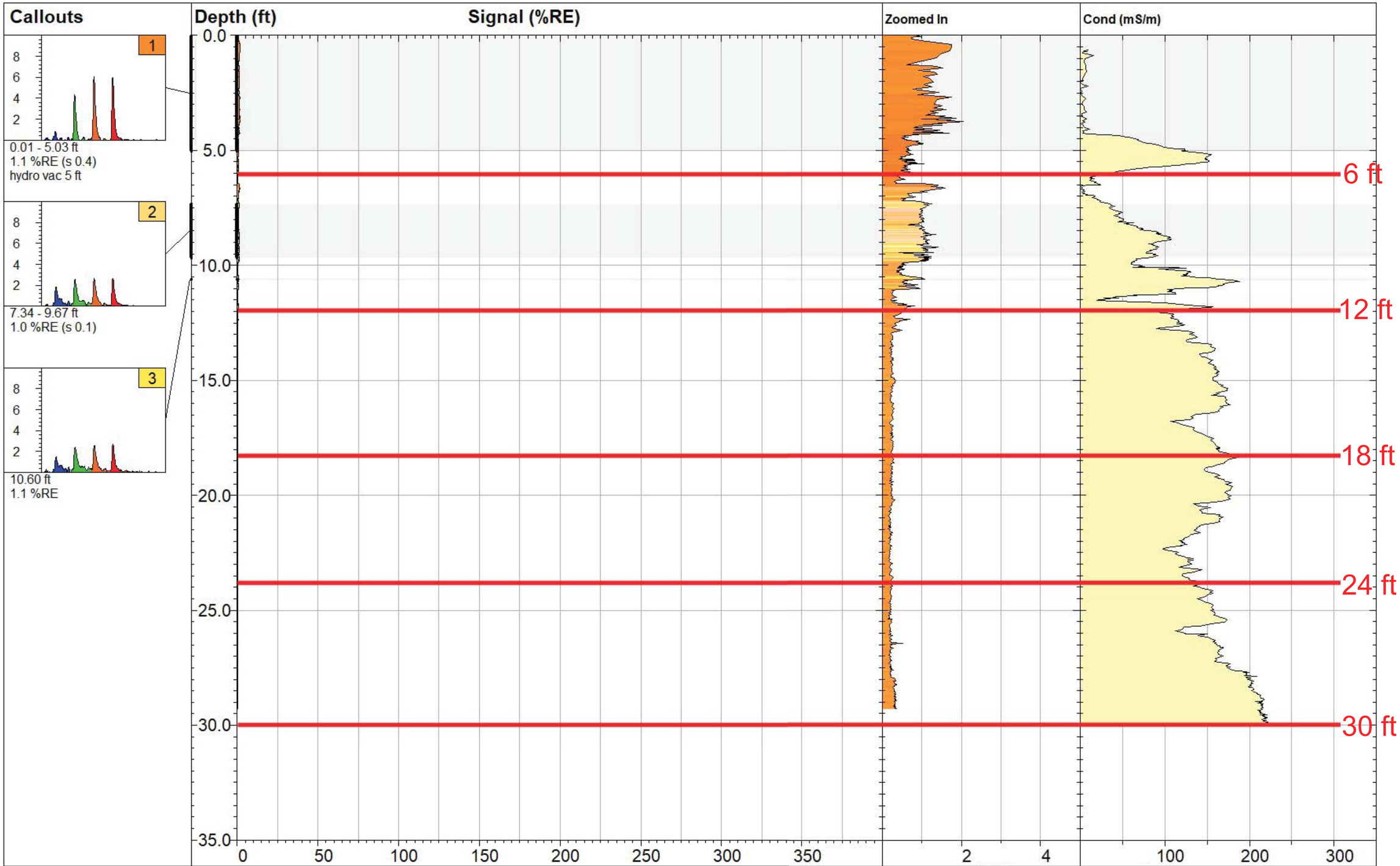



DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-74

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

| | | |
|---|---|---|
| Site:<br>**Marathon Marketing Tank Farm** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**21.33 ft** |
| Client / Job:<br>**TriHydro / 0049.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**537.6 %RE @ 2.86 ft** |
| Operator / Unit:<br>**A. Nagle / UVOST1613** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-02-04 09:16 MST** |




DAKOTA TECHNOLOGIES
WWW.DAKOTATECHNOLOGIES.COM

# MKTF-LIF-78

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

| | | |
|---|---|---|
| Site:<br>**Marathon Marketing Tank Farm** | Y Coord.(Lat/North):<br>**Unavailable** | Final Depth:<br>**29.29 ft** |
| Client / Job:<br>**TriHydro / 0049.21** | X Coord.(Long/East):<br>**Unavailable** | Max Signal:<br>**2.0 %RE @ 3.74 ft** |
| Operator / Unit:<br>**A. Nagle / UVOST1613** | Elevation:<br>**Unavailable** | Date & Time:<br>**2021-02-04 13:47 MST** |




# Appendix F - Investigation Derived Waste Management Plan

# APPENDIX F. INVESTIGATION DERIVED WASTE MANAGEMENT PLAN
# WESTERN REFINING SOUTHWEST, LLC.
# MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

All investigation derived waste (IDW) will be properly characterized and disposed of in accordance with all federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. The IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste.

A dedicated decontamination area will be setup prior to any sample collection activities. The decontamination pad will be constructed so as to capture and contain all decontamination fluids (e.g., wash water and rinse water) and foreign materials washed off the sampling equipment. The fluids will be pumped directly into suitable storage containers (e.g., labeled 55-gallon drums), which will be located at satellite accumulation areas until the fluids are disposed in the refinery wastewater treatment system upstream of the API separator. The solids captured in the decontamination pad will be shoveled into 55-gallon drums and stored at the designated satellite accumulation area pending proper waste characterization for off-site disposal.

Drill cuttings generated during installation of soil borings will be placed directly into 55-gallon drums and staged in the satellite accumulation area pending results of the waste characterization sampling. The portion of soil cores, which are not retained for analytical testing, will be placed into the same 55-gallon drums used to store the associated drill cuttings.

The solids (e.g., drill cuttings and used soil cores) will be characterized by testing to determine if there are any hazardous characteristics in accordance with 40 Code of Federal Regulations Part 261. This includes tests for ignitability, corrosivity, reactivity, and toxicity. If the materials are not characteristically hazardous, then further testing will be performed pursuant to the requirements of the facility to which the materials will be transported. Depending upon the results of analyses for individual investigation soil samples, additional analyses may include volatile organic carbons, total petroleum hydrocarbons, and polynuclear aromatic hydrocarbons.

**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 97595

## CONDITIONS

| | |
|---|---|
| Operator:<br>Western Refining Southwest LLC<br>539 South Main Street<br>Findlay, OH 45840 | OGRID:<br>267595 |
| | Action Number:<br>97595 |
| | Action Type:<br>[UF-DP] Discharge Permit (DISCHARGE PERMIT) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| jburdine | Accepted for Record Retention Purposes-Only | 11/23/2022 |