



## Western Refining Southwest LLC

A subsidiary of Marathon Petroleum Corporation

I-40 Exit 39

Jamestown, NM 87347

February 4, 2022

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

**RE: Response to Disapproval  
Sour Naphtha Release Investigation Work Plan  
Marathon Gallup Refinery  
(dba Western Refining Southwest LLC)  
EPA ID# NMD000333211  
HWB-WRG-21-014**

Dear Mr. Pierard:

Attached please find the response to comments contained in the New Mexico Environment Department (NMED) Disapproval letter dated November 23, 2021. A timeline of the reports for the sour naphtha release is provided below.

- Investigation Work Plan, submitted October 7, 2021
- Disapproval, received November 23, 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.



## Western Refining Southwest LLC

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### 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

A handwritten signature in black ink that reads 'Ruth A. Cade'.

Ruth Cade  
Vice-President

Enclosure

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

**ATTACHMENT A**

**New Mexico Environment Department to Western Refining Southwest LLC Comment Letter “Disapproval, Sour Naphtha Release Investigation Work Plan” (November 23, 2021)**

New Mexico Environment Department (NMED) Comment	Western Refining Southwest LLC Response
<b>Comment 1:</b>	<b>Response 1:</b>
<p>In the Scope of Activities Section, page 7 of 11, bullet 1, the Permittee states, "[t]he first soil boring is approximately 15 ft west of sample location #4 from the original investigation (Figure 5). This is the minimum distance to the west of the release where a direct push sample may be collected without intercepting the underground pipelines in the area." Comment 5 of NMED's February 21, 2020, <i>Disapproval Response Action Report Sour Naphtha Release</i> required the Permittee to "propose to submit a work plan to install two borings five feet west of sample location #4 and five feet east of sample location #2 to the corresponding sampling depths and collect soil samples for TPH-GRO analysis." Although Comment 5 requires the Permittee to install a boring five feet west of the sample location #4, the proposed boring 15 feet west of the sample location #4 is acceptable because the accessibility is limited. No revision required.</p>	<p>This comment is acknowledged.</p>
<b>Comment 2:</b>	<b>Response 2:</b>
<p>In the Scope of Activities Section, page 7 of 11, bullet 3, the Permittee states, "11 surface samples collected at 1 ft bgs as indicated in Figure 6." According to Appendix A (Laser Induced Fluorescence (LIF) Results), Separate Phase Hydrocarbon (SPH) was not detected at the depth of one foot below ground surface (bgs) in LIF borings MKTF-LIF-85 and MKTF-LIF-86; however, SPH was detected at deeper depth intervals (e.g., 8 to 12 feet bgs). Since the naphtha release occurred in March 2017, it appears that the SPH released at the time may have migrated to deeper depth intervals at the proposed 11 surface sampling locations to delineate the vertical extent of contamination. Revise the Work Plan accordingly.</p>	<p>In the Scope of Activities Section, page 7 of 11, bullet 3, the 11 surface samples has been revised to state, "11 soil borings to the west of the release will be sampled beginning at 1 ft bgs and continued at 5 foot intervals to a depth of 16 ft bgs, or until refusal, for a maximum of 44 samples."</p>

**New Mexico Environment Department to Western Refining Southwest LLC Comment Letter “Disapproval, Sour Naphtha Release Investigation Work Plan” (November 23, 2021)**

New Mexico Environment Department (NMED) Comment	Western Refining Southwest LLC Response
<b>Comment 3:</b>	<b>Response 3:</b>
<p>In the Scope of Activities Section, page 7 of 11, paragraph 5, the Permittee states, "[b]ased on results from the May 2021 LIF investigation, the Refinery proposes three additional soil borings, collecting samples at depths of 8 to 12 ft bgs along the road to the west of the sour naphtha release (Figure 5). LIF logs for MKTF-LIF-85 and MKTF-LIF-86 (provided in Appendix A) indicated the potential presence of naphtha and the additional borings will further delineate the release." Comment 2 above requires the Permittee to install 11 additional soil borings to collect soil samples to delineate the vertical extent of contamination. It is NMED's opinion that the Permittee should reevaluate the necessity of installing the three additional proposed borings in the revised Work Plan. NMED considers the installation of the 11 additional borings from Comment 2 above to be sufficient enough to delineate the release. In addition, the proposed depth of the borings 9 to 12 feet bgs) may not be adequate to delineate the vertical extent of contamination because the LIF logs included in Appendix A indicate that SPH may be present below 12 feet bgs. The Permittee must extend the termination depth of each proposed boring to delineate the vertical extent of contamination. Include the provision in the revised Work Plan.</p>	<p>The text has been revised to remove two of the additional soil borings along the road to the west of the sour naphtha release. The most western soil boring was kept to delineate the potential presence of naphtha to the west of MKTF-LIF-86. The soil borings will be extended to 16 ft bgs to delineate the vertical extent of contamination. The depth of the soil borings was chosen based on the presence of naphtha in the LIF logs for MKTF-LIF-85 and MKTF-LIF-86.</p>

**New Mexico Environment Department to Western Refining Southwest LLC Comment Letter “Disapproval, Sour Naphtha Release Investigation Work Plan” (November 23, 2021)**

New Mexico Environment Department (NMED) Comment	Western Refining Southwest LLC Response
<b>Comment 4:</b>	<b>Response 4:</b>
<p>In the Scope of Activities Section, page 7 of 11, paragraph 6, the Permittee states, "NMED requested a separate investigation into the Heat Exchanger Bundle Pad area due to benzene exceedances in nearby monitoring well MKTF-16. MKTF-16 is south of the sour naphtha release area and lies along the sewer corridor. MKTF-16 has routinely exceeded the benzene standard and increased following the 2017 sour naphtha release. Based on the proximity to the sour naphtha release, the Refinery plans to collect additional soil samples from borings to the south of the sour naphtha release to evaluate the potential for impacts from the release toward MKTF-16 as shown on Figure 5." The benzene concentrations detected in the samples collected from well MKTF-19 prior to the naphtha release (March 2017) are recorded as generally higher than those after the release and a notable spike of benzene concentrations after the release was not identified in well MKTF-16. There does not appear to be a correlation with the presence of the elevated benzene levels in well MKTF-16 and the 2017 naphtha release. NMED received the September 24, 2021 <i>Heat Exchanger Bundle Pad Investigation Work Plan</i> which proposed to investigate the same observation regarding the elevated benzene concentrations in well MKTF-16. Since the naphtha release may not be the cause of elevated benzene concentrations in well MKTF-16, it would be more appropriate to include this evaluation in the Heat Exchanger Bundle Pad Investigation rather than the Sour Naphtha Release Investigation. Remove the discussion/proposed investigation associated with the elevated benzene concentrations for well MKTF-16 from the Work Plan.</p>	<p>The investigation pertaining to the Heat Exchanger Bundle Pad area has been removed from the Scope of Activities. This discussion and investigation will be evaluated in the Heat Exchanger Bundle Pad Investigation Work Plan. The Heat Exchanger Bundle Pad Investigation Work Plan will be submitted separate to this report and to NMED no later than April 11, 2022.</p>

**New Mexico Environment Department to Western Refining Southwest LLC Comment Letter “Disapproval, Sour Naphtha Release Investigation Work Plan” (November 23, 2021)**

New Mexico Environment Department (NMED) Comment	Western Refining Southwest LLC Response
<b>Comment 5:</b>	<b>Response 5:</b>
<p>In the Field Screening Section, page 8 of 11, bullets 1 and 2, the Permittee states, “[d]iscrete soil samples will be retained for laboratory analysis from within the following intervals:</p> <ul style="list-style-type: none"> <li>-Every 2.5 ft bgs to a depth of 10 ft bgs for the 8 soil borings near the sour naphtha release and to the south toward MKTF-16 (Figure 5).</li> <li>-Every 2 ft bgs between depths of 8 and 12 ft bgs for the 3 soil borings near the road to the west of the sour naphtha release (Figure 5)."</li> </ul> <p>Based on the previous investigation, the proposed sampling intervals may have missed the contamination present in the soils. Since a photoionization detector (PID) or a combustible gas indicator 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. In addition, the proposed depths of the borings may not be adequate to delineate the vertical extent of contamination because SPH appears to be present below 12 ft bgs (see Comment 3). The sampling intervals for each depth of the borings in the Work Plan must include intervals deep enough to demonstrate near ground surface, propose to collect a soil sample from a depth of six to 12 inches bgs at each boring location in the revised Work Plan.</p>	<p>The text has been revised with the following text, “Samples may also be collected if elevated PID readings are recorded. Sample intervals will then be adjusted by the qualified field personnel and noted in the field logs to document the updated intervals.” Soil samples will be collected at each boring location at 1 ft bgs to delineate the surface conditions.</p>
<b>Comment 6:</b>	<b>Response 6:</b>
<p>In the Field Screening Section, page 8 of 11, bullet 3, the Permittee states, “[d]iscrete soil samples will be retained for laboratory analysis from within the following intervals:</p> <ul style="list-style-type: none"> <li>-1 ft bgs for the 11 soil surface samples (Figure 6)."</li> </ul> <p>The soil samples must be collected from deeper depth intervals at the proposed 11 surface soil sampling locations to delineate the vertical extent of contamination (see Comment 2). Revise the Work Plan accordingly.</p>	<p>See response to comment #2 above. The 11 soil surface samples have been changed to soil borings.</p>

**New Mexico Environment Department to Western Refining Southwest LLC Comment Letter “Disapproval, Sour Naphtha Release Investigation Work Plan” (November 23, 2021)**

New Mexico Environment Department (NMED) Comment	Western Refining Southwest LLC Response
<b>Comment 7:</b>	<b>Response 7:</b>
<p>In the Field Screening Section, page 9 of 11, 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 be recorded on the logs." If water bearing zones are encountered during the investigation, the Permittee must document the zones in detail with respect to future well installation. No revision is necessary.</p>	<p>This comment is acknowledged.</p>
<b>Comment 8:</b>	<b>Response 8:</b>
<p>In the Laboratory Analysis Section, page 9 of 11, bullets 1 and 2, the Permittee states that "[c]ollected samples will be analyzed for hydrocarbon impacts with the following methods:</p> <ul style="list-style-type: none"> <li>-Method 8015M/D - total petroleum hydrocarbons - gasoline range organics (TPH-GRO)</li> <li>-Method 8260B - benzene, ethylbenzene, toluene, and total xylenes (BETX)"</li> </ul> <p>Comment 7 of NMED's October 13, 2021 <i>Approval with Modifications Response to Disapproval Response Action Report Sour Naphtha Release</i> states that "the concentrations of several [volatile organic compounds (VOC)] (e.g., 1,2-dibromo-3-chloropropane) in the soil sample collected from sample location #4 exceeded applicable screening levels. Conduct VOC analysis for all additional confirmation samples that are proposed to be collected in order to delineate the extent of contamination." Revise the Work Plan to include analysis and reporting of all constituents listed in EPA Method 8260B. In addition, the released naphtha may also consist of total petroleum hydrocarbons diesel (TPH-DRO) and motor oil range organics (TPH-MRO). Include TPH-DRO and TPH-MRO or TPH-DRO extended analysis in the revised Work Plan, as well.</p>	<p>Based on the SDS for Sour Naphtha (Attachment C), it is unlikely that volatile organic compounds separate of BETX will be present in the soil caused by the sour naphtha release. This investigation is based on the sour naphtha release and will be focused on the extent of contamination caused by the release. Therefore, Marathon does not agree to include additional analytical information for the soil borings.</p>



**New Mexico Environment Department to Western Refining Southwest LLC Comment Letter “Disapproval, Sour Naphtha Release Investigation Work Plan” (November 23, 2021)**

New Mexico Environment Department (NMED) Comment	Western Refining Southwest LLC Response
<p><b>Comment 9:</b></p> <p>In the Laboratory Analysis Section, page 9 and 10, bullets 3 through 6, the Permittee states, "the confirmation sample collected from the previous excavation backfill will also be analyzed for:</p> <ul style="list-style-type: none"> <li>-Method 8270 SIMs - polycyclic aromatic hydrocarbons (PAH)</li> <li>-Method 8015M/D - total petroleum hydrocarbons-diesel range organics (TPH-DRO)</li> <li>-Method 8015M/D - total petroleum hydrocarbon-motor oil range organics (TPH-MRO)</li> <li>-EPA Method 6010B/7471 - Resource Conservation and Recovery Act (RCRA) 8 Metals."</li> </ul> <p>Comment 4 of NMED's October 13, 2021 <i>Approval with Modifications Response to Disapproval Response Action Report Sour Naphtha Release</i> states that "[i]n order to confirm that the backfill was not contaminated, collect one backfill sample and analyze for VOCs, PAHs, TPH, and metals." Since the origin of the backfill is not known, VOCs may be present in the backfill material. Include VOC analysis, as directed by Comment 4, for the backfill samples in the revised Work Plan to demonstrate that VOCs are not present in the backfill material.</p>	<p><b>Response 9:</b></p> <p>The backfill confirmation samples will include VOC analysis since the origin is unknown. The analysis has been added to the Work Plan.</p>
<p><b>Comment 10:</b></p> <p>In the Data Evaluation Section, page 10 of 11, paragraph 3, the Permittee states, "[t]he soil confirmation sampling results will be compared to NMED Construction Worker SSLs to determine if further excavation and/or investigation is necessary." The soil confirmation sampling results must also be compared with residential and commercial/industrial worker soil screening levels. Revise the Work Plan accordingly. In addition, if the Permittee wishes to petition for correct action complete (CAC) without control status at the site in the future, it will be appropriate to select residential soil screening levels as criteria to determine whether further excavation and/or investigation is necessary.</p>	<p><b>Response 10:</b></p> <p>The Data Evaluation Section has been revised to say, “The soil confirmation sampling results will be compared to NMED Industrial and Construction Worker SSLs to determine if further excavation and/or investigation is necessary. The Industrial SSLs will be compared against soils collected from 0 to 1 ft bgs. Soil samples with depths greater than 1 ft bgs will be compared to the Construction Worker SSLs.” The soil samples will not be compared to residential soil screening levels because the investigation will not require clean closure.</p>

**ATTACHMENT B-1**

**CLEAN**



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan



**WESTERN REFINING SOUTHWEST LLC  
SOUR NAPHTHA RELEASE  
INVESTIGATION WORK PLAN  
MARATHON GALLUP REFINERY  
GALLUP, NEW MEXICO  
EPA ID# NMD000333211**

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SUBMITTED BY: Trihydro Corporation

1252 Commerce Drive, Laramie, WY 82070



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## Executive Summary

Western Refining Southwest, LLC is submitting this Investigation Work Plan for the investigation of soils in the vicinity and down gradient of a sour naphtha release to determine the extent of hydrocarbon impacts. This Investigation Work Plan was requested by New Mexico Environment Department (NMED) to install soil borings near previous sample locations from the initial investigation.

On March 26, 2017, a release was detected on a service road by an operator. The release was identified as a sour naphtha soil seep with two areas of sour naphtha pooled along the sloped road base. The release was immediately blocked by isolating the leaking line. A corrosion hole was found in a carbon steel pipeline located approximately 4 feet below the ground surface. The estimated volume released was less than 210 gallons.

Following the release, approximately 16 tons of impacted soil were excavated. Samples were collected and submitted for laboratory analysis for waste characterization purposes. One sample was collected for disposal characterization and was analyzed for volatile organic compounds which exhibited elevated benzene, toluene, ethylbenzene, and total xylenes. The area was backfilled with clean soil and the excavated soil was disposed of offsite (MPC 2019).

This Investigation Work Plan proposes collecting soil samples to determine if additional soil excavation is necessary. This investigation will reduce data gaps from previous efforts and will be utilized to determine if additional excavation or further investigation is warranted.

The recently completed laser-induced fluorescence (LIF) study (May 2021) provided data that indicated potential naphtha detections west of the original investigation area. Therefore, in addition to the requested investigation by NMED, the Refinery also proposes to add one additional soil boring downgradient of the release to evaluate potential sour naphtha occurrences to the west.



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

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Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## Introduction

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

Trihydro Corporation has prepared this Investigation Work Plan for the investigation of soils near a sour naphtha release that occurred in 2017. The proposed investigation includes collecting samples to satisfy the comments in the New Mexico Environment Department's (NMED) "Disapproval, Response Action Report Sour Naphtha Release" (NMED 2020). NMED comments #5, 6, and 11 require the Refinery to submit a work plan to delineate the eastern and western extents of the release and to delineate the extent of the surface and subsurface release (NMED 2020). In addition to the requested investigation by NMED, the Refinery proposes to complete 1 boring near the west extent of the release in response to data collected during the 2021 Laser Induced Fluorescence Investigation (May 2021).

## Background

The Refinery is a crude oil refinery (currently indefinitely idled) that processes crude oil transported by pipeline or tanker truck from the Four Corners region. Various process units that have operated at the Refinery include crude distillation, reformer, fluidized catalytic cracker, alkylation, sulfur recovery, merox treater, and hydrotreater. Past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

As detailed in the "Response Action Report, Sour Naphtha Release" (MPC 2019), on March 26, 2017, an operator detected sour naphtha in a saturated soil seep, approximately 4 ft by 4 ft, in a service road. The sour naphtha flowed approximately 332 ft westerly downhill along the middle and sides of the service road (Figure 3). Two areas of sour naphtha pooled at the sloping road base. The leak was immediately isolated by the operator by blocking valves. The estimated sour naphtha volume released was less than 5 barrels (210 gallons).

The purpose of this Investigation Work Plan is to collect soil samples to delineate the surface and subsurface extent of any remaining contamination and determine if further investigation or remediation is necessary.



Western Refining Southwest, LLC  
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## Previous Investigation

Following the discovery of the release, impacted soil was excavated. An area approximately 20 ft long (parallel to the pipeline) by 4 ft wide by 4 ft deep was excavated. In addition, the pipe was exposed and repaired. Visibly impacted soil in and around the release area was excavated and placed in 20 cubic yard bins for off-site disposal. Approximately 16 tons of soil were excavated.

On March 30, 2017, a total of six soil samples were collected from excavated soil for waste characterization (Figure 4). Based on analytical results, the 16 tons of soil were treated as hazardous waste and transported offsite for disposal. The excavated area was backfilled with clean soil and the service road was reopened.

## Site Conditions

### Surface Conditions

Local site topographic features include high ground in the southeast gradually decreasing to a lowland fluvial plain to the northwest. Elevations on the refinery property range from 6,860 ft above mean sea level (amsl) to 7,040 ft amsl. The release area service road elevation is approximately 6,951 ft amsl. The release flowed downhill to the west and collected at the base of the hill. The elevation at the base of the hill is approximately 6,932 ft amsl. In responding to the release, the maintenance department built several berms to contain the sour naphtha release.

### Subsurface Conditions

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

## Scope of Activities

The investigative activities of the sour naphtha release area will be completed in order to delineate horizontal hydrocarbon impacts and collect subsurface soil samples. In addition, surface samples will be collected along the service road. Pending NMED approval, Western Refining Southwest, LLC anticipates the investigation will be completed during 2021.





Western Refining Southwest, LLC  
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This investigation includes soil borings directly to the west and east of the release area (Figure 5) and soil boring samples (1 to 16 ft bgs) along the road to the west of the release (Figure 6). Based on the depth of excavation and to evaluate the construction worker exposure, it is anticipated that the depth of the soil borings near the release will be approximately 10 ft.

Soil samples will be collected at the following locations:

- The first soil boring is approximately 15 ft west of sample location #4 from the original investigation (Figure 5). This is the minimum distance to the west of the release where a direct push sample may be collected without intercepting the underground pipelines in the area.
- The second soil boring is approximately 5 ft east of sample location #2 from the original investigation.
- 11 soil borings to the west of the release beginning at 1 ft bgs and continued at 5 foot intervals to a depth of 16 ft bgs, or until refusal, for a maximum of 44 samples.
- One backfill sample from the previous excavation, collected at 2 ft bgs, will be collected as required in comment #4, "Approval with Modifications, Response Action Report Sour Naphtha Release" (MPC 2020).

Based on results from the May 2021 LIF investigation, the Refinery proposes one additional soil boring, collecting samples at depths of 1 ft bgs and continued at 5 foot intervals to 16 ft bgs the west of the sour naphtha release (Figure 5). LIF logs for MKTF-LIF-85 and MKTF-LIF-86 (provided in Appendix A) indicated the potential presence of naphtha and the additional boring will further delineate the release.

### Field Screening

All soil borings will be continuously logged, and samples will be field screened for evidence of contaminants. Field screening results will be recorded on the exploratory boring logs. Field screening results will be used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds (VOC). Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds or other substances that may cause staining of soils. Headspace vapor screening targets VOC and involves placing a soil sample in a plastic sample bag and allow the sample to come to temperature. A photo-ionization detector (PID) equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas



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indicator will be used for VOC field screening. 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 result and the ambient air temperature will be recorded on the field boring log for each sample.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation.

Discrete soil samples will be retained for laboratory analysis from within the following intervals:

- Every 5 ft bgs beginning at 1 ft bgs to a depth of 16 ft bgs for the 14 soil borings along the road of the sour naphtha release (Figure 5).
- 2 ft bgs for the previous excavation backfill sample.

Samples may also be collected if elevated PID readings are recorded. Sample intervals will then be adjusted by the qualified field personnel and noted in the field logs to document the updated intervals. Soil samples will be collected at each boring location at 1 ft bgs to delineate the surface conditions. The physical characteristics of the samples, depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by qualified field personnel. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will be recorded on the logs.

### Sample Collection Procedures

Samples will be collected and screened in accordance with the Standard Operating Procedure provided in Appendix B. Details related to sample collection will be documented on the soil screening field forms which will be included in the Investigation Report.

Surface samples will be collected using a decontaminated dig bar, trowel, or hand auger to reach 1 ft depth (2 ft depth for the backfill sample). The sample will be collected by hand, using nitrile gloves, and placed in a sealable plastic bag for analysis.

Soil boring samples will be collected using direct push sampling techniques to collect sample cores at the predetermined depths. The cores will be logged by qualified field personnel onsite and collected in sealable plastic bags for analysis.



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Equipment will be decontaminated before collecting each sample, and equipment decontamination will be noted on the field forms. Upon collection, samples will be placed into jars will be filled, labeled, and placed in a cooler. Before shipment, each cooler will be packed with ice and one temperature blank. A chain of custody (CoC) form will accompany each sample shipment. Coolers will be sealed and delivered to Hall Environmental Analytical Laboratory in Albuquerque, New Mexico.

### Laboratory Analysis

Collected samples will be analyzed for hydrocarbon impacts with the following methods:

- Method 8015M/D – total petroleum hydrocarbons-gasoline range organics (TPH-GRO)
- Method 8260B – benzene, ethylbenzene, toluene, and total xylenes (BETX)

In addition, as requested in comment 4, “Approval with Modifications, Response Action Report Sour Naphtha Release” (NMED, 2020), the confirmation sample collected from the previous excavation backfill will also be analyzed for:

- Method 8260B – volatile organic compounds (VOC)
- Method 8270 SIMs - polycyclic aromatic hydrocarbons (PAH)
- Method 8015M/D –TPH-DRO
- Method 8015M/D –TPH-MRO
- EPA Method 6010B/7471 - Resource Conservation and Recovery Act (RCRA) 8 Metals

### Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. Field duplicates will be collected at a rate of 10 percent (%) of all samples collected, or at a minimum of one per day. Equipment blanks will be collected from re-usable equipment at a rate of 10%, or at a minimum of one per day. A trip blank will be included in each cooler. The field duplicate and blank samples will be submitted to the laboratory along with the soil samples. QA/QC samples will be recorded on the field forms and CoCs. All data will undergo Tier II data validation.

### Data Evaluation

The soil confirmation sampling results will be compared to NMED Industrial and Construction Worker SSLs to determine if further excavation and/or investigation is necessary. The Industrial SSLs will be compared against



## Western Refining Southwest, LLC Sour Naphtha Investigation Work Plan

soils collected from 0 to 1 ft bgs. Soil samples with depths greater than 1 ft bgs will be compared to the Construction Worker SSLs. Soil recovered during sampling will be placed in drums, labeled, and stored on the 90 Day Pad to be characterized prior to disposal.

### Monitoring and Sampling Program

No groundwater, ambient air, subsurface vapor, remediation systems, engineering controls, or other monitoring and sampling programs are currently being implemented at the sour naphtha release. There are several monitoring wells in the vicinity of the release that are monitored as part of the Refinery's groundwater monitoring program. Data collected from this investigation will be used to evaluate the potential presence of impacted soil, which will allow for planning of future investigation or remediation activities, if needed.

### Schedule

Pending NMED approval, the Refinery anticipates the investigation to be completed during 2021. Once the investigation has been completed, the Refinery will submit an investigation report to NMED summarizing the sample results and investigation conclusions within 90 days of the receipt of the analytical data.

### References

- Marathon Petroleum Company (MPC). 2019. Response Action Report Sour Naphtha, Gallup Refinery  
Marathon Petroleum Company LP, Gallup, New Mexico, EPA ID# NM000333211, HWB-WRG-20-002.  
December 20.
- New Mexico Environment Department (NMED). 2020. Disapproval, Response Action Report Sour Naphtha  
Release, Gallup Refinery Marathon Petroleum Company LP, Gallup, New Mexico, EPA ID# NM000333211,  
HWB-WRG-20-002. February 21.
- New Mexico Environment Department (NMED). 2020. Approval with Modifications, Response Action Report  
Sour Naphtha Release, Gallup Refinery Marathon Petroleum Company LP, Gallup, New Mexico, EPA ID#  
NM000333211, HWB-WRG-20-002. October 13.



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## **Figures**



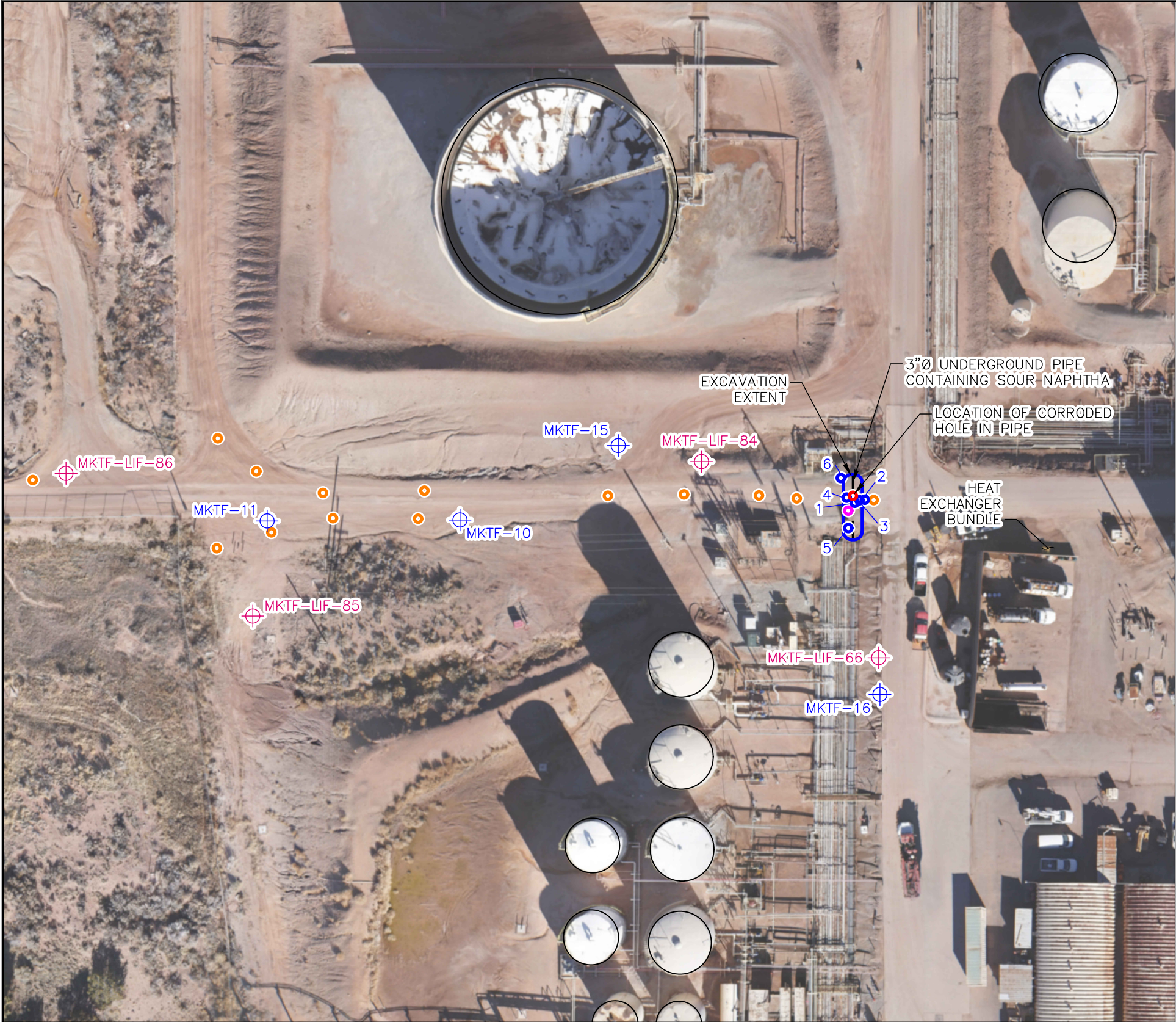


Image Cite: USDA /fsa - Aerial Photography Field Office, NAIP MrSID - Publication: 2014

**2 PROPOSED SOIL BORING LOCATIONS**  
SCALE: 1" = 60'

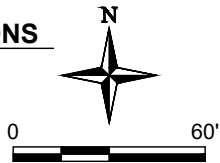
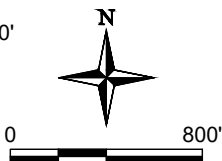


Image Cite: USDA /fsa - Aerial Photography Field Office, NAIP MrSID - Publication: 2014

**1 KEY MAP**  
SCALE: 1" = 800'



**EXPLANATION**

- TANK
- SOUR NAPHTHA RELEASE
- UNDERGROUND PRODUCT PIPELINE
- SOUR NAPHTHA RELEASE EXCAVATION EXTENT AREA
- MKTF-LIF-66 LIF BORING LOCATION AND DESIGNATION
- MKTF-16 CHINLE/ALLUVIUM INTERFACE WELL AND DESIGNATION
- HISTORICAL SOIL SAMPLE LOCATION
- PROPOSED SOIL BORING LOCATION
- PROPOSED EVACUATION BACKFILL SAMPLE
- LIF LASER-INDUCED FLORESCENCE

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CORPORATION

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

**FIGURE 5**

**PROPOSED SOIL BORING LOCATIONS**

**GALLUP REFINERY  
GALLUP, NEW MEXICO**

Drawn By: REP    Checked By: CF    Scale: AS SHOWN    Date: 12/22/21    File: 697-SOURNAPHTHARELEASE-202112

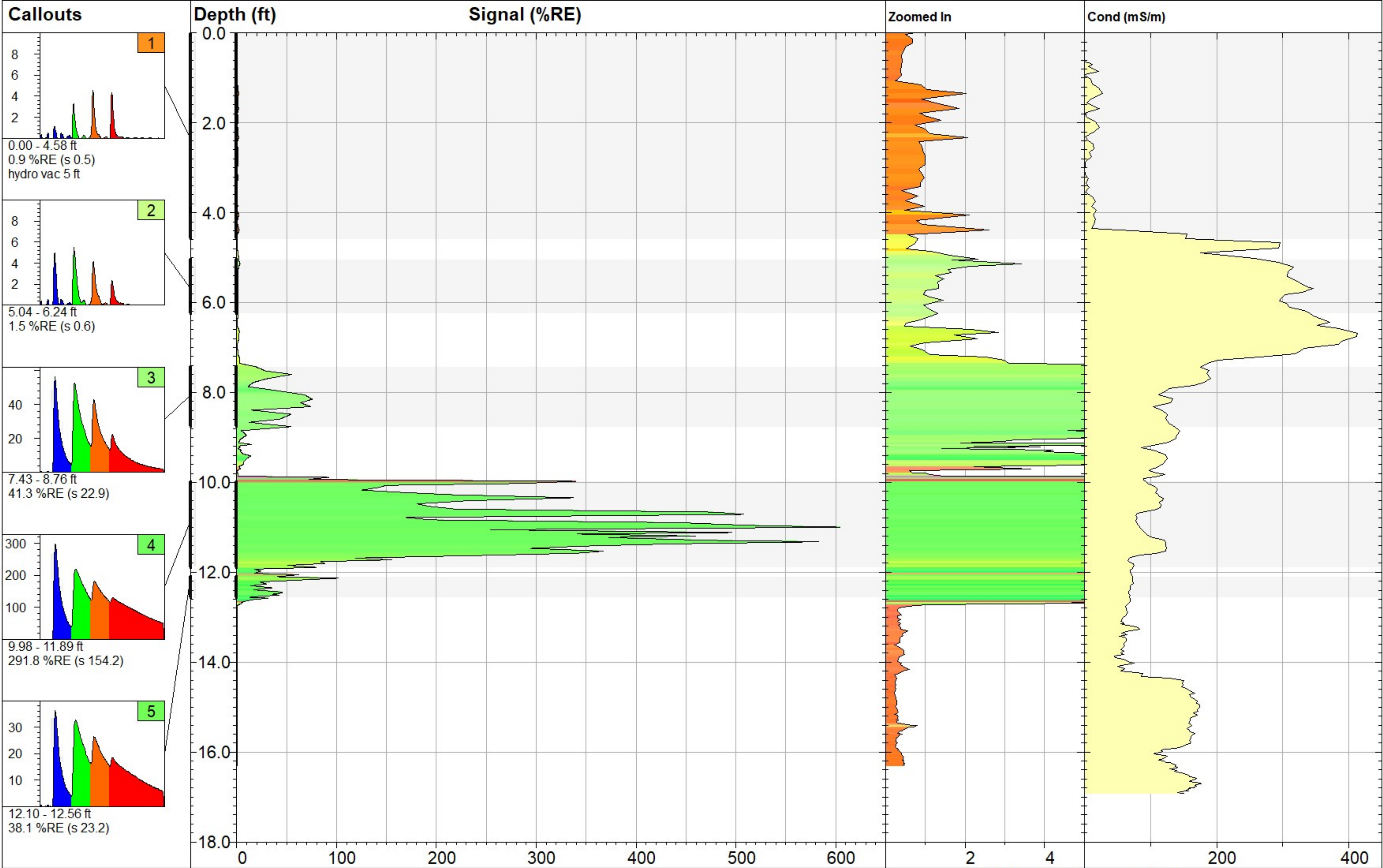





Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

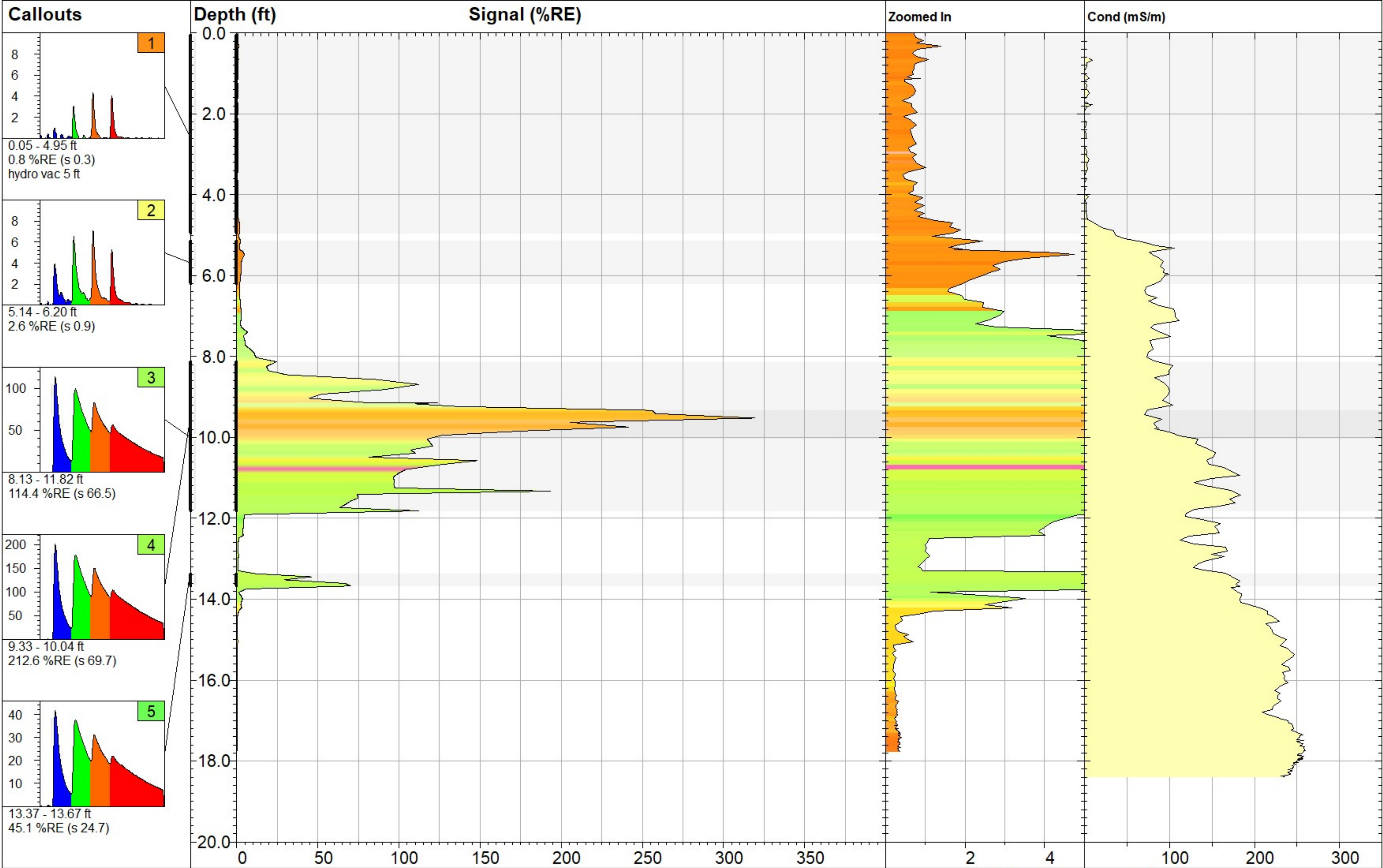
## **Appendix A**


### **Laser Induced Fluorescence (LIF) Results**



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





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



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## **Appendix B**

### **Standard Operating Procedures**





## memorandum

**To:** Sampling Team Members  
**From:** Project Manager  
**Date:** August 23, 2021  
**Re:** Standard Operating Procedure – Soil Sampling

---

### 1.0 INTRODUCTION

Soil sampling related to site characterization and site clean-up is expected to involve source sampling of potentially impacted soils for characterization and profiling. Soil sampling is expected to occur around the sour naphtha release area.

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

### 2.0 PRE-FIELD ACTIVITIES

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

### 3.0 PREPARATION

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

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



Sampling Team Members  
August 23, 2021  
Page 3

#### **4.0 EQUIPMENT**

The following equipment is recommended for soil sampling:

- Required personal protective equipment (PPE), listed in the site-specific health and safety plan (HASP)
- Soil sampling devices (i.e., hand auger)
- Sampling beaker, bottles, labels, and preservatives
- Gloves
- Chain-of-custody/sample-analysis-request forms
- PID
- Global Positioning System (GPS) unit
- Opaque Cooler(s) and bagged ice or frozen Blue Ice
- Detergent or solvent for cleaning monitoring equipment
- Brushes dedicated for decontamination
- Decontamination containers dedicated for wash, rinse 1, and rinse 2
- Paper towels
- Trash bags
- Field logbook

#### **5.0 SAMPLE COLLECTION**

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

Soil samples located in dry areas will be collected from representative locations using a decontaminated drive sampler equipped with clean brass or stainless steel sampling rings, a thin-walled tube sampler, or a shovel or hand trowel. The sampling device will be driven completely into the material manually or using a manually operated auger, drive hammer, or mallet. The sampling device will then be extracted from the material using a shovel or trowel as needed. If used, filled sampling rings or the thin walled tube will



Sampling Team Members  
August 23, 2021  
Page 3

then be removed from the sampling device and immediately sealed on both ends with teflon sheeting and plastic caps. Otherwise, the material will be placed directly from the trowel or other appropriate sampling device into a clean glass jar. The jar will be filled completely to minimize headspace (by tamping during filling), and immediately sealed with a teflon-lined lid.

If necessary, several cores may be collected from each location to provide adequate sample volume for the laboratory. The sample containers will be labeled with indelible ink. Filled sample containers should be wiped dry and placed in a cooler with ice (or equivalent) for storage at the time of collection. Enough ice and protective packing material should be used to cool the samples to 4°C and ensure that the container remains intact prior to final packing and shipment.

Field screening may involve the use of a PID. In this case, material will be placed from the trowel or other appropriate sampling device into a bag. The PID will be inserted into the bag and the reading taken. All samples shall be screened at as close to the same temperature as possible to obtain consistent results. After collecting the reading, the material will be transferred from the bag into a clean glass jar as described above.

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

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

697-076-002

**ATTACHMENT B-2**  
**(PLEASE SEE ATTACHED CD)**  
**REDLINE**



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan



**WESTERN REFINING SOUTHWEST LLC  
SOUR NAPHTHA RELEASE  
INVESTIGATION WORK PLAN  
MARATHON GALLUP REFINERY  
GALLUP, NEW MEXICO  
EPA ID# NMD000333211**

---

SUBMITTED BY: Trihydro Corporation

1252 Commerce Drive, Laramie, WY 82070



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## Executive Summary

Western Refining Southwest, LLC is submitting this Investigation Work Plan for the investigation of soils in the vicinity and down gradient of a sour naphtha release to determine the extent of hydrocarbon impacts. This Investigation Work Plan was requested by New Mexico Environment Department (NMED) to install soil borings near previous sample locations from the initial investigation.

On March 26, 2017, a release was detected on a service road by an operator. The release was identified as a sour naphtha soil seep with two areas of sour naphtha pooled along the sloped road base. The release was immediately blocked by isolating the leaking line. A corrosion hole was found in a carbon steel pipeline located approximately 4 feet below the ground surface. The estimated volume released was less than 210 gallons.

Following the release, approximately 16 tons of impacted soil were excavated. Samples were collected and submitted for laboratory analysis for waste characterization purposes. One sample was collected for disposal characterization and was analyzed for volatile organic compounds which exhibited elevated benzene, toluene, ethylbenzene, and total xylenes. The area was backfilled with clean soil and the excavated soil was disposed of offsite (MPC 2019).

This Investigation Work Plan proposes collecting soil samples to determine if additional soil excavation is necessary. This investigation will reduce data gaps from previous efforts and will be utilized to determine if additional excavation or further investigation is warranted.

The recently completed laser-induced fluorescence (LIF) study (May 2021) provided data that indicated potential naphtha detections west of the original investigation area. Therefore, in addition to the requested investigation by NMED, the Refinery also proposes to add three-one additional soil borings ~~along the road~~ downgradient of the release to evaluate potential sour naphtha occurrences to the west.





Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

~~In addition to the sour naphtha investigation, the Refinery proposes performing additional drilling to the south to evaluate benzene exceedances in monitoring well MKTF-16. The proximity of MKTF-16 to the sour naphtha release may be the cause for increased detections. Therefore, the Refinery will install six soil borings along the road from the sour naphtha release south to MKTF-16.~~

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Sour Naphtha Investigation Work Plan

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- A. LASER INDUCED FLUORESCENCE (LIF) RESULTS
- B. STANDARD OPERATING PROCEDURES



## Western Refining Southwest, LLC Sour Naphtha Investigation Work Plan

### Introduction

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

Trihydro Corporation has prepared this Investigation Work Plan for the investigation of soils near a sour naphtha release that occurred in 2017. The proposed investigation includes collecting samples to satisfy the comments in the New Mexico Environment Department's (NMED) "Disapproval, Response Action Report Sour Naphtha Release" (NMED 2020). NMED comments #5, 6, and 11 require the Refinery to submit a work plan to delineate the eastern and western extents of the release and to delineate the extent of the surface and subsurface release (NMED 2020). In addition to the requested investigation by NMED, the Refinery proposes to ~~add 3 complete 1~~ boring ~~s along the road~~ near the west extent of the release in response to data collected during the 2021 Laser Induced Fluorescence Investigation (May 2021).

~~Western Refining Southwest, LLC also plans to investigate the sour naphtha release as a possible source of benzene exceedances in monitoring well MKTF-16. MKTF-16 is south of the sour naphtha release along an underground sewer corridor. The Refinery proposes to install six soil borings between the sour naphtha release and MKTF-16 to evaluate this potential connection.~~

### Background

The Refinery is a crude oil refinery (currently indefinitely idled) that processes crude oil transported by pipeline or tanker truck from the Four Corners region. Various process units that have operated at the Refinery include crude distillation, reformer, fluidized catalytic cracker, alkylation, sulfur recovery, mercox treater, and hydrotreater. Past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

As detailed in the "Response Action Report, Sour Naphtha Release" (MPC 2019), on March 26, 2017, an operator detected sour naphtha in a saturated soil seep, approximately 4 ft by 4 ft, in a service road. The sour naphtha flowed approximately 332 ft westerly downhill along the middle and sides of the service road (Figure 3). Two areas of sour naphtha pooled at the sloping road base. The leak was immediately isolated by



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

the operator by blocking valves. The estimated sour naphtha volume released was less than 5 barrels (210 gallons).

The purpose of this Investigation Work Plan is to collect soil samples to delineate the surface and subsurface extent of any remaining contamination and determine if further investigation or remediation is necessary.

### Previous Investigation

Following the discovery of the release, impacted soil was excavated. An area approximately 20 ft long (parallel to the pipeline) by 4 ft wide by 4 ft deep was excavated. In addition, the pipe was exposed and repaired. Visibly impacted soil in and around the release area was excavated and placed in 20 cubic yard bins for off-site disposal. Approximately 16 tons of soil were excavated.

On March 30, 2017, a total of six soil samples were collected from excavated soil for waste characterization (Figure 4). Based on analytical results, the 16 tons of soil were treated as hazardous waste and transported offsite for disposal. The excavated area was backfilled with clean soil and the service road was reopened.

## Site Conditions

### Surface Conditions

Local site topographic features include high ground in the southeast gradually decreasing to a lowland fluvial plain to the northwest. Elevations on the refinery property range from 6,860 ft above mean sea level (amsl) to 7,040 ft amsl. The release area service road elevation is approximately 6,951 ft amsl. The release flowed downhill to the west and collected at the base of the hill. The elevation at the base of the hill is approximately 6,932 ft amsl. In responding to the release, the maintenance department built several berms to contain the sour naphtha release.

### Subsurface Conditions

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



## Western Refining Southwest, LLC Sour Naphtha Investigation Work Plan

### Scope of Activities

The investigative activities of the sour naphtha release area will be completed in order to delineate horizontal hydrocarbon impacts and collect subsurface soil samples. In addition, surface samples will be collected along the service road. Pending NMED approval, Western Refining Southwest, LLC anticipates the investigation will be completed during 2021.

This investigation includes soil borings directly to the west and east of the release area (Figure 5) and ~~surface soil boring~~ samples (~~1 to 16 ft bgs-ft bgs~~) along the road to the west of the release (Figure 6). Based on the depth of excavation and to evaluate the construction worker exposure, it is anticipated that the depth of the soil borings near the release will be approximately 10 ft.

Soil samples will be collected at the following locations:

- The first soil boring is approximately 15 ft west of sample location #4 from the original investigation (Figure 5). This is the minimum distance to the west of the release where a direct push sample may be collected without intercepting the underground pipelines in the area.
- The second soil boring is approximately 5 ft east of sample location #2 from the original investigation.

~~Surface samples will be collected at the following locations:~~

- ~~11 surface samples collected at 1 ft bgs as indicated in Figure 6; soil borings to the west of the release beginning at 1 ft bgs and continued at 5 foot intervals to a depth of 16 ft bgs, or until refusal, for a maximum of 44 samples.~~
- One backfill sample from the previous excavation, collected at 2 ft bgs, will be collected as required in comment #4, "Approval with Modifications, Response Action Report Sour Naphtha Release" (MPC 2020).

Based on results from the May 2021 LIF investigation, the Refinery proposes ~~three-one~~ additional soil borings, collecting samples at depths of ~~8 to 12 ft~~ 1 ft bgs and continued at 5 foot intervals to 16 ft bgs along the road to the west of the sour naphtha release (Figure 5). LIF logs for MKTF-LIF-85 and MKTF-LIF-86 (provided in Appendix A) indicated the potential presence of naphtha and the additional borings will further delineate the release.



## Western Refining Southwest, LLC Sour Naphtha Investigation Work Plan

~~NMED requested a separate investigation into the Heat Exchanger Bundle Pad area due to benzene exceedances in nearby monitoring well MKTF-16. MKTF-16 is south of the sour naphtha release area and lies along an underground sewer corridor. MKTF-16 has routinely exceeded the benzene standard and increased following the 2017 sour naphtha release. Based on the proximity to the sour naphtha release, the Refinery plans to collect additional soil samples from borings to the south of the sour naphtha release to evaluate the potential for impacts from the release south toward MKTF-16 as shown on Figure 5.~~

### Field Screening

All soil borings will be continuously logged, and samples will be field screened for evidence of contaminants. Field screening results will be recorded on the exploratory boring logs. Field screening results will be used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds (VOC). Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds or other substances that may cause staining of soils. Headspace vapor screening targets VOC and involves placing a soil sample in a plastic sample bag and allow the sample to come to temperature. A photo-ionization detector (PID) equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator will be used for VOC field screening. 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 result and the ambient air temperature will be recorded on the field boring log for each sample.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation.

Discrete soil samples will be retained for laboratory analysis from within the following intervals:

- ~~• Every 2.5 ft bgs to a depth of 10 ft bgs for the 8 soil borings near the sour naphtha release and to the south toward MKTF-16 (Figure 5).~~
- ~~• Every 2 ft bgs between depths of 8 and 12 ft bgs for the 3 soil borings near the road to the west of the sour naphtha release (Figure 5).~~
- Every 5 ft bgs beginning at 1 ft bgs to a depth of 16 ft bgs for the 14 soil borings along the road of the sour naphtha release 1 ft bgs for the 11 soil surface samples (Figure 65).



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

- 2 ft bgs for the previous excavation backfill sample.

Samples may also be collected if elevated PID readings are recorded. Sample intervals will then be adjusted by the qualified field personnel and noted in the field logs to document the updated intervals. Soil samples will be collected at each boring location at 1 ft bgs to delineate the surface conditions. The physical characteristics of the samples, depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by qualified field personnel. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will be recorded on the logs.

### Sample Collection Procedures

Samples will be collected and screened in accordance with the Standard Operating Procedure provided in Appendix B. Details related to sample collection will be documented on the soil screening field forms which will be included in the Investigation Report.

Surface samples will be collected using a decontaminated dig bar, trowel, or hand auger to reach 1 ft depth (2 ft depth for the backfill sample). The sample will be collected by hand, using nitrile gloves, and placed in a sealable plastic bag for analysis.

Soil boring samples will be collected using direct push sampling techniques to collect sample cores at the predetermined depths. The cores will be logged by qualified field personnel onsite and collected in sealable plastic bags for analysis.

Equipment will be decontaminated before collecting each sample, and equipment decontamination will be noted on the field forms. Upon collection, samples will be placed into jars will be filled, labeled, and placed in a cooler. Before shipment, each cooler will be packed with ice and one temperature blank. A chain of custody (CoC) form will accompany each sample shipment. Coolers will be sealed and delivered to Hall Environmental Analytical Laboratory in Albuquerque, New Mexico.



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## Laboratory Analysis

Collected samples will be analyzed for hydrocarbon impacts with the following methods:

- Method 8015M/D – total petroleum hydrocarbons-gasoline range organics (TPH-GRO)
- Method 8260B – benzene, ethylbenzene, toluene, and total xylenes (BETX)

In addition, as requested in comment 4, “Approval with Modifications, Response Action Report Sour Naphtha Release” (NMED, 2020), the confirmation sample collected from the previous excavation backfill will also be analyzed for:

- Method 8260B – volatile organic compounds (VOC)
- Method 8270 SIMs - polycyclic aromatic hydrocarbons (PAH)
- Method 8015M/D – ~~total petroleum hydrocarbons-diesel range organics (TPH-DRO)~~
- Method 8015M/D – ~~total petroleum hydrocarbons-motor oil range organics (TPH-MRO)~~
- EPA Method 6010B/7471 - Resource Conservation and Recovery Act (RCRA) 8 Metals

## Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. Field duplicates will be collected at a rate of 10 percent (%) of all samples collected, or at a minimum of one per day. Equipment blanks will be collected from re-usable equipment at a rate of 10%, or at a minimum of one per day. A trip blank will be included in each cooler. The field duplicate and blank samples will be submitted to the laboratory along with the soil samples. QA/QC samples will be recorded on the field forms and CoCs. All data will undergo Tier II data validation.

## Data Evaluation

The soil confirmation sampling results will be compared to NMED Industrial and Construction Worker SSLs to determine if further excavation and/or investigation is necessary. The Industrial SSLs will be compared against soils collected from 0 to 1 ft bgs. Soil samples with depths greater than 1 ft bgs will be compared to the Construction Worker SSLs. Soil recovered during sampling will be placed in drums, labeled, and stored on the 90 Day Pad to be characterized prior to disposal.





Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## Monitoring and Sampling Program

No groundwater, ambient air, subsurface vapor, remediation systems, engineering controls, or other monitoring and sampling programs are currently being implemented at the sour naphtha release. There are several monitoring wells in the vicinity of the release that are monitored as part of the Refinery's groundwater monitoring program. Data collected from this investigation will be used to evaluate the potential presence of impacted soil, which will allow for planning of future investigation or remediation activities, if needed.

## Schedule

Pending NMED approval, the Refinery anticipates the investigation to be completed during 2021. Once the investigation has been completed, the Refinery will submit an investigation report to NMED summarizing the sample results and investigation conclusions within 90 days of the receipt of the analytical data.

## References

- Marathon Petroleum Company (MPC). 2019. Response Action Report Sour Naphtha, Gallup Refinery  
Marathon Petroleum Company LP, Gallup, New Mexico, EPA ID# NM000333211, HWB-WRG-20-002.  
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- New Mexico Environment Department (NMED). 2020. Approval with Modifications, Response Action Report  
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NM000333211, HWB-WRG-20-002. October 13.



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## Figures



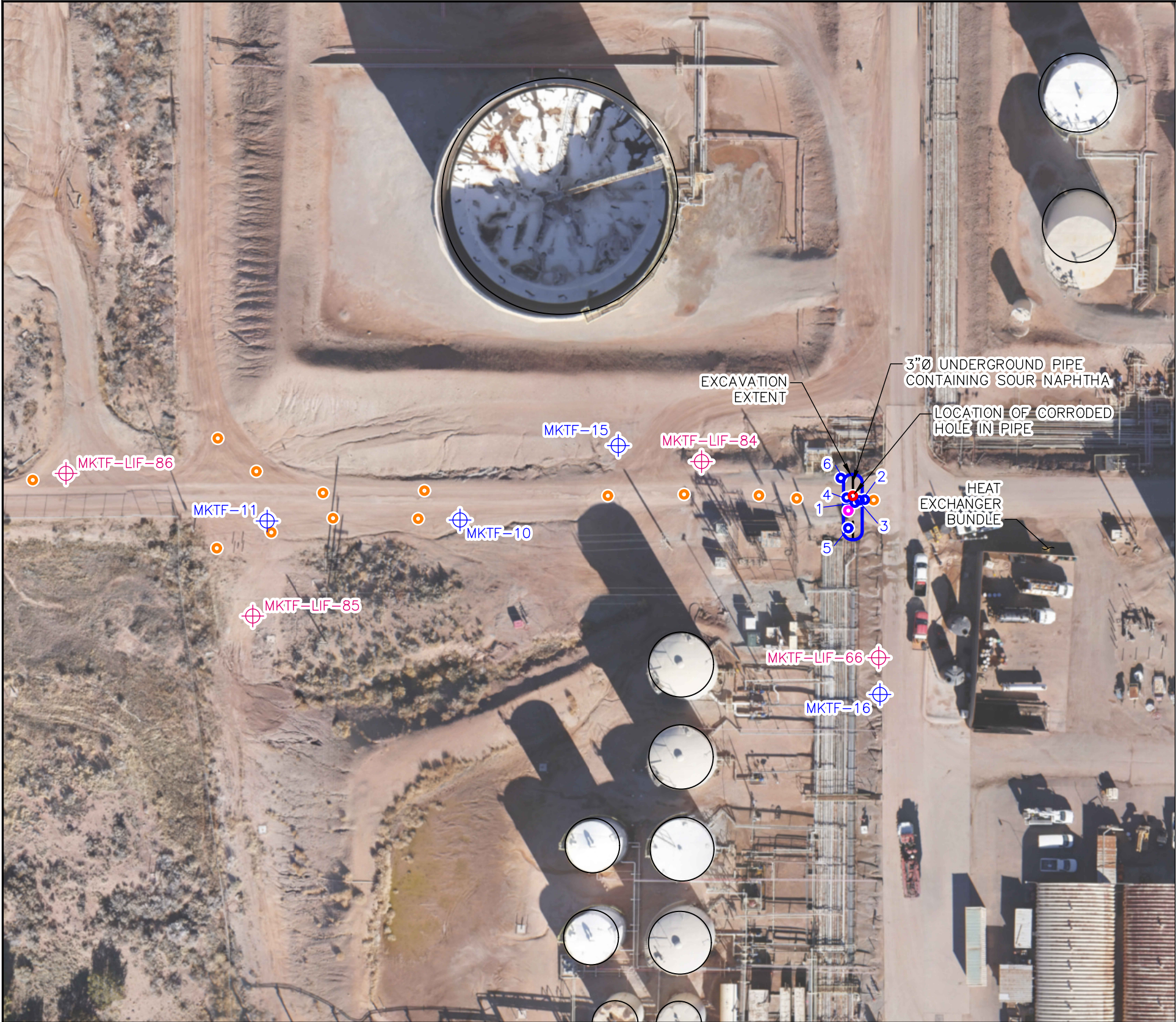


Image Cite: USDA /fsa - Aerial Photography Field Office, NAIP MrSID - Publication: 2014

**2 PROPOSED SOIL BORING LOCATIONS**  
SCALE: 1" = 60'

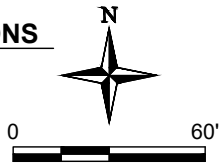
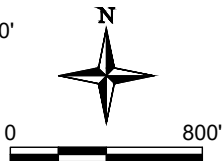


Image Cite: USDA /fsa - Aerial Photography Field Office, NAIP MrSID - Publication: 2014

**1 KEY MAP**  
SCALE: 1" = 800'



**EXPLANATION**

- TANK
- SOUR NAPHTHA RELEASE
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(P) 307/745.7474 (F) 307/745.7729

FIGURE 5	
PROPOSED SOIL BORING LOCATIONS	
GALLUP REFINERY GALLUP, NEW MEXICO	

Drawn By: REP	Checked By: CF	Scale: AS SHOWN	Date: 12/22/21	File: 697-SOURNAPHTHARELEASE-202112
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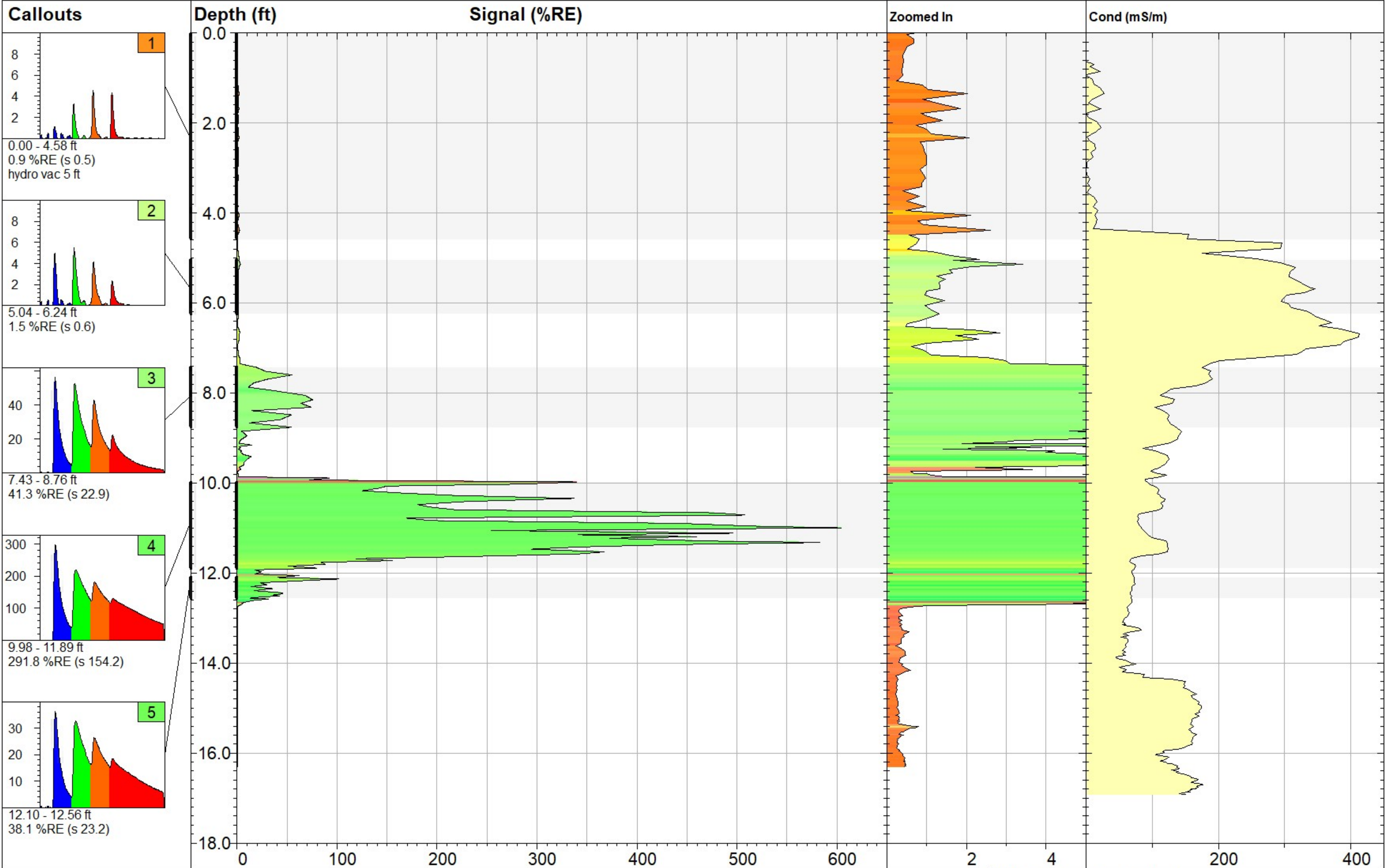





Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

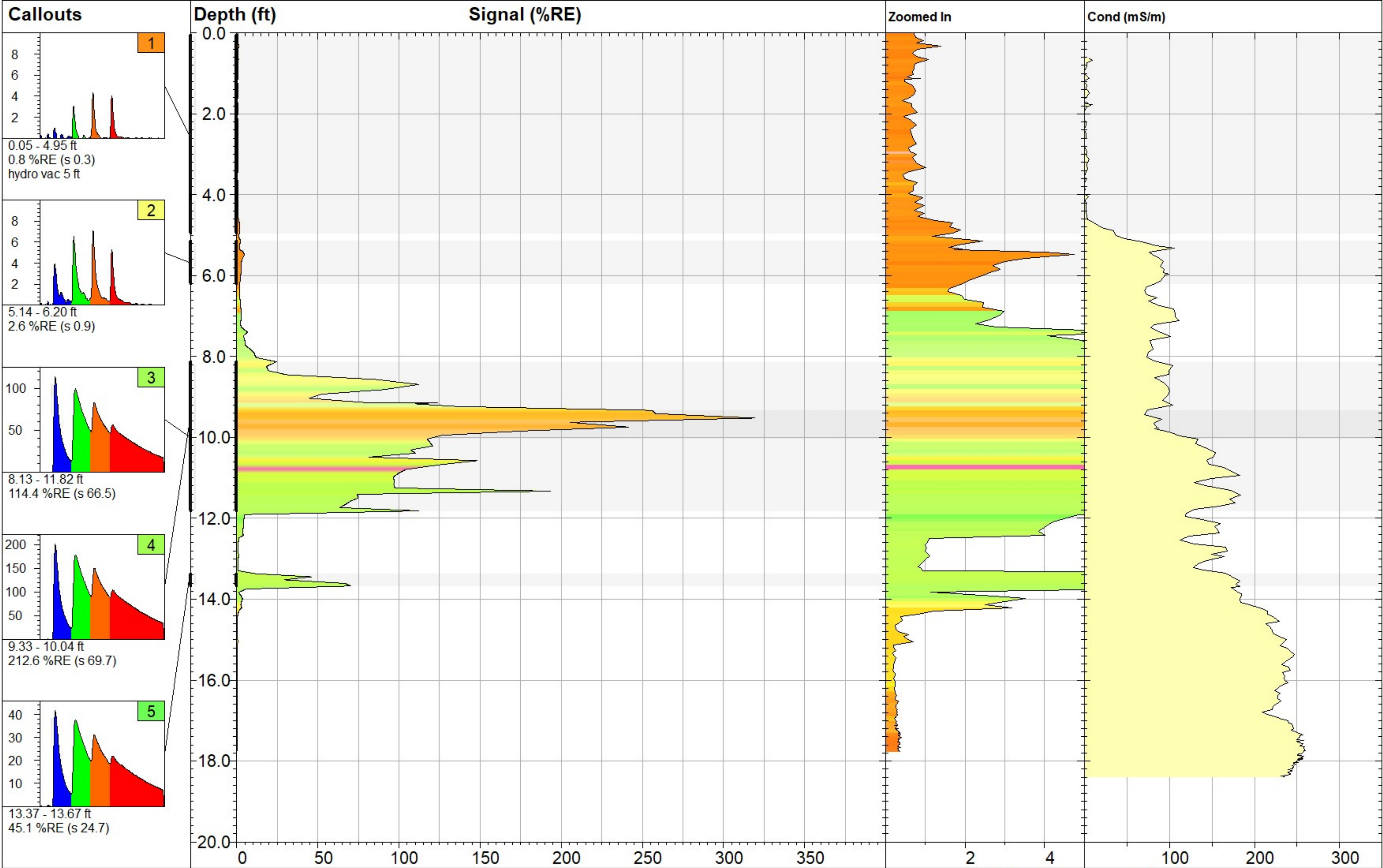
## **Appendix A**


### **Laser Induced Fluorescence (LIF) Results**



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





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



Western Refining Southwest, LLC  
Sour Naphtha Investigation Work Plan

## **Appendix B**

### **Standard Operating Procedures**





## memorandum

**To:** Sampling Team Members  
**From:** Project Manager  
**Date:** August 23, 2021  
**Re:** Standard Operating Procedure – Soil Sampling

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### 1.0 INTRODUCTION

Soil sampling related to site characterization and site clean-up is expected to involve source sampling of potentially impacted soils for characterization and profiling. Soil sampling is expected to occur around the sour naphtha release area.

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

### 2.0 PRE-FIELD ACTIVITIES

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

### 3.0 PREPARATION

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

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





Sampling Team Members  
August 23, 2021  
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#### **4.0 EQUIPMENT**

The following equipment is recommended for soil sampling:

- Required personal protective equipment (PPE), listed in the site-specific health and safety plan (HASP)
- Soil sampling devices (i.e., hand auger)
- Sampling beaker, bottles, labels, and preservatives
- Gloves
- Chain-of-custody/sample-analysis-request forms
- PID
- Global Positioning System (GPS) unit
- Opaque Cooler(s) and bagged ice or frozen Blue Ice
- Detergent or solvent for cleaning monitoring equipment
- Brushes dedicated for decontamination
- Decontamination containers dedicated for wash, rinse 1, and rinse 2
- Paper towels
- Trash bags
- Field logbook

#### **5.0 SAMPLE COLLECTION**

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

Soil samples located in dry areas will be collected from representative locations using a decontaminated drive sampler equipped with clean brass or stainless steel sampling rings, a thin-walled tube sampler, or a shovel or hand trowel. The sampling device will be driven completely into the material manually or using a manually operated auger, drive hammer, or mallet. The sampling device will then be extracted from the material using a shovel or trowel as needed. If used, filled sampling rings or the thin walled tube will



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then be removed from the sampling device and immediately sealed on both ends with teflon sheeting and plastic caps. Otherwise, the material will be placed directly from the trowel or other appropriate sampling device into a clean glass jar. The jar will be filled completely to minimize headspace (by tamping during filling), and immediately sealed with a teflon-lined lid.

If necessary, several cores may be collected from each location to provide adequate sample volume for the laboratory. The sample containers will be labeled with indelible ink. Filled sample containers should be wiped dry and placed in a cooler with ice (or equivalent) for storage at the time of collection. Enough ice and protective packing material should be used to cool the samples to 4°C and ensure that the container remains intact prior to final packing and shipment.

Field screening may involve the use of a PID. In this case, material will be placed from the trowel or other appropriate sampling device into a bag. The PID will be inserted into the bag and the reading taken. All samples shall be screened at as close to the same temperature as possible to obtain consistent results. After collecting the reading, the material will be transferred from the bag into a clean glass jar as described above.

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

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

697-076-002

**ATTACHMENT C**

Conforms to HCS 2012 - United States

# SAFETY DATA SHEET

**Naphtha Sour / HSR (Heavy Straight Run)**

## Section 1. Identification

**GHS product identifier** : Naphtha Sour / HSR (Heavy Straight Run)

**Other means of identification** : Not available.

**Product type** : Liquid.

### Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** : Unit Feed (NHT)

**Supplier's details** : Western Refining Company LP  
123 W. Mills Avenue  
El Paso, TX 79901  
Tel: 915-534-1488  
Email: Sds-inquiry@wnr.com

**Emergency telephone number (with hours of operation)** : CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3877 (24/7)

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 2  
SKIN IRRITATION - Category 2  
EYE IRRITATION - Category 2A  
GERM CELL MUTAGENICITY - Category 1  
CARCINOGENICITY - Category 1A  
TOXIC TO REPRODUCTION (Unborn child) - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1  
ASPIRATION HAZARD - Category 1

### GHS label elements

**Hazard pictograms****Signal word****Hazard statements**

: Danger

: H225 - Highly flammable liquid and vapor.  
H319 - Causes serious eye irritation.  
H315 - Causes skin irritation.  
H340 - May cause genetic defects.  
H350 - May cause cancer.  
H361 - Suspected of damaging the unborn child.  
H304 - May be fatal if swallowed and enters airways.  
H372 - Causes damage to organs through prolonged or repeated exposure. (hearing organs)

Naphtha Sour / HSR (Heavy Straight Run)

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## Section 2. Hazards identification

### Precautionary statements

#### Prevention

- : P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
- P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P233 - Keep container tightly closed.
- P260 - Do not breathe vapor.
- P270 - Do not eat, drink or smoke when using this product.
- P264 - Wash hands thoroughly after handling.

#### Response

- : P314 - Get medical attention if you feel unwell.
- P308 + P313 - IF exposed or concerned: Get medical attention.
- P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse.
- P332 + P313 - If skin irritation occurs: Get medical attention.
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 - If eye irritation persists: Get medical attention.

#### Storage

- : P405 - Store locked up.
- P403 - Store in a well-ventilated place.
- P235 - Keep cool.

#### Disposal

- : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### Hazards not otherwise classified

- : MAY RELEASE HIGHLY TOXIC AND FLAMMABLE HYDROGEN SULFIDE (H<sub>2</sub>S) GAS.

### Substance/mixture

- : Mixture information on ingredients

### Other means of identification

- : Not available.

### CAS number/other identifiers

#### CAS number

- : Not applicable.

#### Product code

- : Not available.

Ingredient name	%	CAS number
Naphtha (petroleum), unsweetened	100	68783-12-0
<b>May contain:</b>		
Benzene	<5	71-43-2
Toluene	<5	108-88-3
Ethylbenzene	<5	100-41-4
Xylene	<5	1330-20-7
Hydrogen sulphide	Trace	7783-06-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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## Section 3. Composition/information on ingredients

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : May be fatal if swallowed and enters airways.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No special protection is required.

See toxicological information (Section 11)

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## Section 5. Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing media

- : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- : Do not use water jet or water-based fire extinguishers.

#### Unsuitable extinguishing media

#### Specific hazards arising from the chemical

- : Highly flammable liquid and vapor. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- : Decomposition products may include the following materials:

#### Hazardous thermal decomposition products

carbon dioxide  
carbon monoxide

#### Special protective actions for fire-fighters

- : Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

#### Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

- : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

#### For emergency responders

- : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

#### Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### Methods and materials for containment and cleaning up

#### Spill

- : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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## Section 7. Handling and storage

### Precautions for safe handling

#### Protective measures

: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

#### Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

#### Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Naphtha (petroleum), unsweetened Benzene	None. <b>ACGIH TLV (United States, 3/2015). Absorbed through skin.</b> TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m <sup>3</sup> 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m <sup>3</sup> 15 minutes. <b>OSHA PEL Z2 (United States, 2/2013).</b> TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes. <b>NIOSH REL (United States, 10/2013).</b> TWA: 0.1 ppm 10 hours. STEL: 1 ppm 15 minutes. <b>OSHA PEL (United States, 2/2013).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes. <b>OSHA PEL Z2 (United States, 2/2013).</b> TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. <b>NIOSH REL (United States, 10/2013).</b> TWA: 100 ppm 10 hours. TWA: 375 mg/m <sup>3</sup> 10 hours. STEL: 150 ppm 15 minutes. STEL: 560 mg/m <sup>3</sup> 15 minutes. <b>ACGIH TLV (United States, 3/2015).</b> TWA: 20 ppm 8 hours.
Toluene	
Ethylbenzene	



## Section 8. Exposure controls/personal protection

Xylene

Hydrogen sulphide

**ACGIH TLV (United States, 3/2015).**

TWA: 20 ppm 8 hours.

**NIOSH REL (United States, 10/2013).**

TWA: 100 ppm 10 hours.

TWA: 435 mg/m<sup>3</sup> 10 hours.

STEL: 125 ppm 15 minutes.

STEL: 545 mg/m<sup>3</sup> 15 minutes.**OSHA PEL (United States, 2/2013).**

TWA: 100 ppm 8 hours.

TWA: 435 mg/m<sup>3</sup> 8 hours.**ACGIH TLV (United States, 3/2015).**

TWA: 100 ppm 8 hours.

TWA: 434 mg/m<sup>3</sup> 8 hours.

STEL: 150 ppm 15 minutes.

STEL: 651 mg/m<sup>3</sup> 15 minutes.**OSHA PEL (United States, 2/2013).**

TWA: 100 ppm 8 hours.

TWA: 435 mg/m<sup>3</sup> 8 hours.**ACGIH TLV (United States, 3/2015).**

TWA: 1 ppm 8 hours.

STEL: 5 ppm 15 minutes.

**OSHA PEL Z2 (United States, 2/2013).**

CEIL: 20 ppm

AMP: 50 ppm 10 minutes.

**NIOSH REL (United States, 10/2013).**

CEIL: 10 ppm 10 minutes.

CEIL: 15 mg/m<sup>3</sup> 10 minutes.**Appropriate engineering controls**

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls**

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

**Individual protection measures****Hygiene measures**

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection**

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

**Skin protection****Hand protection**

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: Butyl rubber. Polyethylene. Chlorinated polyethylene.

**Body protection**

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

**Other skin protection**

- : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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## Section 8. Exposure controls/personal protection

- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.  
**Color** : Clear to Yellow.  
**Odor** : Hydrocarbon.  
**Odor threshold** : Not available.  
**pH** : Not available.  
**Melting point** : Not available.  
**Boiling point** : 71 to 177°C (160 to 350°F)  
**Flash point** : Closed cup: <-6.67°C (<20°F) [Pensky-Martens.]  
**Evaporation rate** : Not available.  
**Flammability (solid, gas)** : Not available.  
**Lower and upper explosive (flammable) limits** : Lower: 1.4%  
Upper: 7.6%  
**Vapor pressure** : 1-2 psi / 6.9 - 13.9 kPa  
**Vapor density** : 3 to 4 [Air = 1]  
**Relative density** : 0.7 to 0.8  
**Solubility** : Not available.  
**Partition coefficient: n-octanol/water** : Not available.  
**Auto-ignition temperature** : 280 to 456.11°C (536 to 853°F)  
**Decomposition temperature** : Not available.  
**Viscosity** : Not available.

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

- Chemical stability** : The product is stable.

- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials.

- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Benzene	LD50 Oral	Rat	930 mg/kg	-
Toluene	LC50 Inhalation Vapor	Rat	49 g/m <sup>3</sup>	4 hours
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
Xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
Hydrogen sulphide	LC50 Inhalation Gas.	Rat	444 ppm	4 hours
	LC50 Inhalation Vapor	Rat	700 mg/m <sup>3</sup>	4 hours

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Benzene	Eyes - Moderate irritant	Rabbit	-	88 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 µL	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 mg	-
	Eyes - Mild irritant	Rabbit	-	870 µg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Pig	-	24 hours 250 µL	-
	Skin - Mild irritant	Rabbit	-	435 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Skin - Moderate irritant	Rabbit	-	500 mg	-
Ethylbenzene	Eyes - Severe irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
Xylene	Eyes - Mild irritant	Rabbit	-	87 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 µL	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	100 %	-

#### Sensitization

There is no data available.

#### Mutagenicity

There is no data available.

#### Carcinogenicity

##### Classification

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
Benzene	+	1	Known to be a human carcinogen.	A1	-	+
Toluene	-	3	-	A4	-	-
Ethylbenzene	-	2B	-	A3	-	-
Xylene	-	3	-	A4	-	-

#### Reproductive toxicity

There is no data available.

#### Teratogenicity

There is no data available.

#### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Toluene	Category 3	Not applicable.	Narcotic effects

#### Specific target organ toxicity (repeated exposure)

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**Section 11. Toxicological information**

Name	Category	Route of exposure	Target organs
Benzene	Category 1	Not determined	Not determined
Toluene	Category 2	Not determined	Not determined
Ethylbenzene	Category 2	Not determined	hearing organs

**Aspiration hazard**

Name	Result
Naphtha Sour / HSR (Heavy Straight Run)	ASPIRATION HAZARD - Category 1
Naphtha (petroleum), unsweetened	ASPIRATION HAZARD - Category 1
Benzene	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1

**Information on the likely routes of exposure** : Dermal contact. Eye contact. Inhalation. Ingestion.

**Potential acute health effects**

**Eye contact** : Causes serious eye irritation.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : Causes skin irritation.  
**Ingestion** : May be fatal if swallowed and enters airways.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Eye contact** : Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness  
**Inhalation** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
 nausea or vomiting  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

**Potential immediate effects** : No known significant effects or critical hazards.

**Potential delayed effects** : No known significant effects or critical hazards.

**Long term exposure**

**Potential immediate effects** : No known significant effects or critical hazards.

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## Section 11. Toxicological information

**Potential delayed effects** : No known significant effects or critical hazards.

### Potential chronic health effects

**General** : Causes damage to organs through prolonged or repeated exposure.  
**Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.  
**Mutagenicity** : May cause genetic defects.  
**Teratogenicity** : Suspected of damaging the unborn child.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Oral	13983.2 mg/kg
Dermal	24511.1 mg/kg
Inhalation (gases)	111414.1 ppm
Inhalation (vapors)	245.1 mg/L

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Benzene	Acute EC50 1600000 µg/L Fresh water Chronic NOEC 98 mg/L Fresh water Chronic NOEC 1.5 to 5.4 µl/L Marine water	Algae - Selenastrum sp. Daphnia - Daphnia magna Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 21 days 4 weeks
Toluene	Acute EC50 11600 µg/L Fresh water Acute EC50 6000 µg/L Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours 48 hours
Ethylbenzene	Chronic NOEC 2 mg/L Fresh water Acute EC50 13300 µg/L Fresh water	Daphnia - Daphnia magna Crustaceans - Artemia sp. - Nauplii	21 days 48 hours
Hydrogen sulphide	Acute LC50 13900 µg/L Fresh water Acute EC50 62 µg/L Fresh water Acute LC50 2 µg/L Fresh water	Daphnia - Daphnia magna - Neonate Crustaceans - Gammarus pseudolimnaeus Fish - Coregonus clupeaformis - Yolk-sac fry	48 hours 2 days 96 hours

### Persistence and degradability

There is no data available.

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Naphtha (petroleum), unsweetened	-	10 to 2500	high
Benzene	2.13	11	low
Toluene	2.73	90	low
Ethylbenzene	3.6	-	low
Xylene	3.12	8.1 to 25.9	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : There is no data available.

**Other adverse effects** : No known significant effects or critical hazards.

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## Section 13. Disposal considerations


### Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Benzene	71-43-2	Listed	U019
Toluene	108-88-3	Listed	U220
Xylene	1330-20-7	Listed	U239

## Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN1268	Not applicable.	Not applicable.
UN proper shipping name	PETROLEUM DISTILLATES, N.O.S. (Naphtha (petroleum), unsweetened, Benzene) RQ (Benzene, Xylene)	-	-
Transport hazard class(es)	3 	-	-
Packing group	II	-	-
Environmental hazards	No.	No	No.
Additional information	<b>Reportable quantity</b> 202.02 lbs / 91.717 kg [32.305 gal / 122.29 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.  <b>Remarks</b> May contain H <sub>2</sub> S	<b>Remarks</b> This material not normally shipped.	<b>Remarks</b> This material not normally shipped.

AERG : 128

### DOT-RQ Details

: Benzene  
Xylene

10 lbs / 4.54 kg [1.3675 gal / 5.1767 L]  
100 lbs / 45.4 kg [13.946 gal / 52.791 L]

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## Section 14. Transport information

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 307:** Benzene; Toluene; Ethylbenzene  
**Clean Water Act (CWA) 311:** Benzene; Toluene; Ethylbenzene; Xylene; Hydrogen sulphide

**Clean Air Act Section 112** : Listed  
**(b) Hazardous Air Pollutants (HAPs)**  
**Clean Air Act Section 602 Class I Substances** : Not listed  
**Clean Air Act Section 602 Class II Substances** : Not listed  
**DEA List I Chemicals (Precursor Chemicals)** : Not listed  
**DEA List II Chemicals (Essential Chemicals)** : Listed  
**SARA 302/304**

### Composition/information on ingredients

Name	EHS	SARA 302 TPQ		SARA 304 RQ	
		(lbs)	(gallons)	(lbs)	(gallons)
Hydrogen sulfide	Yes.	100	-	500	-

**SARA 304 RQ** : 20000 lbs / 9080 kg [3198.2 gal / 12106.7 L]

### SARA 311/312

**Classification** : Fire hazard  
 Immediate (acute) health hazard  
 Delayed (chronic) health hazard

### Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Naphtha (petroleum), unsweetened	Yes.	No.	No.	No.	Yes.
Benzene	Yes.	No.	No.	Yes.	Yes.
Toluene	Yes.	No.	No.	Yes.	Yes.
Ethylbenzene	Yes.	No.	No.	Yes.	Yes.
Xylene	Yes.	No.	No.	Yes.	No.
Hydrogen sulphide	Yes.	Yes.	No.	Yes.	No.

### SARA 313



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**Section 15. Regulatory information**

	Product name	CAS number
<b>Form R - Reporting requirements</b>	Benzene	71-43-2
	Toluene	108-88-3
	Ethylbenzene	100-41-4
	Xylene	1330-20-7
<b>Supplier notification</b>	Benzene	71-43-2
	Toluene	108-88-3
	Ethylbenzene	100-41-4
	Xylene	1330-20-7

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

**State regulations****Massachusetts**

: The following components are listed: Benzene; Toluene; Ethylbenzene; Xylene

**New York**

: The following components are listed: Benzene; Toluene; Ethylbenzene; Xylene

**New Jersey**

: The following components are listed: Benzene; Toluene; Ethylbenzene; Xylene

**Pennsylvania**

: The following components are listed: Benzene; Toluene; Ethylbenzene; Xylene

**California Prop. 65**

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
Toluene	No.	Yes.	No.	7000 µg/day (ingestion)
Ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.

**Section 16. Other information****Procedure used to derive the classification**

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
GERM CELL MUTAGENICITY - Category 1	Calculation method
CARCINOGENICITY - Category 1A	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 1	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment

**History**

**Date of issue mm/dd/yyyy** : 12/15/2016

**Date of previous issue** : 09/15/2016

**Version** : 6.1

**Prepared by** : KMK Regulatory Services Inc.

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



Naphtha Sour / HSR (Heavy Straight Run)

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## Label elements

## Naphtha Sour / HSR (Heavy Straight Run)

Western Refining Company LP  
123 W. Mills Avenue  
El Paso, TX 79901  
Tel: 915-534-1488  
Email: Sds-inquiry@wnr.com



## Danger



Highly flammable liquid and vapor. Causes serious eye irritation. Causes skin irritation. May cause genetic defects. May cause cancer. Suspected of damaging the unborn child. May be fatal if swallowed and enters airways. Causes damage to organs through prolonged or repeated exposure. (hearing organs)

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or use this product. Wash hands thoroughly after handling. Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Store locked up. Store in a well-ventilated place. Keep cool. Dispose of contents and container in accordance with all local, regional, national and international regulations.

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## California Prop. 65

Date: 12/1

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
Toluene	No.	Yes.	No.	7000 µg/day (ingestion)
Ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.

## New Jersey RTK

Naphtha (petroleum), unsweetened  
Benzene  
Toluene  
Ethylbenzene  
Xylene

## CAS number

68783-12-0  
71-43-2  
108-88-3  
100-41-4  
1330-20-7

This document represents the regulatory content information of the label.  
The final label output must be reformatted according to the container size and the mandatory size of the font characters and of the symbol(s)

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## Appendix D Analytical Data Report

**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 78662

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 78662
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

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