

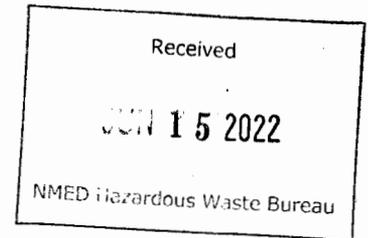


## Western Refining Southwest LLC

A subsidiary of Marathon Petroleum Corporation  
I-40 Exit 39  
Jamestown, NM 87347

June 6, 2022

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



**RE: Response to Approval with Modifications  
[Revised] Heat Exchanger Bundle Pad Investigation Work Plan  
Western Refining Southwest LLC (dba Marathon Gallup Refinery)  
EPA ID# NMD000333211  
HWB-WRG-21-013**

Dear Mr. Pierard:

Attached please find the response to comments contained in the New Mexico Environment Department (NMED) Approval with Modifications letter dated April 19, 2022. A timeline of the documents for the heat exchanger bundle pad is provided below.

- Heat Exchanger Bundle Pad Investigation Work Plan, submitted September 30, 2021
- Disapproval, received November 22, 2021
- Response to disapproval, submitted March 2, 2022
- Approval with modifications, received April 19, 2022

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

### Certification

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

Sincerely,  
Western Refining Southwest LLC, Marathon Gallup Refinery

Ruth Cade  
Vice-President

Enclosure

cc: D. Cobrain, NMED HWB  
L. Barr, NMOCD  
L. King, USEPA  
K. Luka, Marathon Petroleum Corporation

M. Suzuki, NMED HWB  
J. Moore, Marathon Gallup Refinery  
H. Jones, Trihydro Corporation

**ATTACHMENT A**

**New Mexico Environment Department (NMED) to Western Southwest Refining LLC (Western) Comment Letter “Approval with Modifications [Revised] Heat Exchanger Bundle Pad Investigation Work Plan”**

NMED Comment	Marathon Petroleum Company Response
<b>Comment 1:</b>	<b>Response 1:</b>
<p>NMED’s Disapproval Comment 2 required the Permittee to expand the soil sample analytical suite because benzene was the only constituent of concern (COC) being analyzed. In the response to NMED’s Disapproval Comment 2, the Permittee states that “[t]he constituent list has been modified throughout the work plan to incorporate other commonly detected constituents at MKTF-16 as well as indicator compounds/main risk drivers with respect to migration to groundwater.” The Permittee expanded the constituent list to include benzene, ethylbenzene, toluene, xylene, naphthalene, total petroleum hydrocarbons (TPH) as gasoline range organics, diesel range organics, and oil range organics. Historically, there are concentrations of other volatile and semi-volatile organic compounds (e.g., MTBE, 1,1-dichloroethane, phenol) in the groundwater samples collected from well MKTF-16 that have also exceeded applicable screening levels that NMED considers COCs. Therefore, the Permittee must analyze all constituents listed in EPA Method 8260B with detected concentrations in the groundwater samples collected from well MKTF-16 that exceeded applicable screening levels in the past five years in addition to TPH-GRO, DRO and MRO in the confirmation samples in the revised Work Plan. Revise all applicable section of the Work Plan and provide replacement pages to include the extended list of constituents.</p>	<p>Additional review of historical groundwater data from MKTF-16 was conducted as requested. Data from 2017 through the end of 2021 (i.e, previous five years) was consulted and constituents were selected based on groundwater detection exceedances of the applicable screening levels (NMAC R. §20.6.2.3103). All constituents listed in Environmental Protection Agency Method 8260 with detected concentrations in groundwater above the applicable groundwater screening levels were added to the constituent list, as requested. In total there are now 12 volatile organic compound constituents in addition to total petroleum hydrocarbons (TPH) gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO). More specifically, the analyte list is as follows:</p> <ul style="list-style-type: none"> <li>▪ VOCs by Method 8260 <ul style="list-style-type: none"> <li>▫ Benzene</li> <li>▫ 1,1-Dichloroethane</li> <li>▫ 1,4-Dioxane</li> <li>▫ Ethylbenzene</li> <li>▫ Methylene Chloride</li> <li>▫ Methyl tert-Butyl Ether (MTBE)</li> <li>▫ Naphthalene</li> <li>▫ Toluene</li> <li>▫ 1,2,4-Trimethylbenzene</li> <li>▫ 1,3,5-Trimethylbenzene</li> <li>▫ Vinyl Chloride</li> <li>▫ Xylenes, Total</li> </ul> </li> <li>▪ TPH by Method 8015 <ul style="list-style-type: none"> <li>▫ TPH GRO</li> <li>▫ TPH DRO</li> <li>▫ TPH ORO</li> </ul> </li> </ul>

**ATTACHMENT B-1**

**CLEAN**

# Heat Exchanger Bundle Pad Investigation Work Plan



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**WESTERN REFINING SOUTHWEST LLC  
D/B/A MARATHON GALLUP REFINERY**

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**Gallup, New Mexico**

*EPA ID# NMD000333211*

**September 2021**

**Revised February 2022/June 2022**



## Executive Summary

The Marathon Gallup Refinery is submitting this work plan for soil investigation in the vicinity of the Heat Exchanger Bundle Pad (Bundle Pad). The New Mexico Environment Department (NMED) commented on elevated benzene concentrations in groundwater at monitoring well MKTF-16 in Comment 46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* (dated November 23, 2020), which suggested the benzene source could be from leaks in the process sewer line near the Bundle Pad. Specifically, NMED Comment 46 requested an investigation into the integrity of the sewer lines in the area of the Bundle Pad.

Based on February 2020 process sewer video/photo inspections and March 2021 dye tests conducted near the Bundle Pad sewer, no sewer integrity issues were identified. The proposed work plan will investigate the presence of elevated hydrocarbon-related constituents in monitoring well MKTF-16 by installing and sampling soil borings in the vicinity of MKTF-16 and around the Bundle Pad. Soil boring samples will be collected using a geoprobe direct-push drill rig.



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- B. BUNDLE PAD SEWER DYE TEST – PHOTOGRAPHS
- C. SOP – SOIL SAMPLING
- D. BORING LOG - FIELD FORM



## List of Acronyms

amsl	above mean sea level
bgs	below ground surface
COC	chain of custody
ft	feet
NMED	New Mexico Environment Department
PID	photoionization detector
ppm	parts per million
QA/QC	Quality Assurance / Quality Control
SSL	soil screening level
TPH	total petroleum hydrocarbons
VOC	volatile organic compound



## Introduction

The Western Refining Southwest, LLC., D/B/A Marathon Gallup Refinery (the Refinery) is located approximately 17 miles east of Gallup, 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.

This work plan is for the investigation of soils around the Heat Exchanger Bundle Pad (Bundle Pad) and monitoring well MKTF-16. The New Mexico Environment Department (NMED) commented on elevated benzene concentrations in groundwater at monitoring well MKTF-16 in Comment 46 from the *Disapproval Annual Groundwater Monitoring Report Gallup Refinery – 2019* (dated November 23, 2020), which suggested the benzene source could be from leaks in the process sewer line near the Bundle Pad. Specifically, Comment 46 requested an investigation into the integrity of the sewer lines in the area of the Bundle Pad. Based on February 2020 process sewer video/photo inspections (Appendix A), no sewer integrity issues were identified. On March 19, 2021, a dye test was performed at the Bundle Pad sump. The inlets and outlet of the Bundle Pad sump were plugged and green fluorescent dye and water were added to fill the sump (photos included as Appendix B). The sump was inspected 24 hours later, Saturday, March 20, and no decrease in fluid level was noted.

This work plan will investigate the potential source of elevated hydrocarbon-related constituents in monitoring well MKTF-16 by collecting soil samples from soil borings in the vicinity of MKTF-16 and near the Bundle Pad. Soil samples will be collected using a geoprobe direct-push drill rig.

## Site Conditions

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

### 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 feet (ft) above mean sea level (amsl) to 7,040 ft amsl. The Bundle Pad area is approximately 6,951 ft amsl.

### Subsurface Conditions

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



## Scope of Activities

The investigative activities detailed in this work plan will be completed to gain knowledge of the subsurface in the area of the Bundle Pad and help identify the source of benzene found in MKTF-16. Pending NMED approval, the Refinery anticipates investigation work to be completed during 2022.

Soil borings will be completed with a geoprobe direct-push drill rig at 14 locations around the Bundle Pad to a planned total depth of 15 ft bgs (Figure 2). Soil borings will be screened in the field for presence of volatiles using a photoionization detector (PID). If the PID indicates significant presence of volatile organic compounds (VOCs) (e.g., greater than 50 parts per million [ppm]) at the planned 15 ft bgs termination depth, the borehole will be extended until PID readings drop below 50 ppm. Note that visual and olfactory inspections will also be used to assess if the boring total depth is adequate for vertical delineation.

The total depth of the Bundle Pad sump and process sewer line in this area is approximately 12 ft bgs. Soil samples will be collected from 12 ft bgs, the bottom of the boring, and at depths where field screening indicates potential impacts. Historical groundwater results for monitoring well MKTF-16 were consulted to determine the appropriate constituent list, as requested by NMED (letter dated April 19, 2022). More specifically, the list of VOCs is based on VOC groundwater exceedances at MKTF-16 between January 2017 and December 2021 (most recent five-year period).

Soil samples will be analyzed by/for the following analyses/constituents:

- VOCs by Method 8260
  - Benzene
  - 1,1-Dichloroethane
  - 1,4-Dioxane
  - Ethylbenzene
  - Methylene Chloride
  - Methyl tert-Butyl Ether (MTBE)
  - Naphthalene
  - Toluene
  - 1,2,4-Trimethylbenzene
  - 1,3,5-Trimethylbenzene
  - Vinyl Chloride
  - Xylenes, Total
- Total Petroleum Hydrocarbons (TPH) by Method 8015
  - TPH gasoline range organics
  - TPH diesel range organics
  - TPH oil range organics

Analytical results will be compared to NMED industrial/occupational soil screening levels (SSL) and construction worker SSLs.



## Investigation Methods

Soils obtained will be visually inspected and classified in general accordance with American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils). Detailed boring logs will be compiled in the field by qualified staff, including the presence of moisture/water bearing zones. Samples will be field screened using a PID for evidence of organic volatiles. PID results will be recorded on the boring logs and used to determine additional sample intervals.

### Sample Collection Procedures

Samples will be collected in accordance with the soil sampling Standard Operating Procedure (Appendix C). Details related to sample collection will be documented on the boring log field forms (Appendix D). General observations recorded on the field forms for each soil sample location will include sampling start and end times, weather, site conditions, sampling team members, and other personnel present. Sample-specific information will include field sample identification, time of sample collection, sample start and end depth, collection method, sample type (i.e., composite or aliquot), soil classification and characteristics, any deviations from or clarification of sampling procedures, and other observations.

PID readings will be collected on intervals corresponding with sample collection. Headspace vapor screening targets VOCs and involves placing a soil sample in a plastic sample bag allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit) they will be sealed in airtight bags and warmed in a heated building and/or vehicle before screening.

After collecting the PID reading, sample jars will be filled, labeled, and placed in a cooler. Before shipment, each cooler will be packed with ice and a laboratory-provided trip blank. A chain of custody (COC) form will accompany each sample shipment. Coolers will be sealed and delivered to an appropriate analytical laboratory. A summary of the proposed sampling activities is provided below:

1. Installation of fourteen soil borings, visual screening/logging, collection of PID readings for evidence of impacts, and collection of soil samples. Samples will be collected from:
  - 12 ft bgs (approximate depth of Bundle Pad sump and process sewer line)
  - The bottom of boring
  - Any additional intervals where field screening indicate impacted soils.
2. Submit samples to analytical laboratory.



3. Compare analytical data with applicable NMED SSLs.

### **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% or at a minimum of 1 per day. Equipment blanks will be collected from re-usable equipment at a rate of 10% at a minimum of 1 per day. One trip blank per cooler will accompany the samples to the laboratory. The field duplicates, equipment blank samples, and trip blanks 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 and Waste Management**

The soil analytical results will be compared to applicable NMED Industrial SSLs. The results will be presented to NMED in an investigation report. Soil recovered during sampling will be placed in drums, labeled, and stored on the 90-Day Pad. Waste characterization will be conducted prior to disposal. Waste characterization analysis will include testing for Method 8260 - volatile organic compounds, Method 8270 - semi-volatile organic compounds, and Resource Conservation and Recovery Act-8 Metals. Any waste determined to be hazardous will be disposed of within 90 days.

### **Schedule**

Pending NMED approval, the Refinery anticipates the investigation to be completed during 2022. Once the investigation has been completed, the Refinery will prepare an investigation report summarizing the sampling results and investigation conclusions within 120 days of the receipt of the analytical data.

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## Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

### Figures



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## **Appendix A - Process Sewer Inspection Report**



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## **Appendix B - Bundle Pad Sewer Dye Test - Photographs**



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## **Appendix C - SOP – Soil Sampling**



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## Appendix D - Boring Log – Field Form

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

# Heat Exchanger Bundle Pad Investigation Work Plan



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**WESTERN REFINING SOUTHWEST LLC  
D/B/A MARATHON GALLUP REFINERY**

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**Gallup, New Mexico**

*EPA ID# NMD000333211*

**September 2021**

**Revised February 2022/~~May~~June 2022**



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~~benzene, ethylbenzene, toluene, xylene, and naphthalene (BETXN), total petroleum hydrocarbons (TPH) gasoline range organics, TPH diesel range organics, and TPH oil range organics. The constituents were selected based on significant detection exceedances in groundwater at nearby monitoring well MKTF-16.~~ Analytical results will be compared to NMED industrial/occupational soil screening levels (SSL) and construction worker SSLs.



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## Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

### Figures



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## **Appendix A - Process Sewer Inspection Report**



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## **Appendix B - Bundle Pad Sewer Dye Test - Photographs**



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## **Appendix C - SOP – Soil Sampling**



Heat Exchanger Bundle Pad Soil Sampling Investigation Work Plan

## Appendix D - Boring Log – Field Form