

**From:** [Caitlin Fields](#)  
**To:** [Cobrain, Dave, NMENV](#); [Suzuki, Michiya, NMENV](#); [Chavez, Carl J, EMNRD](#)  
**Cc:** [Moore, John](#); [Luka, Kateri A](#); [McCartney, Gregory J.](#); [Dalton, Brittany J.](#); [Heidi Jones](#); [Brian McLoughlin](#)  
**Subject:** [EXT] Gallup Evaporation Ponds RTC  
**Date:** Wednesday, March 17, 2021 10:46:17 AM  
**Attachments:** [image001.png](#)  
[202103\\_PondsRTC-Signed\\_LTR.pdf](#)

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Good Morning,

Attached is the Response to Approval with Modifications Evaporation Ponds Nos. 6, 7, and 9 for the Gallup Refinery. Please let John Moore know if you have any questions. Hard copies will be sent when the roads open back up and mail is operating again.

Thank you,  
Caitlin

**Caitlin Fields**  
**Associate Engineer**

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## Western Refining Southwest LLC

A subsidiary of Marathon Petroleum Corporation

March 17, 2021

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

I-40 Exit 39  
Jamestown, NM 87347

**RE: Evaporation Ponds Nos. 6, 7, and 9 Response to Approval with Modifications  
Marathon Petroleum Company LP, Gallup Refinery  
(dba Western Refining Southwest LLC)  
EPA ID# NMD000333211**

Dear Mr. Pierard:

Marathon Petroleum Company LP (dba Western Refining Southwest LLC) Gallup Refinery is submitting this response to comments to the Approval with Modifications dated December 21, 2020 for the Geotechnical Engineering Report regarding Evaporation Ponds Nos. 6, 7, and 9. A list of the submittals associated with this report is below:

- Geotechnical Engineering Report, Marathon Petroleum Company Gallup Refinery, Evaporation Pond Nos. 6, 7 and 9. Submitted January 7, 2020.
- Approval with Modifications Evaporation Ponds Nos. 6, 7, and 9, New Mexico Environment Department. Received April 3, 2020.
- Evaporation Ponds Nos. 6, 7, and 9 Response to Approval with Modifications, Marathon Petroleum Company Gallup Refinery, Evaporation Pond Nos. 6, 7 and 9. Submitted November 18, 2020.
- Approval with Modifications Evaporation Ponds Nos. 6, 7, and 9, New Mexico Environment Department. Received December 21, 2020.

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,

**Marathon Petroleum Company LP, Gallup Refinery**

Robert S. Hanks  
Refinery General Manager

Enclosure

cc D. Cobrain, NMED HWB  
M. Suzuki, NMED HWB  
C. Chavez, NMOCD  
G. McCartney, Marathon Petroleum Company  
K. Luka, Marathon Petroleum Company  
J. Moore, Marathon Gallup Refinery  
H. Jones, Trihydro  
B. Dalton, Terracon



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### New Mexico Environmental Department (NMED) Comments:

#### NMED Comment 1:

The response to NMED's *Approval with Modifications* Comment 1 states, "[a]fter recent discussions with a Marathon representative, it is our understanding that the ponds were constructed in the late 1950's and no synthetic liners were used in the constructions of the ponds." However, the Executive Summary of the *Geotechnical Engineering Report – Revised* (revised Report), dated November 17, 2020, page 1, states, "[t]he ponds are lined with HDPE or clay." The statement is misleading. Revised the statement for accuracy and provide a replacement page.

#### Marathon Petroleum Company (MPC) Response 1:

NMED's understanding of the pond construction is correct. The statement has been revised to state, "[t]he ponds are apparently lined with clay; however, this information has not been verified." A replacement page is provided as an attachment to this *Response to Approval with Modifications*.

#### NMED Comment 2:

The response to NMED's *Approval with Modifications* Comment 6 states, "[I]t is our understanding that, at this point in time Marathon is temporarily suspending the use of the ponds and the pond water levels have been reduced. Once the ponds are places back in service, Marathon intends to contact Terracon to prepare a monitoring plan to report piezometer readings, taken quarterly, and reported for future annual periodic groundwater reports." Assuming a reduction in the pond level and corresponding reduction in piezometric level modeled in stability analyses has occurred in conjunction with the ponds having been taken out of service, NMED agrees that monitoring can be implemented once ponds are placed back into service; however, if Pond 6 water/piezometric level cannot be demonstrated to be below the level shown in the stability analysis presented in Appendix D, Exhibit D-1, *Pond 6 – Slope Stability Analysis*, of the revised Report, which indicates a minimum factor of safety of 1.5, monitoring must be continued until the level is below the analyzed piezometric level and the ponds remains out of service.

#### MPC Response 2:

Based on piezometer reading taken on March 4, 2021, groundwater levels have been lowered below those levels that were used in our stability analyses as shown on Exhibit D-1 for Pond 6 of the revised report. Stability analyses incorporating the lower groundwater levels exhibit a factor of safety against instability above 1.5, as shown on Exhibit D-1B in the revised report.

#### NMED Comment 3:

The response to NMED's *Approval with Modifications* Comment 8 states, "[t]he rapid drawdown condition was analyzed as if the ponds have been completely emptied with a rapid draw down water condition at the face of face of [sic] the slopes and with fully saturated conditions. The results of these rapid draw down analyses are included and discussed in the updated report." A minimum factor of safety of 1.3 for rapid drawdown is recommended in several guidance documents. The Geotechnical Opinions and Considerations Sections, page 9, suggests that although operations are suspended at Pond 7, the current water level is relatively unchanged inside the pond and no maintenance is being conducted to require a drawdown. Based



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on the calculated factor of safety under a rapid drawdown condition for Ponds 6 and 7 presented in the Stability Evaluation Results Section, page 8, an operational constraint limiting a rapid drawdown condition for Ponds 6 and 7 is necessary because the calculated values are both below 1.3. If maintenance or operations at the facility require a rapid drawdown, a reevaluation of the rapid drawdown condition must be resubmitted to NMED based on updated data and piezometric levels. No revision required to the revised Report.

### **MPC Response 3:**

This comment is acknowledged.

## Geotechnical Engineering Report - REVISED

Marathon Petroleum Company Gallup Refinery ■ Gallup, New Mexico

March 3, 2021 ■ Terracon Project No. 66195049-REV3



## REPORT SUMMARY

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering evaluation for Evaporation Ponds 6, 7 and 9 at the existing Marathon Petroleum Refinery in Gallup, New Mexico. The geotechnical scope of work included the advancement of 9 test borings and 10 piezometer borings to depths ranging from 7 to 36.5 feet below existing site grade, installation of piezometers, laboratory testing on representative samples of the subsurface materials, numerical slope stability modeling and analyses, and development of engineering opinions concerning the stability of the existing evaporation pond embankment slopes.

Based on the information generated and gathered during the course of this geotechnical engineering evaluation and subject to the limitations and precautions outlined in this report, the following key items have been identified and considered for the project:

- The Marathon Petroleum Company Gallup Refinery is located approximately 18 miles east from the center of the City of Gallup. The entire refinery property is approximately one square mile. Located within the property limits of the refinery are thirteen (13) evaporation ponds designated as Pond 1 through Pond 12B. The embankments forming each pond have heights ranging from approximately 12 to 15 feet with variable side slopes of approximately 3H:1V. The ponds are apparently lined with clay; however, this information has not been verified. We understand portions of the embankment on Pond 7 experienced a breach in past years.
- The majority of the subsurface soils encountered to the depths of the borings within the existing embankments from within Ponds 6, 7 and 9 consist of fat clays with intermittent layers of sandy/silty lean clay. Laboratory test results indicate the clay soils exhibit high plasticity characteristics.
- The piezometer data indicates that existing water levels at some piezometer locations range from approximately 1.7 feet to 7 feet below the ground surface at the location of the test borings.
- Numerical slope stability modeling and analyses based on the data generated from this geotechnical engineering evaluation indicate the embankment slopes at Evaporation Ponds 6, 7 and 9 are currently stable. Minimum Factors of Safety against slope instability determined from the modeling range from 1.51 to 3.0 under static conditions and from approximately 1.2 to 2.3 under seismic conditions. Detailed discussion concerning these results are provided in the report.

This report summary should be used in conjunction with the entire report for further evaluation purposes. It should be recognized that specific details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled General Comments should be read for an understanding of the report limitations.

**Geotechnical Engineering Report - REVISED**

Marathon Petroleum Company Gallup Refinery ■ Gallup, New Mexico  
March 3, 2021 ■ Terracon Project No. 66195049-REV3



the limits of the refinery property. Each pond has an embankment height ranging from approximately 12 to 15 feet. Existing embankment side slopes are approximately 3H:1V. The ponds are apparently lined with compacted clay; however, this information has not been verified. We understand that portions of the embankments forming Pond 7 experienced a breach in the recent past.

In November of 2018, Axis Group prepared a document titled **Work Plan Submittal – Updated Slope Stability Modeling Evaporation Ponds**, referred to as the Axis Work Plan, which formed the basis for this preparation and completion of this geotechnical engineering report. The Axis Work Plan submittal was in response to a previous letter titled **Approval with Modifications Revised Letter Report Evaporation Pond Dike Breach and Summary Report Evaporation Ponds Repairs** prepared by the New Mexico Environmental Department Hazardous Waste Bureau (NMED) on August 22, 2017. It is our understanding that this letter included prior slope stability analyses with data from temporary drive point piezometers that were abandoned during ongoing berm improvement activities. The Axis Work Plan was submitted to outline the proposed updated stability analyses and field investigation activities.

According to the Axis Work Plan, the proposed geotechnical engineering work scope was to include the following:

- Installation of 10 new piezometers;
- Testing of representative soil samples to provide engineering properties and geotechnical parameters for stability modeling and analyses; and,
- Updated numerical slope stability analysis

The geotechnical work by Terracon was completed in direct response to, and in general accordance with the Axis Work plan. This revised geotechnical engineering report provides the results of the geotechnical engineering evaluation completed by Terracon for this project.

## SITE CONDITIONS

The following description of site conditions is derived from our site reconnaissance in association with the field exploration and our review of the provided topographic maps of the project site.

Item	Description
<b>Parcel Information</b>	The refinery property and project site is located at 92 Giant Crossing Road in Gallup, New Mexico.
<b>Existing Improvements</b>	The refinery facility currently has a total of 13 existing evaporation ponds. The focus of the geotechnical evaluation and field exploration was at selected location of embankments on Pond Nos. 6, 7 and 9.

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

COMMENTS

Action 22368

**COMMENTS**

Operator: WESTERN REFINING SOUTHWEST, IN NM87109		6700 Jefferson NE, Suite A-1 Albuquerque,		OGRID: 705791	Action Number: 22368	Action Type: DISCHARGE PERMIT
Created By cchavez	Comment Permittee Ponds RTC 3-17-2021			Comment Date 03/30/2021		

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**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
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CONDITIONS

Action 22368

**CONDITIONS OF APPROVAL**

Operator: WESTERN REFINING SOUTHWEST, IN NM87109		6700 Jefferson NE, Suite A-1 Albuquerque,		OGRID: 705791	Action Number: 22368	Action Type: DISCHARGE PERMIT
OCD Reviewer cchavez				Condition None		