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

December 15, 2021

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

RE: Approval with Modifications
Borrow Pit Interceptor Sumps Installation Summary Letter
Western Refining Southwest LLC, Gallup Refinery
EPA ID #NMD000333211
HWB-WRG-21-010

Dear Mr. Pierard:

Attached please find the response to comments contained in the New Mexico Environment Department (NMED) above referenced Approval with Modifications letter dated August 17, 2021.

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

Certification

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

Sincerely,
Western Refining Southwest LLC, Gallup Refinery

Ruth A Cade

Ruth Cade
Vice-President

Attachments

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

ATTACHMENT 1

RESPONSE TO COMMENTS

New Mexico Environment Department (NMED) to Western Refining Southwest LLC, Gallup Refinery (Refinery) Comment Letter "Approval with Modifications, Borrow Pit Interceptor Sumps Installation Summary Letter" (August 17, 2021)

NMED Comment	Refinery Response
Comment 1:	**Response 1:**
The Permittee is reminded that Comment 37 of the NMED's Disapproval Marketing Tank Farm Laser-induced Fluorescence/Hydraulic Profiling Investigation Report, dated June 2, 2021, required the Permittee to, "[s]ubmit an interim measures report that summarizes the monitoring data collected and effectiveness of the remediation system no later than December 31, 2021." The Letter only addresses separate phase hydrocarbon (SPH) in the Borrow Pit area but does not address the presence of gasoline between borings MKTF-LIF-77 and MKTF-LIF-90, as required by Comment 37. The interim measures report must address both SPH occurrences in the Borrow Pit area and area between borings MKTF-LIF-77 and MKTF-LIF-90 to meet the requirements of the June 2, 2021 Disapproval. Provide a discussion regarding how the gasoline occurrence in the area between borings MKTF-LIF-77 and MKTF-LIF-90 was or will be addressed in a response letter.	A new 4-inch diameter sump/recovery well will be installed between MKTF-LIF-77 and MKTF-LIF-90 and will be included in the vacuum truck evacuation schedule (currently 4 times per week). The requested interim measures report will be provided to NMED by December 31, 2021.
Comment 2:	**Response 2:**
In the Description of Interim Measures Implemented Section, page 2, paragraph 1, the Permittee states, "[t]he upper 2-5 ft bgs zone comprise the primary permeability (silty-sand) for the observed separate-phase hydrocarbon (SPH) and groundwater. Strong gasoline odors were detected in the borings for sumps S-1, S-2, and S-3." According to Figure 1, Sump and Piezometer Locations Borrow Pit Seep Area, sump S-1 is the northernmost sump in the Borrow Pit area, followed by sumps S-2, S-3, S-4, and S-5, which is the southernmost sump. According to Figure 2, Borrow Pit Interim Measure Separate Phase Hydrocarbon Sump Data, the thickness of the SPH is greatest in sump S-1,	Two soil borings will be installed north of S-1 to further define the extent of PSH north of S-1. The borings will be placed between S-1 and the toe of the borrow pit slope (a distance of approximately 100 ft). The borings will be 40 to 50 ft apart, with the first boring approximately 40 ft north of S-1. If SPH is indicated within a boring, that boring will be converted into a 4-inch diameter recovery sump that will be added to the routine vacuum truck recovery schedule. If SPH is not detected, the borings will be converted into piezometers to enable groundwater monitoring in the area.

New Mexico Environment Department (NMED) to Western Refining Southwest LLC, Gallup Refinery (Refinery) Comment Letter "Approval with Modifications, Borrow Pit Interceptor Sumps Installation Summary Letter" (August 17, 2021)

NMED Comment	Refinery Response
followed by sumps S-2 and S-3. SPH was not detected in sumps S-4 and S-5. Accordingly, SPH may potentially be present north of sump S-1. Although boring MKTF-LIF-71 was advanced approximately 150 feet northwest of sump S-1 and SPH was not detected, the distance between boring MKTF-LIF-71 and sump S-1 may be too far to delineate the northern extent of the SPH plume. Install a boring approximately 40 feet north of sump S-1 to evaluate for the presence/absence of SPH. If SPH is present, convert the boring into a sump and repeat this procedure until SPH is absent. In the response letter, describe the implementation procedures for the installation of the boring(s) and conversion into the sump(s), as necessary.	
Comment 3:	**Response 3:**
In the Description of Interim Measures Implemented Section, page 2, paragraph 1, the Permittee states, "[d]ue to prior historical excavation in the Borrow Pit area, the ground surface within the Borrow Pit is lower than the surrounding undisturbed topography. Although wet conditions were observed in the past, the seep area was observed to be dry during drilling activities." Survey data was not included with the Letter. Provide a table summarizing the survey data for the sumps and piezometers with the response letter. In addition, rainwater may accumulate in the pit area and interfere with the interim measure activities. Provide a measure (e.g., dewatering pump) to effectively remove the accumulated water from the pit area, as appropriate.	A table of survey elevations for the sumps is provided in Attachment 2. The survey data for the existing piezometers will be collected when the NMED-requested sumps and piezometers are installed and surveyed in 2022. The borrow pit is excavated into a hillside, which drains precipitation to the west. The hydrocarbon seepage area was noted in the floor of the borrow pit. The sumps are located just west of the observed seep. Ponding of water will not interfere with IM activities. Future removal of soil from the borrow pit will include improving the drainage to reduce the potential for precipitation ponding within in the borrow pit.

New Mexico Environment Department (NMED) to Western Refining Southwest LLC, Gallup Refinery (Refinery) Comment Letter "Approval with Modifications, Borrow Pit Interceptor Sumps Installation Summary Letter" (August 17, 2021)

NMED Comment	Refinery Response
Comment 4:	**Response 4:**
In the Summary of Results Section, page 2, paragraph 3, the Permittee states, "[s]umps S-4 and S-5 and piezometers PZ-1 and PZ-2 have been dry and have had no SPH detected since installation." Table 1, Summary of Borrow Pit Interim Measure Data, indicates that groundwater has been consistently detected in sumps S-4 and S-5 and piezometers PZ-1 and PZ-2. Although SPH has not always been detected in these sumps and piezometers, the statement is not correct since the current monitoring event is the only monitoring event where SPH has not been detected in sumps S-4 and S-5 and piezometers PZ-1 and PZ-2. Correct the statement for accuracy and provide a replacement page.	S-4 and S-5 and piezometers PZ-1 and PZ-2 have always contained water. Recently (September 2021), SPH has been detected in S-4 and S-5. The text will be modified to state this. Replacement pages are provided in Attachment 3. Current data will be provided in the 4th Quarter Hydrocarbon Seep Report to be submitted to NMED on January 31, 2022.
Comment 5:	**Response 5:**
In the Summary of Results Section, page 2, paragraph 3, the Permittee states, "total fluids (SPH and groundwater) were removed from the sumps using a vac truck," and "[a]s of the date of this report, approximately 540 gallons of SPH have been recovered." Provide a description about how the recovered volume of SPH was measured in the response letter.	The recovered volume of SPH was estimated from the saturated thickness within each well, including both the volume in the well casing and the volume in the well filter back between the 2-inch casing radius and the 7-inch boring radius. Currently, multiple fluid sources in addition to the Borrow Pit contribution were pumped into a frac tank, preventing accurate accounting of the Borrow Pit fraction. Beginning in November 2021, fluids collected during Borrow Pit recovery activities have been placed exclusively into a tote that enables a more accurate determination of recovered SPH and groundwater. After the fluids are measured, the contents of the tote is emptied into frac tank for management.

New Mexico Environment Department (NMED) to Western Refining Southwest LLC, Gallup Refinery (Refinery) Comment Letter "Approval with Modifications, Borrow Pit Interceptor Sumps Installation Summary Letter" (August 17, 2021)

NMED Comment	Refinery Response
Comment 6:	**Response 6:**
In the *Summary of Results* Section, page 2, paragraph 3, the Permittee states, "[g]roundwater and SPH are stored in a frac tank equipped with carbon filters." Explain the purpose of the carbon filters in the frac tank in the response letter.	The carbon drums on the tank vent are to control fugitive volatile organic contaminant (VOC) emissions.
Comment 7:	**Response 7:**
In the *Summary of Interim Measure Effectiveness* Section, page 2, paragraph 5, the Permittee states, "SPH thickness in these sumps has been decreasing, as shown on Table 1 and in Figure 2. Marathon will continue operation of the IM and will evaluate data for effectiveness in a quarterly report for this IM." According to Figure 2, the thickness of SPH increased from June 3 to June 7, 2021. While the recovery events were conducted on a daily basis before June 3, 2021, four days of "rest time" were allowed at the time. Consequently, the recovered SPH volume increased from 29.8 to 36.0 gallons on June 7, 2021. When the thickness of SPH decreases in the future, continue to use this "pulse recovery" method to increase recovery volumes, as necessary. Furthermore, since Comment 5 of NMED's June 2, 2021 *Disapproval* requires the Permittee to report the monitoring results in the future quarterly hydrocarbon seep interim measures status reports, the quarterly reports are not required.	Noted.
Comment 8:	**Response 8:**
Table 1 indicates that SPH still remains in the Borrow Pit area as of June 9, 2021. Although the interim measures may contain and minimize expansion of SPH, it is unlikely to fully eliminate SPH below residual saturation level. Alternative remedial strategies to eliminate SPH must be evaluated and discussed in the interim measures report, as required by Comment 1 above. No response required.	MPC will present their plans for a site-wide groundwater treatment system to treat current and anticipated future IMs involving groundwater/SPH recovery.

ATTACHMENT 2

SURVEY ELEVATION DATA

ATTACHMENT 2. BORROW PIT INTERCEPTOR SUMPS - SURVEY DATA
MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

ID	Latitude	Longitude	Northing US Survey Foot	Easting US Survey Foot	Elevation US Survey Foot
S1 Top of PVC-North	N35°29'16.2572121"	W108°25'51.9184268"	1633414.737	2545146.065	6936.300
S1 Ground	N35°29'16.2630786"	W108°25'51.9174020"	1633415.329	2545146.154	6933.900
S2 Top of PVC-North	N35°29'15.8413069"	W108°25'51.9595660"	1633372.707	2545142.409	6936.270
S2 Ground	N35°29'15.8460127"	W108°25'51.9606013"	1633373.183	2545142.326	6933.590
S3 Top of PVC-North	N35°29'15.4706675"	W108°25'51.9782961"	1633335.242	2545140.633	6937.430
S3 Ground	N35°29'15.4748488"	W108°25'51.9809304"	1633335.666	2545140.418	6934.990
S4 Top of PVC-North	N35°29'15.1696194"	W108°25'51.9913317"	1633304.811	2545139.371	6923.530
S4 Ground	N35°29'15.1748525"	W108°25'51.9921608"	1633305.340	2545139.305	6935.830
S5 Top of PVC-North	N35°29'14.7877276"	W108°25'52.0735687"	1633266.240	2545132.336	6922.640
S5 Ground	N35°29'14.7932816"	W108°25'52.0740821"	1633266.802	2545132.297	6920.150

ATTACHMENT 3

REPLACEMENT PAGE

Western Refining Southwest LLC
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All of the borings showed intermittent silty-sand/clay layers from approximately 2 to 5 ft bgs, with fat clay below approximately 5 ft to a total depth of 8 ft bgs. The upper 2-5 ft bgs zone comprise the primary permeability (silty-sand) for the observed separate-phase hydrocarbon (SPH) and groundwater. Strong gasoline odors were detected in the borings for sumps S-1, S-2, and S-3. Due to prior historical excavation in the Borrow Pit area, the ground surface within the Borrow Pit is lower than the surrounding undisturbed topography. Although wet conditions were observed in the past, the seep area was observed to be dry during drilling activities. Boring logs are presented in Attachment 1. The borings corroborated what was observed in the field during the nearby laser-induced fluorescence (LIF) investigation borings MKTF-72 and MKTF-74, which included conductivity logs (see Attachment 1).

Soil cuttings were drummed and sampled for disposal characterization. The analytical results are presented in Attachment 2. The soils were characterized hazardous for benzene and were disposed of in accordance with state and federal regulations.

Summary of Results
Table 1 summarizes the sump and piezometer gauging data, including depth to water, depth to SPH, and SPH thickness. Sumps S-1, S-2, and S-3 contain measurable SPH. Sumps S-4 and S-5 and piezometers PZ-1 and PZ-2 have contained water since installation. SPH was first detected in S-4 and S-5 in September 2021. No SPH has been detected in PZ-1 or PZ-2 since installation. Starting the week of May 10, 2021, total fluids (SPH and groundwater) were removed from the sumps using a vac truck. Evacuation will be continued 3-4 times per week. Approximately 25-35 gallons per visit have been evacuated from these sumps. Figure 2 presents graphs of SPH thickness and SPH recovered versus time. As of the date of this report, approximately 540 gallons of SPH have been recovered. Groundwater and SPH are stored in a frac tank equipped with carbon filters. SPH will be recycled, and groundwater will be treated in the refinery's wastewater treatment plant.

Summary of Problems Encountered
No problems were encountered during implementation of the IM.

Summary of Interim Measure Effectiveness
To date, the IM appears to be effective at recovering SPH in the Borrow Pit area. Drawdowns have been observed in the piezometers and sumps. Approximately 540 gallons of SPH have been recovered. Drawdown in piezometers to date is approximately 0.3 ft, and to date SPH has not been observed in the piezometers. SPH appears to be limited to three sumps (S-1, S-2, and S-3). SPH thickness in these sumps has been decreasing, as shown on Table 1 and in Figure 2. Marathon will continue operation of the IM and will evaluate data for effectiveness in a quarterly report for this IM.

Copies of Other Relevant Information
Additional information included in the attachment includes sump boring logs and neighboring LIF logs (Attachment 1) and drill cuttings soil characterization analytical data (Attachment 2).

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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

CONDITIONS

Action 68377

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 68377
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

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