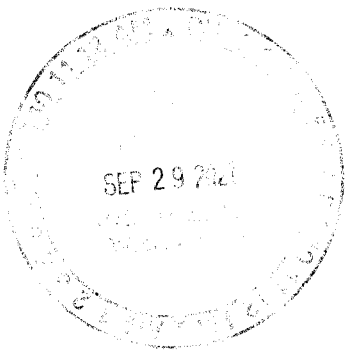
ENTERED

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



September 30, 2021

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

RE: Production Well #3 Evaluation Memorandum

Dear Mr. Pierard:

Western Refining Southwest LLC, Marathon Gallup Refinery is submitting this Production Well #3 (PW-3) Evaluation Memorandum. This memorandum was to determine if potable water was being lost through casing leaks at PW-3. If there are any questions, please call 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 or 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

Ruth A. Cade

Ruth Cade
Vic President

Enclosure

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

memorandum

To:	Mr. Kevin Pierard, New Mexico Environment Department
From:	Mr. Brian Smith, P.G.
cc:	Western Refining Southwest LLC, Marathon Gallup Refinery
Date:	September 21, 2021
Re:	Production Well #3 Evaluation

Western Refining Southwest LLC was tasked with evaluating whether a water supply production well, PW-3, was contributing to an observed groundwater mound identified within the northern portions of the refinery process areas. This memorandum presents the findings of a water supply well assessment and downhole evaluation conducted in December 2019. The field activities were designed to test the integrity of the well casing and observe if fluid trespass, via a weakness or breach within the well casing, above the water producing zone, is present. Two well logs for PW-3 were located, one filed in 1956 by Barron Drilling, and one filed in 1979 by Gallup Drilling were reviewed to understand the condition of the well when it was drilled. Drilling and completion data from the two logs were not consistent with regard to well completion. Downhole data collected by Jet West Geophysical Service out of Farmington, NM was used to assess the well completion status, and integrity of well PW-3.

A site visit conducted in April of 2019 indicated that PW-3 currently has a 16-inch surface casing completed at ground surface, a water flow line pressure of 67 pounds per square inch, with a last known production of approximately 270 gallons per minute. Jet West removed all surface coverings, pulled the necessary downhole piping and pump and began the well assessment in the flowing well. Temperature, fluid resistivity, and 3-arm caliper logging was conducted first, followed by downhole camera video survey, and then spinner flowmeter data collection. Logging was conducted both in the downhole and in the up-hole directions for accuracy.

Temperature logging was conducted to evaluate if there were drastic changes within the well that may indicate a breach in the casing where waters of a different temperature were able to enter the well casing. There were very slight temperature changes within the well, temperature varied from 69.4 degrees Fahrenheit to a bottom hole temperature of 70.7 degrees Fahrenheit. No significant intervals of temperature fluctuation were recorded. Fluid conductivity logging was conducted to also evaluate if there were significant changes with the well, conductivity data also indicated no significant fluctuations over the length of the well.

Three-arm caliper logging was conducted to gauge the borehole/casing diameter and to see if there are sharp deviations along the length of the well. Any sharp or significant deviations indicate areas within the casing that may be suspect with respect to casing integrity. The 3-arm caliper logging was conducted in the up direction only and indicated that from surface to 490 feet below ground surface (ft bgs), (where a sharp deflection was observed) the casing varied from 11.3 inches to 13.46 inches in diameter with an

average casing diameter of 13.16 inches. From 490 to 730 ft bgs, the casing varied from 11.2 inches to 12.31 inches with an average casing diameter of 12.15 inches. Below 720 ft bgs, the well is open hole with no casing. From 730 to 1012 ft bgs, the hole varied from 9 inches to 16 inches in diameter. In general, the caliper reading was erratic in both cased areas of the well and data correlated from other logs indicated intervals of severe build-up but not indicative of casing damage.

The video survey showed the well to have scale build-up in some areas from the surface to the bottom of the casing at 730 ft bgs. Fluid conductivity and 3-arm caliper log evaluation was concentrated on the areas of scaling and did not appear to be causing damage.

A spinner flow meter survey was run within the well, both in the cased and open hole intervals of the well to observe if a flow breach existed within the cased portion of the well. A spinner flow meter measures water flow velocity. The spinner flow meter was run both down and up hole and when plotted together, they were generally symmetrical; when plotted in opposite directions, again they were symmetrical. This is a semi-quantitative indication of no added or subtracted flow that would indicate any water trespass to or from outside the casing in the well.

The well geophysical survey indicated the current status of well PW-3 as follows:

- Total depth: 1012 ft bgs
- 16-inch surface casing at well head
- 13-inch ID well casing to 490 ft bgs
- 12-inch ID well casing to 730 ft bgs
- Open-hole completion (16 – 9-inches) from 730 to 1010 ft bgs.

A current well log that corresponds to the above completion status was not located. However, the well casing survey and geophysical data do not indicate that the well casing has been compromised and may serve as a source of water to the unconfined aquifer near the process area.

697-082-002