State of New Mexico
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

August 18, 2017

Mr. Randy Schmaltz
Health, Safety, Environmental, and
Regulatory Director
Western Refining Southwest, Inc.
Bloomfield Terminal
P.O. Box 159
Bloomfield, New Mexico 87413

RE: APPROVAL WITH MODIFICATIONS
RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES BIOVENTING SYSTEM ANNUAL REPORT (JANUARY – DECEMBER 2014), MARCH 2015
AND
RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES BIOVENTING SYSTEM ANNUAL REPORT (JANUARY – DECEMBER 2015), MARCH 2016
AND
RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES BIOVENTING / AIR SPARGING SYSTEM ANNUAL REPORT (JANUARY – DECEMBER 2016), MARCH 2017
WESTERN REFINING SOUTHWEST, INC. - BLOOMFIELD TERMINAL
EPA ID# NMD089416416
HWB-WRB-15-002
HWB-WRB-16-001
HWB-WRB-17-001

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has received Western Refining Southwest, Inc., Bloomfield Terminal's (Western's) *River Terrace Voluntary Corrective Measures Bioventing System Annual Report, January – December 2014* (2014 Report) dated March 2015,

River Terrace Voluntary Corrective Measures Bioventing System Annual Report, January – December 2015 (2015 Report) dated March 2016, and *River Terrace Voluntary Corrective Measures Bioventing / Air Sparging System Annual Report, January – December 2016* (2016 Report) dated March 2017 (collectively, the Reports). NMED has reviewed the Reports and hereby issues this Approval with Modifications with the following conditions.

Comment 1
The following comments address editorial issues. No revisions to the Reports are necessary; however, ensure all issues are addressed in future reports.

a. The abbreviation "NPP" was found in the Depth to Product column in the tables. The designation was not defined in the footnotes or list of acronyms. Define all acronyms in future reports.
b. In Figure 3, River Terrace Annual Report Bloomfield Terminal River Terrace Well Location Map (all Reports), well DW-1 is indicated as an inactive well while well DW-2 is indicated as an active well. The description in the Reports indicates the opposite. Correct Figure 3 in future reports.
c. In the Executive Summary (2015 Report), Western states, "[t]he Dewatering System consists of two dewatering wells (DW-2 and DW-3), and a collection gallery, each is equipped with a dedicated submersible pump." However, in Section 1.1, Site Location and Description, Western states, "[t]he active dewatering system consists of two dewatering wells (DW-1 and DW-3) and a collection gallery, each equipped with variable-speed submersible pumps." Provide the correct well references in future reports.
d. In Section 3.1.2 (2016 Report), Groundwater Field Parameters, Western states, "[a] summary of the groundwater field parameters collected during the sampling event are included in Table 2." These parameters were included in Table 1. Ensure future reports provide correct references to tables.

Comment 2
The contaminant concentrations in the groundwater samples collected from the GAC-Inlet are more elevated compared to those in samples collected from wells DW-1 and DW-3 according to the Groundwater Monitoring Summary Tables and GAC Filter Monitoring Tables. For example, during the week of the April 28, 2015 sampling event, the benzene concentrations in the groundwater samples from wells DW-1 and DW-3 were reported as non-detect and 0.082 mg/L, respectively. During the same period (the April 1 and May 6, 2015 sampling events), the benzene concentrations in samples collected from the GAC-Inlet were reported at higher concentrations of 0.130 and 0.140 mg/L, respectively. Since the GAC-Inlet receives groundwater from DW-1, DW-3 and the collection gallery, the elevated concentrations appear to originate from the collection gallery. In an updated Facility-Wide Groundwater Monitoring Plan, propose to collect groundwater samples from the collection gallery, and present and discuss the analytical results for BTEX, MTBE, TPH-GRO and DRO, and total lead concentrations in the next annual report.

Comment 3

According to a NMED letter dated April 18, 2007, the sampling requirement for wells DW-2 and MW-48 was removed from the monitoring plan; however, more than 10 years have passed since the update and the subsurface conditions may have changed due to the on-going remedial activities. In addition, the hydrocarbon concentration in well TP-5 has been increasing since 2012 according to the Groundwater Monitoring Summary Tables. TP-5 is located within 20 feet from DW-2. Propose to collect groundwater samples from wells DW-2 and MW-48 for analysis for BTEX, MTBE, TPH-GRO and DRO, and total lead in an updated Facility-Wide Groundwater Monitoring Plan. Present and discuss the results in the next annual report

Comment 4

In the Executive Summary (all Reports), Western states that a "[t]otal of 219,715, 401,618 and 401,137 gallons of impacted groundwater were removed and treated in 2014, 2015 and 2016, respectively." The volume of recovered groundwater was almost doubled since 2014 to 2015. Provide an explanation for the increased volume in the response letter. In addition, the volume fraction of recovered groundwater appears to be different among the two wells and the collection gallery. For example, if DW-3 and the collection gallery yield much more water compared to the DW-1's production rate, the submersible pump may be removed from DW-1 and placed in other extraction wells (e.g., DW-2) to achieve a higher recovery rate. Install a well flow totalizer in each dewatering well to optimize effectiveness of the system. It should be noted that the contaminant concentrations in samples collected from well DW-1 have been consistently low while the concentrations in samples collected from TP-5, located adjacent to DW-2, have been increasing in recent years. Evaluate the benefit of extracting groundwater from well DW-2 or other wells rather than DW-1 and provide recommendations in the next annual report.

Comment 5

In Section 4.2 (2014 Report), Recommendations, Western states, "[W]estern has removed the impacted soil from the River Terrace System and believes the groundwater is our main focus for remediation." NMED concurs with Western's statement. The biovent (BV) wells address impacted soil in the vadose zone; however, they provide little effect for impacted groundwater; thus, the existing system must be modified to target groundwater cleanup. Discuss the modification or replacement of the BV wells to focus the treatment to the saturated zone. Propose to submit a work plan to modify or replace the existing BV wells, and provide a plan to evaluate the effectiveness of the modification in the work plan.

Comment 6

In Section 4.1.2 (2014 and 2015 Reports), Soil Vapor Monitoring, Western states, "[s]oil gas field measurements indicate that the aeration system has been successful in maintaining sufficient oxygen within the subsurface to help sustain bioremedial activity." Although the measured oxygen levels (17.6 – 20.9%) in the monitoring wells support Western's statement, the pressure reading indicates "zero" in each monitoring well, possibly implying no influence from the BV wells. When the air is distributed in the vadose zone from the BV wells, an increased

pressure reading is expected among wells located within the radius of influence. Provide an explanation regarding the zero-pressure reading in the response letter. Ensure that the pressure gauge is appropriate for the range of the measurement and can display readings with sufficient resolution across the range.

Comment 7

In Section 1.1 (2016 Report), Site Location and Description, Western states, "[i]nstallation of the air sparging component of the biovent system was completed in late 2012, and consists of two air sparging lines (Air Sparging Line A and Air Sparging Line B). Each air sparging line consists of air sparging tubes that extend down into the groundwater (Western Refining, 2013). Air from the biovent main air blower is pushed into each sparging tube, causing a bubbling effect in the groundwater while also oxygenating the surrounding subsurface." While sparging the contaminated groundwater, VOCs will be partitioned into the air. Although previous soil vapor monitoring data indicates that the effect of BV wells is not a concern for vapor-phase VOCs, the stripped VOCs (especially when air sparging performs effectively) may cause an increase in soil vapor concentrations. In an updated Facility-Wide Groundwater Monitoring Plan, propose to collect soil gas samples in the vicinity of the two air sparge lines. Propose to collect pressure readings and soil gas samples from wells DW-3 and MW-48 and the collection gallery for BTEX and TPH GRO analyses. Provide and discuss the analytical data in the next annual report. In addition, evaluate the need for a soil vapor extraction system to address vapor-phase VOCs in the vicinity of the air sparging system.

Comment 8

In Section 3.3.2 (2016 Report), Aeration System Monitoring, Western states, "[t]he effectiveness of the air system was monitored using a portable pressure gauge at various points along the air injection piping system. Pressure measurements were collected at BV-1, B[V]-3, BV-4, BV-5, BV-6, Air Sparging Line A, Air Sparging Line B, and at the discharge of the main air blower. The readings are used to ensure a uniform distribution of air throughout the system." In future reports, tabulate the readings in a manner similar that presented in 2014 and 2015 Reports. Provide a revised table tabulating the 2016 pressure readings with the 2017 Annual Report.

Comment 9

In Section 4.2 (2016 Report), Recommendations, Western states, "[i]n 2016 lead concentrations over the regulatory limit were present in TP-8 and TP-9 and were not present in 2015. The results also show the same detection in MW-49 which is located on the river side of the slurry wall. Western believes these lead detections could be due to the quality of the river water during the sampling run." The lead detections may indicate that water migrates through the bentonite slurry and sheet pile barrier wall. Consequently, hydrocarbons in groundwater may be leaching through the wall to the San Juan River. In addition, since the groundwater flows along the slurry wall, the elevated lead concentrations may be present in the groundwater around the vicinity of the slurry wall. Collect groundwater samples from wells OW11+15, OW16+60 and OW6+70 and analyze the samples for total lead. Discuss the results in the next annual report.

Comment 10

In Appendix C, Western includes Hall Environmental Analysis Laboratory's *Quality Assurance Plan, Revision* 10.1. Approval of the Reports does not constitute approval of the Quality Assurance Plan. No response is necessary.

Western must address all comments in this Approval with Modifications and submit a revised Facility-Wide Groundwater Monitoring Plan to NMED no later than **December 29, 2017**. A work plan proposing to modify or replace existing BV wells must be submitted no later than **January 31, 2018**.

If you have questions regarding this Approval with Modifications, please contact Leona Tsinnajinnie of my staff at 505-476-6057.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
K. Van Horn, NMED HWB
L. Tsinnajinnie, NMED HWB
M. Suzuki, NMED HWB
C. Chavez, EMNRD OCD
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File: Reading File and WRB 2017 File
HWB-WRB-15-002, HWB-16-001, HWB-17-001