

July 26, 2012

JUL 2012

John E. Kieling, Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg 1
Santa Fe, NM 87505

UPS Tracking #: 1Z 881 839 24 5595 6248 (Delivery to NMED)
Certified Mail #: 7009 2250 0002 3833 5315 (Delivery to OCD)

RE: Response to NMED's Approval
Investigation Report Group 6 (AOC No. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47)
Western Refining Southwest, Inc., Bloomfield Refinery
EPA ID# NMD089416416
HWB-WRB-11-008

Dear Mr. Kieling:

Pursuant to your approval letter dated July 5, 2012, Western Refining Southwest, Inc., Bloomfield Refinery ("Western") has prepared the following responses to address your comments. Please find the requested revisions enclosed and note that the requested investigation work plan for Group 6 will be submitted on or before October 12, 2012, as requested.

NMED Comment No. 1:

Section 7 (Conclusions and Recommendations), pages 32 through 34, summarizes the results of the investigation and provides conclusions and recommendations for the work completed at Group 6. However, Western did not discuss or provide any recommendations to address the DRO result of 21,000 mg/kg from soil sample location AOC 19-23, which is significantly higher than the residential soil screening level (SSLs). NMED understands that the conditions at the site are not conducive to allow removal of the material from the bluff surface; however, Western must provide an explanation about the conditions at soil sample location AOC 19-23 to include a description of the location and an explanation why removal is not warranted or practicable. Western must include this discussion at the end of Section 7.2 (Recommendations) and provide a replacement page for the Report.

Western Response No. 1: Pursuant to our earlier discussions, please find enclosed replacement pages for Section 7. The text has been revised to clarify the actual site conditions in the area of sample location AOC 19-23. A redline-strikeout version is also included to facilitate your review.

NMED Comment No. 2:

Section 7.2 (Recommendations), page 34, states that "[a]dditional soil samples should be collected at the locations with the highest concentrations of chromium at AOC 19 [e.g., AOC 19-13 (0-0.5'), AOC 19-14 (0-0.5'), and AOC 19-18 (0-0.5')]. The samples should be analyzed for chromium VI to determine if the chromium detected in soils at AOC 19 is present as chromium III or chromium VI." Western must collect at least three additional soil samples from

soils within AOC 19 at locations where contaminants are not detected at high concentrations to determine if chromium is typically present as chromium III and not present only as a result of local reducing conditions in areas containing petroleum contamination. Western must submit a letter work plan to propose the additional investigation activities to collect these soil samples.

Western Response No. 2: A work plan for collection of additional soil samples for chromium analysis will be submitted, as directed by NMED, on or before October 12, 2012.

NMED Comment No. 3:

Figures 12 (AOC No. 19 Arsenic Soil Map) through 19 (AOC No. 21 Diesel Range Organics Soil Map) depict surface soil and soil boring locations with their corresponding analytical results. In addition, the results greater than the SSL are underlined. However, Western did not specify which SSL is represented in the figures. In future submittals, specify which SSLs are referenced in figures.

Western Response No. 3: In future submittals, the SSL value will be explained in the legend of any associated figures.

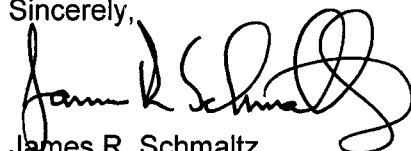
NMED Comment No. 4:

Appendix C provides site photographs of the areas of concern (AOCs) and seep locations. Some of the site photos depict sample locations, but they are not identified in the captions. In future submittals, identify the sample locations in the captions below the site photos if the sample locations are visible in the photo.

Western Response No. 4: In future submittals, any sample locations that appear in site photos will be identified in a caption below the photo.

If you have questions regarding the above responses or the enclosure, please feel free to contact me at (505) 632-4171 at your convenience.

Sincerely,



James R. Schmaltz
Health, Safety, Environmental and Regulatory Director
Western Refining Southwest, Inc., Bloomfield Refinery

Enclosure

cc: Dave Cobrain – NMED HWB
Leona Tsinnajinnie – NMED HWB
Carl Chavez - NMOCD
Allen Hains – Western Refining El Paso

Section 7

Conclusions and Recommendations

This section summarizes and provides an evaluation of the potential impacts as shown in field screening data and analytical data. An investigation of soils was conducted at Group 6 (AOCs 19, 20, and 21) to assess and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil samples were collected and analyzed for potential site-related constituents.

7.1 Conclusions

AOC No. 19 – Seep North of MW-45

Three metals (arsenic, cobalt, and chromium) and diesel range organics were detected in soil samples at concentrations exceeding their respective screening levels. Arsenic was detected in nine samples at concentrations above the DAF screening level, with eight of these samples having concentrations above the residential screening level. Cobalt was detected in generally low concentrations with a maximum detected value of 11 mg/kg. As shown in Table 5, the samples with concentrations of cobalt above the screening levels do not have concentrations of organic constituents above screening levels. Chromium was detected in five samples at concentrations above the DAF screening level with only one being above the residential screening level. Arsenic, chromium, and cobalt are naturally occurring constituents in many soils and it is possible that these constituents are naturally occurring in soils at the Bloomfield Refinery. The analyses for chromium were for total chromium, which are compared to the chromium VI screening levels. It may be overly conservative to compare to the total chromium results to the chromium VI screening levels, but additional analyses will be required to speciate the chromium.

The only analytical results for organic constituents (i.e., diesel range organics) above only the DAF screening level occur at three locations with a maximum value of 770 mg/kg. All three of these detections of diesel range organics are below the residential screening level. A fourth sample (AOC 19-23), which was collected from a cliff face, had a concentration of diesel range organics above the DAF and residential screening levels. This single detection of diesel range organics above the residential screening level does not warrant a response action because there is very limited potential for exposure to the small area represented by this sample.

The AOC 19-23 sample was collected from the location on a cliff face that had the greatest visible staining from apparent hydrocarbons. The entire cliff face at this location is only approximately five feet high and seven feet long, and there is very limited access to this area. The seep that caused the presence of hydrocarbons is no longer active with the installation of the slurry wall, therefore the hydrocarbons present at the surface should naturally degrade over time. The actual volume of impacted soils present near the land surface is also very small, as it appears the previous seep mainly caused only surface staining of soils along the small cliff face.

AOC No. 20 – Seep North of MW-46

Only cobalt and diesel range organics were detected at concentrations above the applicable screening levels. Cobalt was detected in only one soil sample at a concentration (8.9 mg/kg) above the DAF screening level (5.51 mg/kg) but did not exceed the residential soil screening level of 23 mg/kg. As noted above, cobalt may be a naturally occurring constituent. Diesel range organics were detected in only one sample at a concentration (490 mg/kg) above the DAF soil screening level of 200 mg/kg. None of the diesel range organic analytical results exceeded the residential direct contact screening level of 1,830 mg/kg.

AOC No. 21 – Seep North of MW-47

Similarly to AOC No. 20, only cobalt and diesel range organics were detected at concentrations above the applicable screening levels. Cobalt was detected in eight soil samples at concentrations above the DAF screening level (5.51 mg/kg) but none exceed the residential soil screening level of 23 mg/kg. Diesel range organics were detected in one sample at a concentration (710 mg/kg) above the DAF soil screening level of 200 mg/kg. None of the diesel range organic analytical results exceed the residential direct contact screening level of 1,830 mg/kg.

Cumulative Risk Evaluation

A cumulative risk evaluation for soils is presented in Table 6. This was conducted by taking the maximum reported concentration of each detected constituent from all three AOCs and dividing by the residential screening level and non-residential screening levels as shown in the equations below. These calculations are separated for carcinogenic and non-carcinogenic constituents. The cumulative carcinogenic risk is 6.703×10^{-5} assuming residential land use

and 1.36×10^{-5} for non-residential land use. The hazard index for residential land use is 3.557 and for non-residential land use is 1.652.

$$\text{Site Risk} = \left(\frac{\text{conc}_x}{\text{SSL}_x} + \frac{\text{conc}_y}{\text{SSL}_y} + \frac{\text{conc}_z}{\text{SSL}_z} + \dots + \frac{\text{conc}_i}{\text{SSL}_i} \right) \times 10^{-5}$$

$$\text{Site Hazard Index (HI)} = \left(\frac{\text{conc}_x}{\text{SSL}_x} + \frac{\text{conc}_y}{\text{SSL}_y} + \frac{\text{conc}_z}{\text{SSL}_z} + \dots + \frac{\text{conc}_i}{\text{SSL}_i} \right) \times 1$$

7.2 Recommendations

Western plans to conduct an investigation of background locations and will attempt to establish site-specific background values for various naturally occurring constituents (e.g., arsenic and cobalt in soils). After background values have been established, site data collected for AOCs 19, 20 and 21 should be reassessed to determine if some analytical results are actually representative of background conditions and not site-related impacts.

Additional soil samples should be collected at the locations with the highest concentrations of chromium at AOC 19 [e.g., AOC19-13 (0-0.5'), AOC 19-14 (0-0.5'), and AOC 19-18 (0-0.5')]. The samples should be analyzed for chromium VI to determine if the chromium detected in soils at AOC 19 is present as chromium III or chromium VI. If the chromium is determined to be chromium III instead of chromium VI, then the screening levels in Table 5 will need to be revised along with any associated figures.

After site-specific background values have been established and the location-specific speciation of chromium has been determined, then preparation of a risk assessment for the Group 6 AOCs may be appropriate. The site concentrations have been compared to residential screening levels in this investigation report; however, the physical nature of the seep areas may limit future use of this area. An evaluation of potential exposures in a site-specific risk assessment could offer a more appropriate evaluation of actual risks based on more likely future use of the area at AOCs 19, 20, and 21.

Section 7

Conclusions and Recommendations

This section summarizes and provides an evaluation of the potential impacts as shown in field screening data and analytical data. An investigation of soils was conducted at Group 6 (AOCs 19, 20, and 21) to assess and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil samples were collected and analyzed for potential site-related constituents.

7.1 Conclusions

AOC No. 19 – Seep North of MW-45

Three metals (arsenic, cobalt, and chromium) and diesel range organics were detected in soil samples at concentrations exceeding their respective screening levels. Arsenic was detected in nine samples at concentrations above the DAF screening level, with eight of these samples having concentrations above the residential screening level. Cobalt was detected in generally low concentrations with a maximum detected value of 11 mg/kg. As shown in Table 5, the samples with concentrations of cobalt above the screening levels do not have concentrations of organic constituents above screening levels. Chromium was detected in five samples at concentrations above the DAF screening level with only one being above the residential screening level. Arsenic, chromium, and cobalt are naturally occurring constituents in many soils and it is possible that these constituents are naturally occurring in soils at the Bloomfield Refinery. The analyses for chromium were for total chromium, which are compared to the chromium VI screening levels. It may be overly conservative to compare to the total chromium results to the chromium VI screening levels, but additional analyses will be required to speciate the chromium.

The analytical results for organic constituents (i.e., diesel range organics) above only the DAF screening level occur at three locations with a maximum value of 770 mg/kg. All three of these detections of diesel range organics are below the residential screening level. A fourth sample (AOC 19-23), which was collected from a cliff face, had a concentration of diesel range organics above the DAF and residential screening levels. This single detection of diesel range organics above the residential screening level does not warrant a response action because there is very limited potential for exposure to the small area represented by this sample.

The AOC 19-23 sample was collected from the location on a cliff face that had the greatest visible staining from apparent hydrocarbons. The entire cliff face at this location is only approximately five feet high and seven feet long, and there is very limited access to this area. The seep that caused the presence of hydrocarbons is no longer active with the installation of the slurry wall, therefore the hydrocarbons present at the surface should naturally degrade over time. The actual volume of impacted soils present near the land surface is also very small, as it appears the previous seep mainly caused only surface staining of soils along the small cliff face.

AOC No. 20 – Seep North of MW-46

Only cobalt and diesel range organics were detected at concentrations above the applicable screening levels. Cobalt was detected in only one soil sample at a concentration (8.9 mg/kg) above the DAF screening level (5.51 mg/kg) but did not exceed the residential soil screening level of 23 mg/kg. As noted above, cobalt may be a naturally occurring constituent. Diesel range organics were detected in only one sample at a concentration (490 mg/kg) above the DAF soil screening level of 200 mg/kg. None of the diesel range organic analytical results exceeded the residential direct contact screening level of 1,830 mg/kg.

AOC No. 21 – Seep North of MW-47

Similarly to AOC No. 20, only cobalt and diesel range organics were detected at concentrations above the applicable screening levels. Cobalt was detected in eight soil samples at concentrations above the DAF screening level (5.51 mg/kg) but none exceed the residential soil screening level of 23 mg/kg. Diesel range organics were detected in one sample at a concentration (710 mg/kg) above the DAF soil screening level of 200 mg/kg. None of the diesel range organic analytical results exceed the residential direct contact screening level of 1,830 mg/kg.

Cumulative Risk Evaluation

A cumulative risk evaluation for soils is presented in Table 6. This was conducted by taking the maximum reported concentration of each detected constituent from all three AOCs and dividing by the residential screening level and non-residential screening levels as shown in the equations below. These calculations are separated for carcinogenic and non-carcinogenic constituents. The cumulative carcinogenic risk is 6.703×10^{-5} assuming residential land use

and 1.36×10^{-5} for non-residential land use. The hazard index for residential land use is 3.557 and for non-residential land use is 1.652.

$$\text{Site Risk} = \left(\frac{\text{conc}_x}{\text{SSL}_x} + \frac{\text{conc}_y}{\text{SSL}_y} + \frac{\text{conc}_z}{\text{SSL}_z} + \dots + \frac{\text{conc}_i}{\text{SSL}_i} \right) \times 10^{-5}$$

$$\text{Site Hazard Index (HI)} = \left(\frac{\text{conc}_x}{\text{SSL}_x} + \frac{\text{conc}_y}{\text{SSL}_y} + \frac{\text{conc}_z}{\text{SSL}_z} + \dots + \frac{\text{conc}_i}{\text{SSL}_i} \right) \times 1$$

7.2 Recommendations

Western plans to conduct an investigation of background locations and will attempt to establish site-specific background values for various naturally occurring constituents (e.g., arsenic and cobalt in soils). After background values have been established, site data collected for AOCs 19, 20 and 21 should be reassessed to determine if some analytical results are actually representative of background conditions and not site-related impacts.

Additional soil samples should be collected at the locations with the highest concentrations of chromium at AOC 19 [e.g., AOC19-13 (0-0.5'), AOC 19-14 (0-0.5'), and AOC 19-18 (0-0.5')]. The samples should be analyzed for chromium VI to determine if the chromium detected in soils at AOC 19 is present as chromium III or chromium VI. If the chromium is determined to be chromium III instead of chromium VI, then the screening levels in Table 5 will need to be revised along with any associated figures.

After site-specific background values have been established and the location-specific speciation of chromium has been determined, then preparation of a risk assessment for the Group 6 AOCs may be appropriate. The site concentrations have been compared to residential screening levels in this investigation report; however, the physical nature of the seep areas may limit future use of this area. An evaluation of potential exposures in a site-specific risk assessment could offer a more appropriate evaluation of actual risks based on more likely future use of the area at AOCs 19, 20, and 21.