# GW - 001

# REPORTS

# Investigation Report Group 3

12/2009



SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ Lieutenant Governor

# NEW MEXICO ENVIRONMENT DEPARTMENT

# Hazardous Waste Bureau

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DAVE MARTIN Secretary

RAJ SOLOMON, P.E. Deputy Secretary

# CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 24, 2011

Mr. Randy Schmaltz Environmental Manager Western Refining, Southwest, Inc. Bloomfield Refinery P.O. Box 159 Bloomfield, New Mexico 87413

RE: NOTICE OF DISAPPROVAL
INVESTIGATION REPORT GROUP 3
WESTERN REFINING SOUTHWEST INC., BLOOMFIELD REFINERY
EPA ID# NMD089416416
HWB-WRB-10-001

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has received Western Refining Southwest, Inc., Bloomfield Refinery (the Respondents) Investigation Report Group 3 (SWMU No. 4 Transportation Terminal Sump, SWMU No. 5 Heat Exchanger Bundle Cleaning Area, AOC No. 22 Product Loading Rack and Crude Receiving Loading Racks, AOC No. 23 Southeast Holding Ponds, AOC No. 24 Tank Areas 41 and 43, AOC No. 25 Auxiliary Warehouse and 90-day Storage Area, and AOC NO. 26 Tank Area 44 and 45) (Report) dated December 2009. NMED has reviewed the Report and hereby issues this Notice of Disapproval (NOD) with the following comments.

# Comment 1

In Section 3.3 (Soil Boring Installation, Field Screening, and Soil Sample Collection), under SWMU No. 4, page 10, the Respondents state, "[o]ne soil boring (SWMU 4-1) was drilled in a location west of Bullet 23 within the vicinity of the former transportation sump." It is not clear

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from the statement if "Bullet 23" is referring to bullet tank 23. Soil boring location SWMU 4-1 is provided in Figure 6 (SWMU No. 4 Sample Location Map); however, the location of "Bullet 23" was not included. Revise the Report to identify the structure of "Bullet 23" and show it on Figure 6.

# Comment 2

The Respondents discuss monitoring well development and groundwater sampling in various sections throughout the Report, including Section 3.4 (Monitoring Well Installation, Completion, and Development), Section 3.6 (Ground Water Sampling and Vadose Zone Vapor Sampling), Section 4.5 (Monitor Well Development), Section 6.4 (Ground Water Sampling) and Appendix F (Field Methods). Each Section must be referenced to know what monitoring well development and groundwater sampling activities occurred during the investigation. Revise the Report to include one section, and subsections as appropriate, that addresses all monitoring well development and groundwater sampling activities (e.g. sampling methods and procedures), or include all details in an Appendix (e.g., Appendix F) and reference the Section or Appendix throughout the Report, where appropriate.

# Comment 3

In Section 3.6 (Ground Water Sampling and Vadose Zone Vapor Sampling), pages 14 and 15, the Respondents list the analytes and analytical methods conducted for the groundwater samples. The *Investigation Work Plan Group 3, dated June 2008* (Work Plan) required the analysis of manganese as part of the general chemistry parameters. Manganese was not listed in Section 3.6 but was analyzed. Further, the analytical information provided in Section 3.6 does not correspond with the groundwater information provided in Section 6.6 (Groundwater Chemical Analytical Results) (e.g., Section 6.6 includes the analyses of manganese; however, manganese was the only general chemistry parameter not addressed in Section 3.6). Revise the Report to clarify these discrepancies and provide the correct information. The Respondents may choose to cross-reference a section containing the appropriate information, rather than listing the information twice.

# Comment 4

In Section 3.6 (Ground Water Sampling and Vadose Zone Vapor Sampling), page 15, bullet 9, the Respondents list analysis for "[d]issolved metals (iron, calcium, magnesium, potassium, and sodium) by USEPA method 6010B." In Section 5.8 (Chemical Analyses), page 14 (Work Plan), the Respondents state, "[i]n addition, groundwater samples will also be analyzed for the following general chemistry parameters" and then lists bicarbonate, chloride, sulfate, calcium, magnesium, sodium, potassium, manganese, nitrate/nitrite, and ferric/ferrous iron. The Respondents do not include a reference to dissolved metals in the Work Plan, nor indicate that

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the general chemistry parameters would be collected as dissolved. This also does not correspond with the analytical information provided in Section 6.6 (Ground Water Chemical Analytical Results) of the Report. Revise the Report to clarify this discrepancy. If water samples were collected for dissolved metals analysis in addition to sample collection for total metals analysis, the Report must address the sampling methods associated with collecting dissolved samples (e.g., 0.45 micronfilter use).

# Comment 5

In Section 3.6 (Ground Water Sampling and Vadose Zone Vapor Sampling), page 15, the Respondents state, "[t]he depth to groundwater and depth-to-SPH were measured to the nearest 0.01 ft and recorded relative to the surveyed well casing rim." The Respondents do not identify the instrument used to collect the depth to water and depth to separate phase hydrocarbon (SPH) measurements. Revise the Report to provide the instrument(s) used to collect these measurements, and revise this section to address how the monitoring wells were purged and the amount purged. Alternatively, reference Appendix F (see also Comment 2).

# Comment 6

The Respondents discuss quality assurance/quality control measures in Section 3.8 and address the collection of equipment blanks, field duplicates, and field blanks. The Respondents do not discuss the use of trip blanks. Revise the Report to discuss trip blanks, if used. If trip blanks were not used, provide a discussion of why the trip blanks were not included with the sample shipments to and from the laboratory.

# Comment 7

In Section 3.10 (Collection and Management of Investigation Derived Waste), page 17, the Respondents state, "[a] total of three composite samples were collected from drums containing soil with known constituent concentrations above NMED residential screening levels. A composite sample was collected to characterize soil for waste disposal from AOC No. 24, AOC No. 26, AOC No. 22, and SWMU No. 4....Each composite soil sample was analyzed for the following: [Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)] and [Methyl tertiary butyl ether (MTBE)] by EPA Method 8021B; Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8310; TCLP RCRA 8 Metals by EPA Method 6010B; and Ignitability, Corrosivity, and Reactivity." Revise the Report to explain how the composite samples were collected so that VOC loss was minimized (e.g., soils were mixed in a steel bowl and placed into a four ounce glass jar; soil samples were placed directly into a four ounce jar and compacted for zero headspace). Homogenized samples analyzed for BTEX are inappropriate because of the potential loss of volatiles. All future samples analyzed for VOCs must be collected as discrete samples unless the composite sampling method is approved by NMED.

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# Comment 8

In Section 4.3 (Subsurface Conditions), page 21, the Respondents describe the underground piping associated with AOC No. 22, AOC No. 24, and AOC No. 26. In accordance with the Order, Section X.C.13 Item 2, utilities must be shown on the site plan/figures. Provide and label all utilities on all figures; New Mexico One Call, Inc. color coding may be used.

# Comment 9

In Section 4.4 (Soil Boring Installation, Monitoring Well Construction, and Boring Abandonment) and Section 6.1 (Soil Sampling), the Respondents provide an adequate detailed discussion of the activities associated with soil sampling. Descriptions of the methods used for groundwater sampling are not as detailed. Revise Section 4 (Field Investigation Results) of the Report to provide more information regarding type and purpose of field investigation activities performed, field screening measurements, and sampling results for groundwater, and expand Section 6.4 (Ground Water Sampling) to include more information that explains the methods used for sample logging, and field screening, and field screening results (see also Comment 2).

# Comment 10

In Section 4.4 (Soil Boring Installation, Monitoring Well Construction, and Boring Abandonment), the Respondents describe the methods and details of soil boring installation, monitoring well construction, and soil boring abandonment activities. However, the Respondents do not use the same format when describing the investigation details for each SWMU or AOC. Examples included:

- a. The Respondents address the number of surface samples and soil borings installed at SWMU No. 5, AOC No. 22, AOC No. 24, AOC No. 25, AOC No. 26, but this information was not included for SWMU No. 4.
- b. The Respondents discuss impacts being detected or not detected based on field screening results and visual or olfactory observations for some SWMUs and AOCs, while other descriptions do not include this information. For example, AOC No. 22, page 24, the Respondents state, "[t]here was no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to a depth of 10 feet bgl [below ground level]." This information was not included for AOC 24-5 and AOC 24-6; the Respondents state, on page 28 that "[o]n April 8, 2009 the drilling rig was set up on location AOC 24-5 [and AOC 24-6]. Sample collection was accomplished using the HSA drilling method and split spoon samplers. The sampling terminated at 10 feet bgl. The borehole was grouted to the surface on April 9, 2009."

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Revise this Section of the Report to provide consistent information when describing investigation details for each SWMU and AOC.

# Comment 11

In Section 4.4 (Soil Boring Installation, Monitoring Well Construction, and Boring Abandonment), under AOC 22-13, the Respondents state, "[g]round water sample AOC 22-13-GW was collected using a disposable bailer. The ground water in the augers was not purged [prior] to sampling since saturation had been encountered less than 24 hours earlier and would be representative of the formation's ground water." AOC 22-13 was not designated for a well installation, but because of the field screening measurements and visual observation, the Respondents decided to collect a groundwater sample. However, AOC 22-12/TW-01 was completed as a temporary well; the Respondents do not discuss well purging or if a sample was collected after the well was purged. The Respondents state, "[o]n April 14, 2009 the temporary well was gauged and the depth to ground water was measured at 37.95 feet bgl. The total depth of the well was gauged as 42.51 feet bgl. Ground water sample AOC 22-12-GW was collected using a disposable bailer. It was decided to not plug and abandon the boring but rather to complete the boring as a temporary well TW-01." Revise the Report to indicate if the temporary well was purged prior to sampling (see also Comment 2).

# Comment 12

Section 4.4 (Soil Boring Installation, Monitoring Well Construction, and Boring Abandonment), pages 29 and 30, discusses the drilling of MW-65 and states, "[d]uring the installation of the well the bentonite formed a "bridge" between the ODEX casing and the well casing. When the ODEX casing was being removed from the borehole the well casing moved, which caused the proposed well settings to be adjusted. The ODEX casing and well casing were removed from the borehole and the field activities ceased for the day. On April 17, 2009 the borehole for AOC 26-8/MW-65 was re-entered and reamed out to a depth of 44.5 feet bgl using the HSA drilling method...The rig was sent back to this location on April 20, 2009 to collect and screen the soils from 2 feet to 10 feet bgl. The borehole was grouted to the land surface." It is not clear from the description if a second borehole was drilled to collect soil samples from two to ten feet and then abandoned. Revise the Report to clarify if a second borehole was drilled specifically to collect samples on April 20, 2009.

### Comment 13

In Section 5 (Regulatory Criteria), page 34, the Respondents state, "[t]he screening levels in Table 9 are based on residential land use. Since the investigation data for SWMU No. 4, SWMU No. 5, AOC No. 23, and AOC No. 25 indicate there is no threat to ground water in these areas, the applicable screening levels do not include the soil-to-groundwater leachate pathway." Revise

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this section to explain how it was determined that there is no threat to groundwater at SWMU No. 4, SWMU No. 5, AOC No. 23, and AOC No. 25.

# Comment 14

In Section 5 (Regulatory Criteria), page 34, the Respondents state, "[t]he total petroleum hydrocarbon (TPH) screening levels are taken from NMED's October 2006 TPH Screening Guidelines [NM TPH SSL]...Where information is available to identify particular product types, the screening level is selected accordingly from either Table 2a or 2b of NMED guidance. If two products have been handled in the same area (e.g., both diesel and gasoline at the product loading rack), then the most conservative (lowest) screening level of the two products is used." It is not clear how the Respondents will apply the lowest screening level of two products (gasoline and diesel) when there is no numeric standard for one of them (gasoline). Revise the Report to clarify this discrepancy.

# Comment 15

In Section 5 (Regulatory Criteria), page 34, the Respondents state, "[t]he total petroleum hydrocarbon (TPH) screening levels are taken from NMED's October 2006 TPH Screening Guidelines...[w]here information is available to identify particular product types, the screening level is selected accordingly from either Table 2a or 2b of NMED guidance...[s]creening values from Table 2b are used only in situations where impacts to shallow soils do not pose a threat to underlying groundwater and there is limited potential for exposure to impacted soil (e.g., elevated concentrations occur mostly at depth and not at the land surface)."

- a. In accordance with the NM TPH SSLs, the values from Table 2b should only be applied to situations where "depth to groundwater is less than 15 feet from the ground surface and within 30 feet of an occupied structure." According to the boring logs, groundwater was encountered from approximately 36 to 55 feet bgs. Values from Table 2b are therefore not appropriate. Revise the Tables to reflect the use of only Table 2a.
- b. Revise the Report to describe the specific site conditions for applying Table 2a.

### Comment 16

In Section 5 (Regulatory Criteria), pages 34 and 35, the Respondents state, "[s]imilarly, there were detections of constituents in ground water samples that do not have screening levels. This includes the four constituents listed above for soil and magnesium, phenanthrene, bicarbonate, calcium, potassium and sodium. None of these constituents are classified as a carcinogen." The first sentence references detections in groundwater while the second sentence addresses

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constituents in soil. Revise the Report to correct this discrepancy, or otherwise clarify the meaning.

# Comment 17

In Section 6.1.3 (AOC No. 22 – Product Loading Racks and Crude Receiving Loading Racks) and Section 6.1.7 (AOC No. 26 – Tank Area 44 and 45), pages 44, 50 and 51, the Respondents describe cumulative risk evaluations for AOC No. 22 and 26. The Respondents indicate the cumulative effects of certain constituents (e.g. cobalt, manganese) are not a concern because they are non-carcinogenic. It is inappropriate to make cumulative risk conclusions solely on whether the constituent is a carcinogen or a non-carcinogen. The Respondents must refer to Section 5 of the *Technical Background Document for Development of Soil Screening Levels (Revision 5.0 dated August 2009)* to determine cumulative risk. The Respondents must evaluate the data using a conservative approach by applying the maximum concentrations across the entire data set. All calculations and results from the assessments must be included in the revised Report.

# Comment 18

In Section 6.1.3 (AOC No. 22 – Product Loading Racks and Crude Receiving Loading Racks), page 45, the Respondents state, "[f]ive of the constituents are listed as potential carcinogens based on the NMED and EPA sources referenced in Section 5.0. This could result in a cumulative carcinogenic risk level of 5.0 E-5." The Respondents must provide all calculations, results, and other supporting information from the risk assessments in the revised Report.

# Comment 19

In Section 6.1.4 (AOC No. 23 – Southeast Holding Ponds) and Section 6.1.6 (AOC No. 25 – Auxiliary Warehouse and 90-Day Storage Area), the Respondents references the DAF of 20. Table 9 applies the DAF of 1. Revise the Report to clarify this discrepancy.

### Comment 20

In Section 6.1.5, (AOC No. 24 – Tank Areas 41 and 43), under AOC 24-6, page 47, the Respondents state, "[a]ll the analytical results for the samples collected at AOC 24-6 were less than the non-residential screening levels with the exception of DRO in sample AOC 24-6 (1.5-2.0')." According to Table 11 the DRO concentration for AOC 24-6 is 1,400 mg/kg, which is less than the industrial screening level for DRO of 2.00E+03 mg/kg, as indicated in Table 11. Revise the Report to correct this discrepancy.

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# Comment 21

In Section 6.1.7 (AOC No. 26 – Tank Area 44 and 45), under AOC 26-9/MW-66, page 50, the Respondents state, "[t]here are numerous organic constituents, including volatile and semi-volatile organics that have concentrations above the non-residential screening levels in soil sample AOC 26-9 (36-38'). The concentration detected in AOC 26-9 at 36-38' are believed to be associated with ground water impacts in the area and not a soil source in the immediate area." Explain why the detections are believed to result from groundwater impacts and not a soil source, and discuss the suspected source of groundwater contamination that is affecting soils at 36-38 ft bgs. Revise the Report accordingly.

# Comment 22

In Section 6.1.7, (AOC No. 26 – Tank Areas 44 and 45) under AOC 26-9/MW-66, and Section 7 (Conclusions and Recommendations) under AOC No. 22 – Product Loading Racks and Crude Receiving Loading Racks, pages 51, 59, and 60, the Respondents state, "[t]he screening level included in Table 10 for cobalt assumes a DAF of 1 for the soil-to-ground water pathway; however, cobalt is not detected in concentrations above the screening level in any of the ground water samples collected during the site investigation effort. Cobalt does not appear to present a threat to ground water and the soil-to-ground water pathway should not be considered to be complete at AOC No. [22 and 26]." Cobalt can be found in the catalyst used to remove sulfur from crude oil and its presence could be a result of refinery operations and not representative of a background concentration. Provide evidence for the assertion that cobalt is not a threat to groundwater. Concomitantly, re-evaluate the applicability of the DAF of 1 and consider calculating a site-specific DAF to determine if cobalt is a threat to groundwater. If a site-specific DAF is calculated, all calculations and results must be included in the revised Report.

# Comment 23

In Section 7, (Conclusions and Recommendations) under AOC No. 22 and AOC No. 24, pages 60 and 61, the Respondents state that certain constituents (e.g., lead, arsenic, and manganese) "may not be an indication of actual impacted ground water but rather possible sampling artifacts resulting from the use of a bailer to purge the wells and collect ground water samples." The Respondents do not provide a description of the potential effects of the use of a bailer. In any event, such a conclusion cannot be made until the background study has been completed. No revision is necessary.

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### Comment 24

In Section 7 (Conclusions and Recommendations), pages 58 through 62, the Respondents recommend additional assessment for SWMU No. 4, and SWMU No. 5, and additional investigation for AOC No. 22 and AOC No. 26.

- a. Provide the current and future status (operational/active, interim, and inactive) of all the SWMUs and AOCs in the Group 3 Investigation Report. Indicate if the SWMUs/AOCs are operational and how long will they remain active. Indicate if the structures in the SWMUs/AOCs will be completely removed once they are no longer in operation.
- b. The Respondents recommend "[a]dditional assessment...to delineate the lateral extent of the impacts in soils near [SWMU 4-1]." Revise the Report to provide more information regarding the sump, including but not limited to dimensions of the sump, history of releases, if sampling was completed over the entire cross-section of the old sump area prior to backfilling, and if the Respondents intend on removing soil from the former sump area.
- c. The Respondents recommend "[a]dditional assessment...at SWMU No. 5 to delineate the lateral impact to surface soils based on the reported concentrations of mercury." Revise the Report to include more information describing how cleaning activities were conducted for the heat exchangers and provide information regarding historical uses of the bundle cleaning pad (e.g., documentation of overflows from the concrete pad to the ground surface, and historical management of waste not associated with bundle cleaning).
- d. The Respondents recommend "[a]dditional investigation ...for the impacted soils within AOC No. 22 for the area near borings AOC 22-4, and AOC 22-13. Some additional delineation of ground water impacts may also be useful and should be completed in consideration of any additional investigation to be completed at other nearby SWMUs/AOCs." Revise the Report to provide more information about the underground piping in relation to groundwater contamination. Indicate if all lines are still active/abandoned, and if any lengths have been replaced because of damage. Also provide information about historical releases that occurred near this area and list possible contaminants of concern.
- e. The Respondents recommend "[a]dditional soil sampling near AOC 26-5...to confirm the limited presence of MTBE that was detected in the 1.5-2.0' sample interval. Additional monitoring wells may be considered to better define the up-gradient extent of ground water impacts." The Respondents must provide more information about the tanks, including but not limited to history of releases, condition of containment structures, valves, fittings, piping, and if tanks 44 and 45 are currently in use.

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# Comment 25

In Section 7 (Conclusions and Recommendations), under AOC No. 23, page 61, the Respondents state, "[t]he analyses for the soil samples did not detect the presence of any constituents at concentrations above the residential screening levels and most of the organic results were non-detect, with the exception of a few constituents that were qualified ... due to laboratory contaminants (e.g., methylene chloride and acetone)...The ground water samples collected from MW-62 identified only manganese at concentrations above the screening levels (Table 16). The presence of only manganese above screening levels and no detections of petroleum constituents in water samples collected from MW-62 indicates that the manganese could be representative of background conditions rather than impacts from site operations; however, no background value has been established for manganese at this time...Corrective Action Complete without Controls is recommended for AOC No. 23."

- a. Provide additional information for AOC No. 23 to include the current and future status of the AOC. Indicate if the AOC is operational/inactive, if the AOC structures will be completely removed once it becomes inactive, and discuss any history of releases.
- b. Provide additional information to demonstrate that all groundwater and soil detections are below the Residential SSLs in order for AOC No. 23 to be considered for Corrective Action Complete. The Respondents must be able to demonstrate manganese is not a concern, and will not be a concern in the future, through a risk assessment or demonstrate that the detected concentration is within the range of background concentrations.

# Comment 26

In Section 7, (Conclusions and Recommendations) under AOC No. 24 – Tank Areas 41 and 43, page 61-62, the Respondents state, "[o]ther inorganic constituents detected above screening levels include chloride, nitrate, and sulfate. Chloride and sulfate are naturally occurring constituents with wide-spread occurrence in ground water in the San Juan River Basin (Stone, W.J. and others, 1983). The absences of any refinery-related constituents (i.e. petroleum hydrocarbons) in the ground water sample collect[ed] from MW-64 indicates that the inorganic constituents might not be related to site operations." Chloride, sulfate, and high total dissolved solids are commonly found at high concentrations in refinery-produced water and at petroleum-contaminated sites. No response required.

# Comment 27

In Section 7, (Conclusions and Recommendations) under AOC No. 24 – Tank Areas 41 and 43, page 61-62, the Respondents state, "[a]n assessment to evaluate the risk posed by the limited occurrence of TPH at location AOC 24-6 is recommended instead of any additional assessment

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and/or remediation." Discuss how the risk will be evaluated without conducting additional investigation activities and revise the Report accordingly.

# Comment 28

In Section 7 (Conclusions and Recommendations), under AOC No. 25, page 62, the Respondents state, "[t]here were not detections of any constituents at concentrations above the residential screening levels in the soil samples. There were also no constituents detected in the ground water samples above the screening levels, with the single exception of manganese, which was only slightly over the screening level. There was not a sufficient volume of ground water present in MW-60 to collect a ground water sample during the second sampling event conducted in July 2009. Corrective Action Complete without Controls is recommended for AOC No. 25."

- a. Provide additional information to include the current and future status of AOC No. 25. Indicate if AOC No. 25 is operational/inactive, discuss if the AOC No. 25 structures will be completely removed once it becomes inactive, and discuss the history of releases.
- b. There is insufficient historical data for MW-60 to demonstrate that manganese or other constituents are not a concern. All groundwater and soil detections must be below the Residential SSLs in order for Corrective Action Complete to be considered. The Respondents must be able to demonstrate manganese is not a concern, and will not be a concern in the future, through a risk assessment or demonstrate that the detected concentration is within the range of background concentrations.

# Comment 29

In Section 7 (Conclusions and Recommendations), under SWMU No. 4 Transportation Terminal Sump, page 58, the Respondents state, "[a]n additional assessment is recommended to delineate the lateral extent of the impacts in soils near AOC 4-1." The text of the Report references the Transportation Terminal Sump as SWMU No. 4 and Figure 6 (SWMU No. 4 Sample Locations Map) which identifies SWMU 4-1/MW-59 as a boring/monitoring well. There is no reference to an AOC 4-1. Revise the Report to correct this discrepancy.

### Comment 30

Table 6 (Residential Soil Screening Levels) contains some apparent typographical errors. The residential values presented in the Table for arsenic and ethylbenzene are 3.59E+00 and 6.96E+01, respectively. The residential values listed in the New Mexico Soil Screening Levels (NMSSLs) for these constituents are 3.90E+00 and 6.97E+01, respectively. These errors were also carried over into the other tables within the Report. Revise all tables within the Report to correct these discrepancies.

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# Comment 31

The Respondents titled Table 9 as *Group 3 Soil Analytical Results Summary – AOC 23 and AOC 25*, which implies the table only presents data collected from AOCs 23 and 25. The table also includes data for SWMU No. 4 and SWMU No. 5. The Respondents titled Table 11 as *Group 3 Soil Analytical Results Summary – SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24*, which implies the data provided in the table is only from these sites. The table does not include data from SWMUs 4 and 5. Ensure table titles correctly reference the data presented.

# Comment 32

The Respondents apply non-residential screening levels in Tables 10 and 11. It is not clear how the Respondents determined which of the seven standards indicated in the footnotes were applied (e.g., Table 10 applied the DAF 1 to acetone for all depths; for bromobenzene the EPA Protection of Groundwater Risk-based SSL was applied for all depths). The data were applied to a mix of screening levels. To alleviate confusion and apply a more systematic approach, revise the tables and text of the Report to apply the data to the most conservative non-residential scenario (e.g., construction worker or industrial) and the residential scenario. Upon determining the most conservative scenario, explain why the selected screening level was chosen. Revise the Report accordingly.

# Comment 33

In Table 11, column "AOC 22-16 (36-38')" has a superscript "1." This superscript is not defined in the footnotes on page 10 of 15 of Table 11. Revise the Report to define the superscript.

# Comment 34

In Table 16, columns "MW-61, 05/13/2009," "MW-61, 07/16/2009," and "MW-62, 05/13/2009" the Respondents did not highlight the sample results above the screening level for manganese. Revise Table 16 accordingly.

# Comment 35

NMED has the following comments on figures:

a. Report all sample results, including non-detects, in the figures. If a sample was not collected or the well is dry, this must be noted and indicated on the legend and the figure. For example, Figure 6 (SWMU No. 6 Sample Locations Map) reports the sample results for benzene and DRO for all the sampling locations, but Figure 14 (AOC No. 23 Sample Location Map) does not present any results for the sampling location at AOC No. 23.

- b. Expand the scale of Figures 17 through 20 to include all Group 3 SWMUs and AOCs (i.e. include AOC No. 23) and report all sample results for all new, temporary, and current monitoring wells. If a sample was not collected or the well is dry, indicate this in the legend and note it as such on the figures.
- c. Define all symbols on all figures (e.g., cross hatch shading on Figures 8 through 15).

# Comment 36

On Figures 2, 5, 8 through 13, and 16 through 20, there are several tanks that are not identified.

- a. Identify the unlabeled tanks west of Tank 44 in Figures 2, 5, 8 through 13 and 16 through 20.
- b. Identify the unlabeled tanks south of SWMU No. 4 and west of Tank 41 in Figures 2, 5, and 17 through 20.
- c. Identify the unlabeled tank north of B-12 thru B-21 in Figures 2, 5, and 17 through 20.
- d. Provide an additional figure that identifies all Group 3 SWMU and AOC locations similar to Figure 17 to include AOC No. 23 and the diesel AST southwest of AOC No. 25.
- e. Verify that tank 34 holds water and not product (e.g., label contents on the map or provide color symbolizing tank contents).
- f. All tank details addressed in items a through e above must be summarized in a table and included in the revised Report. The table must contain the following headings: Tank ID, status (Active/Inactive), contents (e.g., gas, water, crude), location (e.g., southwest of AOC No. 25), and comments (e.g., release history, if known).

# Comment 37

Provide more information for the crude sampling rack east of AOC No. 22, the L.P.G. loading area north of SWMU No. 4, the diesel AST southwest of AOC No. 25, and the gasoline pumps west of AOC No. 25 to determine whether they are operational/inactive. Include a discussion of any historical releases, description of the activities conducted at the SWMUs/AOCs, and indicate if these SWMUs/AOCs should be included in the Phase II investigation.

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# Comment 38

Revise Appendix F to include sections that describe field methods pertaining to the soil investigation and groundwater monitoring activities. The groundwater monitoring section must be expanded to describe how the monitoring wells were sampled (e.g., at each monitoring well the depth to water and depth to product measurements were collected using an oil/water interface probe, monitoring wells were purged and sampled using a dedicated bailer, samples were collected in pre-cleaned laboratory prepared containers). Include description of purging methods and how purge volumes were calculated, and all field equipment used while collecting soil and groundwater samples (see also Comment 2).

The Respondents must address all comments contained in this NOD and submit a revised Report to NMED on or before May 1, 2011. The revised Report must be submitted with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. In addition, an electronic version of the revised Report must be submitted that identifies where all changes were made in red-line strikeout format.

If you have any questions regarding this letter, please contact Leona Tsinnajinnie of my staff at (505) 476-6057.

Sincerely,

James P. Bearzi

Chief

Hazardous Waste Bureau

cc:

J. Kieling, NMED HWB

D. Cobrain, NMED HWB

H. Monzeglio, NMED HWB

L. Tsinnajinnie, NMED HWB

C. Chavez, OCD

A. Hains, Western

File: HWB-WRB-10-001 and Reading 2010



# RECEIVED

# 2009 DEC 18 PM 1 25

December 17, 2009

James Bearzi, Bureau Chief New Mexico Environmental Department Hazardous Waste Bureau 2905 Rodeo Park Drive East, Building 1 Santa Fe, New Mexico 87505-6303

Re:

Giant Refining Company, Bloomfield Refinery (currently know as Western Refinery Southwest, Inc. – Bloomfield Refinery) Order No. HWB 07-34 (CO) Investigation Report Group No. 3

Dear Mr. Bearzi:

Western Refining Southwest Inc. - Bloomfield Refinery submits the referenced Investigation Report pursuant to Section IV.B.7 of the July 2007 HWB Order. The Investigation Report summarizes the site environmental investigation activities completed for the SWMUs and AOCs designated as Group 3. These include SWMU No. 4 Transportation Terminal Sump, SWMU No. 5 Heat Exchanger Bundle Cleaning Area, AOC No. 22 Product Loading Rack and Crude Receiving Loading Racks, AOC No. 23 Southeast Holding Ponds, AOC No. 24 Tank Areas 41 and 43, AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area, and AOC No. 26 Tank Area 44 and 45. The Report was developed and formatted to meet the requirements of Section X.C of the July 2007 HWB Order.

If you have any questions or would like to discuss the Investigation Report, please contact me at (505) 632-4171.

Sincerely.

Names R. Schmaltz

Environmental Manager

Western Refining Southwest, Inc.

Bloomfield Refinery

cc:

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# INVESTIGATION REPORT GROUP 3

(SWMU No. 4 Transportation Terminal Sump, SWMU No. 5 Heat Exchanger Bundle Cleaning Area, AOC No. 22 Product Loading Rack and Crude Receiving Loading Racks, AOC No. 23 Southeast Holding Ponds, AOC No. 24 Tank Areas 41 and 43, AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area, and AOC No. 26 Tank Area 44 and 45)

Bloomfield Refinery
Western Refining Southwest, Inc.
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December 2009

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# **Executive Summary**

The Bloomfield Refinery, which is located in the Four Corners Area of New Mexico, has been in operation since the late 1950s. Past inspections by State and federal environmental inspectors have identified locations where releases to the environment may have occurred. These locations are generally referred to as Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs).

Pursuant to the terms and conditions of an Order issued on July 27, 2007 by the New Mexico Environment Department (NMED) to San Juan Refining Company and Giant Industries Arizona, Inc. for the Bloomfield Refinery, this environmental site investigation was completed for the SWMUs and AOCs designated as Group 3. This group includes SWMU No. 4 Transportation Terminal Sump; SWMU No. 5 Heat Exchanger Bundle Cleaning Area; AOC No. 22 Product Loading Rack and Crude Receiving Loading Racks; AOC No. 23 Southeast Holding Ponds; AOC No. 24 Tank Areas 41 and 43; AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area; and AOC No. 26 Tank Areas 44 and 45.

The Order requires that San Juan Refining Company and Giant Industries Arizona, Inc. determine and evaluate the presence, nature, and extent of historical releases of contaminants at the aforementioned SWMUs and AOCs. A Class I permit modification was approved on June 10, 2008 to reflect the change in ownership of the refinery to Western Refining Southwest, Inc. The operator is now Western Refining Southwest, Inc. – Bloomfield Refinery.

The investigation activities included collection and analysis of soil and ground water samples for potential site-related constituents beginning on April 6, 2009 and continuing through July 29, 2009. This included the completion of 13 soil borings with two of the borings completed as temporary monitoring wells and eight completed as permanent monitoring wells. In addition, surface soil samples (i.e., 0-0.5' and 1.5-2.0') were collected at 29 locations. A summary of the results of the investigation is provided as follows:

- SWMU No. 4: One soil boring (SWMU 4-1) that was completed as a permanent monitoring well (MW-59) at SWMU No. 4 encountered impacted soils that appear to be associated with the historical transportation terminal sump. Ground water impacts were also observed in MW-59, which is down-gradient of a larger area of impact that extends up-gradient to the product loading rack.
- SWMU No. 5 and AOC No. 25: Six surface sample locations around SWMU No. 5 contained mercury in concentration soil above the NMED residential screening level of 7.71 mg/kg. Mercury impacts are limited to within the upper 6-inches of surface soils. An

additional surface soil sample and deeper soil boring (AOC 25-2/MW-60) was completed at AOC No. 25, which is adjacent to SWMU No. 5. There were no detections of constituents in soil above the respective residential screening levels. The ground water sample collected from MW-60 did not indicate impacts to ground water from SWMU No. 5 or AOC No. 25.

- AOC No. 22: At the Crude Receiving area, two soil borings (AOC 22-14) and AOC 22-16) were installed, with AOC 22-16 completed as a permanent monitoring well (MW-63). At the Product Loading Rack area, a total of three soil borings (AOC 22-13, AOC 22-12, and AOC 22-15) were installed; soil boring AOC 22-15 was completed as a permanent monitoring well (MW-61), and soil boring AOC 22-12 was completed as a temporary well (TW-01). A total of 40 soil samples were collected within AOC No. 22. Soil impacts are evident near the sump located north of the product loading rack. Ground water impacts, while extending over a larger area, appear to be centered near the product loading sump and product loading rack.
- AOC No. 23: One soil boring/monitoring well (AOC 23-1/MW-62) was installed near and down gradient of AOC No. 23. There were no documented impacts to soil and only manganese was identified in ground water above the screening levels.
- AOC No. 24: Four surface soil sample locations and three soil borings, one of which was converted to a monitoring well (AOC 24-7/MW-64), were completed at AOC No. 24. Limited soil impacts were observed at one sampling location. Site-related constituents (e.g., petroleum hydrocarbons) were not detected in ground water, but two metals (arsenic and manganese) and three naturally occurring inorganic constituents (chloride, sulfate, and nitrate) were identified at concentrations above the screening levels.
- AOC No. 26: Seven surface soil sample locations and two soil borings, both of which
  were completed as permanent monitoring wells (AOC 26-8/MW-65 and AOC 26-9/MW66), were completed at AOC No. 26. Only MTBE was detected in one vadose zone soil
  sample at low concentrations that exceeded the screening level protective of soil-toground water, yet below the EPA Regional screening level for residential soil. Ground
  water samples collected at MW-65 and MW-66 both indicated the presence of petroleum
  hydrocarbons and fuel additives.

# Conclusions and Recommendations

Based on the investigation results, "Corrective Action Complete without Controls" designation is recommended for AOC No. 23 and AOC No. 25. Additional assessment and delineation of impacted soils is recommended for SWMU No. 4, SWMU No. 5, AOC No. 22-4, AOC No. 22-13, and near AOC 26-5. Additional assessment of risk posed by the limited occurrence of TPH at AOC No. 24-6 is recommended instead of additional assessment and/or remediation.

Ground water impacts documented during the assessment of SWMU No. 4 and AOCs No. 22 and 26 indicate that the primary constituents exceeding the screening levels across these areas are similar and appear to be associated with operations at the product loading rack. Additional

delineation of ground water impacts at AOCs No. 22 and 26 is recommended to better define the distribution of constituents within these areas and to distinguish potential sources.

A separate investigation work plan will be prepared to detail proposed additional investigation activities for soil and ground water.

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# Section 1 Introduction

The Bloomfield Refinery is located immediately south of Bloomfield, New Mexico in San Juan County (Figure 1). The physical address is #50 Road 4990, Bloomfield, New Mexico 87413. The Bloomfield Refinery is located on approximately 263 acres. Bordering the facility is a combination of federal and private properties. Public property managed by the Bureau of Land Management lies to the south. The majority of undeveloped land in the vicinity of the facility is used extensively for oil and gas production and, in some instances, grazing. U.S. Highway 44 is located approximately one-half mile west of the facility. The topography of the main portion of the site is generally flat with steep bluffs to the north where the San Juan River intersects Tertiary terrace deposits.

The Bloomfield Refinery is a crude oil refinery currently owned by Western Refining Southwest, Inc., which is a wholly owned subsidiary of Western Refining Company, and it is operated by Western Refining Southwest, Inc. – Bloomfield Refinery. The Bloomfield Refinery has an approximate refining capacity of 18,000 barrels per day. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization, and diesel hydro treating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils, and LPG.

On July 27, 2007, the New Mexico Environment Department (NMED) issued an Order to San Juan Refining Company and Giant Industries Arizona, Inc. ("Western") requiring investigation and corrective action at the Bloomfield Refinery. This Investigation Report has been prepared for the Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) designated as Group 3 in the Order. This includes:

- SWMU No. 4 Transportation Terminal Sump;
- SWMU No. 5 Heat Exchanger Bundle Cleaning Area;
- AOC No. 22 Product Loading Rack and Crude Receiving Loading Racks;
- AOC No. 23 Southeast Holding Ponds;
- AOC No. 24 Tank Areas 41 and 43;
- AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area; and
- AOC No. 26 Tank Areas 44 and 45.

The locations of the individual investigation units are shown on Figure 2 and all of the Group 3 SWMUs/AOCs are located on the southeastern portion of the refinery property, south of Country Road 4990.

The purpose of the site investigation is to determine and evaluate the presence, nature, and extent of releases of contaminants in accordance with 20.4.1.500 New Mexico Administrative Code (NMAC) incorporating 40 Code of Federal Regulations (CFR) Section 264.101. The investigation activities were conducted in accordance with Section IV of the Order and focused on soils and ground water as those are the environmental media in these areas that may potentially contain contaminants. The investigation was completed pursuant to the Investigation Work Plan dated June 2008 (revised January 2009), which was approved by the NMED on February 18, 2009. Activities conducted that deviate from the approved Investigation Work Plan are discussed in Section 3.3, Section 6.3, and Section 6.6 of this report.

Soil and ground water samples were analyzed for volatile and semi-volatile organic constituents, total petroleum hydrocarbons, and metals. In addition, ground water samples were analyzed for inorganic general chemistry constituents. The results of these analyses are compared to applicable State or federal cleanup and screening levels as specified in Section VII. of the Order.

# Section 2 Background

This section presents background information for each of the investigation units, including a review of historical waste management activities for each location to identity the following:

- Type and characteristics of waste and contaminants handled in the subject SWMU or AOC;
- Known and possible sources of impacts;
- History of releases; and
- Known extent of impacts prior to the current investigation.

# 2.1 SWMU No. 4 Transportation Terminal Sump

The Transportation Terminal Sump is located to the northeast of the auxiliary warehouse/90-day storage area and immediately west of bullet tanks B-22 and B-23. The use of the sump was discontinued in 1986 and the sump was backfilled. There are no documented specific instances of releases at the sump but use of the area for truck cleaning may have resulted in small releases over time.

During an inspection conducted by EPA in 1984, two water samples (an aqueous phase and oily phase) and one soil sample were collected from the sump for analysis of cadmium and chromium. The soil sample contained cadmium at a concentration of 2.2 ppm and an oily phase water sample contained 1.3 ppm cadmium and 40 ppm chromium (Giant Industries, 2003). During a subsequent Phase II RCRA Facility Investigation (RFI) conducted in 1994, two soil borings (B-1 and B-2) were installed near the sump (Figure 6). Soils were screened continuously at each boring to a depth of 12 feet (ft) below ground level (bgl). Based on the highest photo ionization detection (PID) readings, one sample was collected from each boring for analysis. The samples were analyzed for volatile organic compounds (VOCs; USEPA method 8240), semi-volatile organic compounds (SVOCs; USEPA method 8270), total petroleum hydrocarbons (TPH; USEPA method 418.1), and metals (USEPA method 6010/7000 series). The results of these soil analyses are summarized in Table 5. Because no organic constituents were detected in either sample and the metal concentrations were reported within background ranges included in the Phase II RFI Report, Giant Refining Company requested no

further action for this SWMU in their Solid Waste Management Unit Assessment Report (Giant Industries, 2003).

# 2.2 SWMU No. 5 Heat Exchanger Bundle Cleaning Area

The Heat Exchanger Bundle Cleaning Area, which has been identified as SWMU No. 5, is located at the east end of the auxiliary warehouse (Figure 2). Heat exchanger bundles are periodically cleaned at this location to remove scale deposits. The cleaning usually takes place on a concrete slab at the east end of the auxiliary warehouse, which has concrete curbs, portable side wall curtains, and drains to a sump located inside the warehouse. There are large metal doors that open at the east end of the warehouse and occasionally during the winter, cleaning operations take place inside the warehouse in a fully enclosed room with sheet metal walls, concrete floor, and concrete lined collection sump (i.e., the 90-day storage area). The sump, which is designed to collect all wash water and any waste materials generated during cleaning operations, is approximately four feet wide, four feet deep and 50 feet long. Any sludge that collects in the sump is removed upon completion of cleaning operations, containerized and sent off-site for disposal as hazardous waste in accordance with 90-day onsite storage regulations. There is no indication of documented spills in this area. The likely constituents of concern are organic petroleum constituents and metals.

No soil samples have been collected and analyzed from the Heat Exchanger Bundle Cleaning Area in the past; however, ground water quality has been assessed down-gradient of this area. Figure 5 shows the potentiometric surface of the shallow ground water, which underlies the refinery property. Monitor well MW-13 is located approximately 250 feet down-gradient and ground water samples have been routinely collected from this well and analyzed for potential constituents of concern. Methyl tertiary butyl ether (MTBE) is the only potential refinery-related constituent detected in the ground water samples. The historical ground water analyses are summarized in Tables 1 through 4.

# 2.3 AOC No. 22 Product Loading Rack And Crude Receiving Loading Racks

The loading racks are used to unload crude oil, which is transported to the refinery via tanker trucks, and to load out refined product onto tanker trucks for distribution at retail gasoline stations (Figure 2). The primary constituents of concern are petroleum constituents and to a lesser extent additives (e.g., MTBE and ethanol), which may be present in the area of the

product loading racks. Documented releases of petroleum products and crude oil have occurred at the loading racks.

Two soil borings (B-3 and B-4) were installed at the loading racks during the Phase II RFI in 1994 (Figure 8). Each boring was completed to a depth of 12 ft bgl with soil samples continuously screened with a PID. No indication of impacts was recorded at the B-3 location and a sample was collected from the 6-8' interval based on the depth of underground piping in the area. The 10-12' interval was selected at B-4 based on the highest PID reading. These samples were analyzed for VOCs, SVOCs, TPH, and metals, and the results are presented in Table 5. Only one organic constituent was detected in the sample collected at B-3 (methylene chloride at 0.11 mg/kg). Benzene, toluene, ethylbenzene, and xylene (BTEX) were detected at low concentrations in sample B-4 (10-12'). Metals were detected in both samples but were reported to be within background ranges included in the Phase II RFI Report (Groundwater Technology, Inc., 1994).

# 2.4 AOC No. 23 Southeast Holding Ponds

The southeast holding ponds are located at the southeastern most corner of the active portion of the refinery property (Figure 2). There are two ponds, which each cover approximately 4.5 acres. The "ponds" were constructed in 1995 as double lined (60-millimeter high density polyethylene) surface impoundments with a leak detection system. Treated process water is routinely pumped directly from the Refinery aeration lagoons to the on-site injection well for disposal. However, as needed during scheduled injection well maintenance events and/or process conditions, the ponds serve as temporary storage for treated process water. Any temporary accumulation of treated process water at the ponds is pumped to the injection well for final disposal.

There has not been any indication of leaks from the ponds. As the pond are used sporadically to store treated wastewater, the potential constituents of concern would be petroleum constituents.

# 2.5 AOC No. 24 Tank Areas 41 and 43

Tanks 41 and 43 are located at the southern edge of the active portion of the refinery property (Figure 2). These tanks are associated with the crude oil receiving racks and have been used to temporarily store crude oil that contains an unacceptably high fraction of water. Tank 43 is

not currently in service. There was a small spill of approximately 100 to 150 gallons of oily water that spilled near Tank 43 in 2006.

No soil investigations were previously conducted in this area but a monitor well (MW-6) was installed immediately to the west during the 1994 RFI. This well was dry when installed and remains dry.

# 2.6 AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area

The auxiliary warehouse and 90-day storage area are located in the same building, which is approximately 300 feet south of Sullivan Road and 650 feet west of the crude oil loading rack (Figure 2). Photographs of the area are provided in Appendix A. The metal building was originally used as a truck terminal prior to relocation of the terminal to its current location in 1984. The truck terminal was used for general maintenance and repair of tanker trucks and auxiliary equipment. No drains or sumps are located within the portion of the building currently used as the warehouse, but there is a sump in the 90-day storage area that collects water that drains from the Heat Exchanger Bundle Cleaning Pad. The sump, which is designed to collect all wash water and any waste materials generated during cleaning operations, is approximately four feet wide, four feet deep and 50 feet long. Any sludge that collects in the sump is removed upon completion of cleaning operations, containerized and sent off-site for disposal as hazardous waste in accordance with 90-day on-site storage regulations. There are no documented releases associated with the historical truck terminal operations; however, the types of potential constituents of concern associated with these activities include petroleum constituents (e.g., fuels, motor oil, transmission fluids, etc.) and chlorinated solvents (e.g., tetrachloroethylene and trichloroethylene).

The auxiliary warehouse is currently used to store dry materials (e.g., large bags of catalyst beads) and auxiliary equipment (e.g., small pumps and generators). An employee health center is located in the far western end of the warehouse. There have been no documented spills at the warehouse and there are no associated potential types of constituents for assessment beyond those identified above for the historical truck terminal operations. The 90-day storage area is used for temporary storage of wastes that are shipped off-site for disposal at approved disposal facilities. The types of wastes stored primarily include spill cleanup materials (e.g., contaminated soil and absorbent materials), heat exchange bundle sludge, tank bottoms, etc. that are containerized in steel drums or plastic lined totes. The storage area has a roof to

prevent contact with stormwater, a concrete floor and a large concrete lined sump to collect any material that may leak. There have not been any documented releases from the 90-day storage area.

No soil samples were previously collected and analyzed from the area near the auxiliary warehouse or 90-day storage area; however, ground water quality has been assessed downgradient of this area. Figure 5 shows the potentiometric surface of the shallow ground water, which underlies the refinery property. Monitor well MW-13 is located approximately 250 feet down-gradient and ground water samples have been routinely collected from this well and analyzed for potential constituents of concern. MTBE is the only organic constituent detected in the ground water samples above screening levels. The historical ground water analyses are summarized in Tables 1 through 4.

# 2.7 AOC No. 26 Tank Areas 44 and 45

Tanks 44 and 45 are located a short distance south of Sullivan Road and immediately northeast of the product loading rack (Figure 2). These tanks are used to store additives, which are blended at the product loading racks. The materials stored in the tanks have included MTBE, naphtha, and ethanol. There are no documented reportable spills from these tanks.

No soil samples or ground water samples were previously collected in the immediate vicinity of Tanks 44 and 45. The types of potential constituents of concern in the area include petroleum constituents, MTBE, and ethanol.

# Section 3 Scope of Activities

Pursuant to Section IV of the Order, an investigation of soils and ground water was conducted to determine and evaluate the presence, nature, extent, fate, and transport of contaminants for designated AOC and SWMU areas associated with Group 3. The section provides a brief summary of the activities performed during this investigation event. A more detailed description of each activity is included in Section 4 Field Investigation Results and Section 6 Site Impacts.

# 3.1 Background Information Research

Documents containing the results of previous investigations and subsequent routine ground water monitoring data from monitoring wells were reviewed to facilitate development of the Investigation Work Plan. The previously collected data provides valuable information on the overall subsurface conditions, including hydrogeology and contaminant distribution within ground water. The data collected under this investigation supplements the historical ground water data and provide SWMU/AOC-specific information regarding contaminant occurrence and distribution within soils and ground water. Section 2 provides a more detailed summary of historic operations and review of historical waste management activities for each Group 3 SWMU and AOC area.

# 3.2 Utility Clearance

Prior to the start of drilling and field sampling activities, Western initiated the New Mexico One Call System notification to identify existing active utility lines within the vicinity of each proposed soil boring and monitoring well location. Historic and current Refinery process unit and utility site drawings were also reviewed to identify abandoned and/or active Refinery pipelines. The locations of each proposed soil boring and monitoring well were marked in the field prior to drilling, and the locations were reviewed in the field by the Refinery Safety Manager and Terminals Manager to ensure drilling activities would not impact current Site operations, nor cause any additional safety concerns during drilling and sampling activities.

# 3.3 Soil Boring Installation, Field Screening, and Soil Sample Collection

In efforts to determine and evaluate the presence, nature, extent, fate, and transport of contaminants, soil borings were drilled and/or soil samples were collected at the following SWMUs/AOCs:

- SWMU No. 4 Transportation Terminal Sump;
- SWMU No. 5 Heat Exchanger Bundle Cleaning Area;
- AOC No. 22 Product Loading Racks and Crude Receiving Loading Racks;
- AOC No. 23 Southeast Holding Ponds;
- AOC No. 24 Tank Areas 41 and 43;
- AOC No. 25 Auxiliary Warehouse and 90- Day Storage Area; and
- AOC No. 26 Tank Areas 44 and 45.

A total of 13 soil borings were drilled using hollow-stem auguring (HSA) method or air rotary-ODEX method to a minimum depth of 10 feet bgl. Soils were screened continuously using split spoon samplers and logged by a qualified geologist in accordance with USCS nomenclature (Appendix E).

Surface soil samples (0 to 2 ft bgl) and subsurface soil samples (deeper than 2 ft bgl) were collected at each soil boring location using split spoon samplers. In general, soil samples were collected from the following depth intervals:

- 0-0.5' bgl;
- 1.5'-2.0' bgl;
- 6-inch interval above the top of saturation (for deeper soil borings only;
- The interval from each boring with the greatest apparent degree of impact based on field observations and field screening; and
- Any additional intervals as determined based on field screening to exhibit potentially significant impacts.

At least one boring at each of the individual SWMUs/AOCs was drilled to the top of saturation, with the exception of SWMU No. 5 where only surface soil sampling was conducted. At designated locations where only surface soil samples were collected (i.e. sample collected from 0-0.5' bgl and 1.5-2.0' bgl), sampling was accomplished using a hand auger with the soil samples collected from the auger bucket. The soil samples were logged by a qualified geologist in accordance with USCS nomenclature (Appendix E).

All surface and subsurface soil samples were field screened. Field screening included visual screening for evidence of staining caused by petroleum-related compounds, and headspace vapor screening using a photo-ionization detector (PID). The maximum PID reading was documented. Field screening results were recorded on the exploratory boring logs (see Appendix E). The field screening results were used to aid in the selection of additional soil samples for laboratory analysis.

All soil samples were sent to Hall Environmental Analytical Laboratory in Albuquerque, New Mexico and analyzed for the following in accordance with the approved Work Plan:

- Volatile organic compounds (VOCs) by USEPA Method 8260B;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Gasoline and diesel range organics by SW-846 Method 8015B;
- Total recoverable metals (Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, vanadium, and zinc) by SW846 Method 6010/6020;
- Cyanide by SW-846 method 9012; and
- Mercury by EPA Method 7470.

Soil samples were placed in pre-cleaned, laboratory-prepared sample containers for laboratory analysis. All soil samples were collected and soil boring installed in locations pursuant to the approved Investigation Work Plan, with the exception of three soil borings, which were moved with NMED concurrence. A request was submitted to the NMED on March 27, 2009 via email to move the locations of two monitoring wells (MW-61 and MW-65) and one soil boring (AOC 24-6) based on the presence of underground utilities. Approval was granted via email on March 27, 2009 and a copy of the correspondence with a map showing the changed locations is included in Appendix B. The number of soil samples collected, soil borings drilled, and monitoring wells installed for each of the SWMUs/AOCs is discussed below.

### SWMU No. 4

One soil boring (SWMU 4-1) was drilled in a location west of Bullet 23 within the vicinity of the former transportation sump. The soil boring extended to approximately 44.25 ft bgl and was completed as a permanent monitoring well (MW-59).

A total of 4 soil samples were collected at this location for laboratory analysis. Figure 6 shows the sample location for SWMU No.4.

# SWMU No. 5

Surface soil samples were collected from six locations (SWMU 5-1, SWMU 5-2, SWMU 5-3, SWMU 5-4, SWMU 5-5, AND SWMU 5-6) around the perimeter of SWMU No. 5 on the north, east, and south sides. The sample locations were approximately 3 ft beyond the existing concrete containment curbing.

A total of 13 soil samples, including one field duplicate, were collected for laboratory analysis. Figure 7 shows the sample locations for SWMU No. 5.

# AOC No. 22

The drilling and sample collection effort at AOC No. 22 includes the Crude Receiving Rack and the Product Loading Rack. Figure 8 shows the sample locations for AOC No. 22.

# Crude Receiving Rack Area

At the Crude Receiving Rack area, two soil borings (AOC 22-14 and AOC 22-16) were drilled near the Crude Receiving sump area. The soil borings extended to approximately 10 ft bgl and 46 ft bgl, respectively. Soil boring AOC 22-16 was completed as a permanent monitoring well (MW-63).

A total of 16 soil samples, including one field duplicate sample, were collected from the two soil borings and five additional surface sample locations (AOC 22-7 through AOC 22-11) within the Crude Receiving Rack area. All soil samples were submitted to the analytical laboratory for analysis.

# Product Loading Rack Area

At the Product Loading Rack, a total of three soil boring (AOC 22-13, AOC 22-12, and AOC 22-15) were drilled near the Product Loading Rack sump area and adjacent to the west. The soil borings extended to approximately 42.5 ft bgl, 42 ft bgl, and 40.25 ft bgl, respectively. Soil boring AOC 22-15 was completed as permanent monitoring well (MW-61), and soil boring AOC 22-12 was completed as a temporary well (TW-01).

A total of 27 soil samples, including two field duplicate samples, were collected from the three soil borings and from six additional surface sample locations (AOC 22-1 through AOC 22-6) within the Product Loading Rack area. All soil samples were submitted to the analytical laboratory for analysis.

# AOC No. 23

At AOC No. 23, one soil boring (AOC 23-1) was drilled in a location down gradient of the Evaporation Ponds, south of the Truck Shop. The soil boring extended to approximately 58.25 ft bol and was completed as a permanent monitoring well (MW-62).

A total of 4 soil samples, including one field duplicate sample, were collected for laboratory analysis. Figure 14 shows the sample locations for AOC No. 23.

# AOC No. 24

At AOC No. 24, three soil borings (AOC 24-5, AOC 24-6, and AOC 24-7) were drilled in locations north and west of Tank 41 and slightly down gradient of the AOC No. 24 area. The soil borings extended to approximately 10 ft, 10 ft, and 50.25 ft bgl, respectively. Soil boring AOC 24-7 was completed as a permanent monitoring well (MW-64).

A total of 17 soil samples, including two field duplicate samples, were collected from the three soil borings and four additional surface soil sample locations (AOC 24-1 through AOC 24-4) for laboratory analysis. Figure 15 shows the sample locations for AOC No. 24.

# AOC No. 25

At AOC No. 25, one soil boring (AOC 25-2) was drilled in a location along the north side of current auxiliary warehouse. The soil boring extended to approximately 45.5 ft bgl and was completed as a permanent monitoring well (MW-60).

A total of 6 soil samples, including one field duplicate sample, were collected from the one soil boring and one additional surface soil sample location (AOC 25-1) for laboratory analysis. In addition, one set of ground water samples were collected from MW-60 following monitoring well completion and development activities. A second set of ground water samples were not collected due to the lack of ground water in the well. Figure 7 shows the sample locations for AOC No. 25.

# AOC No. 26

At AOC No. 26, two soil boring (AOC 26-8 and AOC 26-9) were drilled in a location west of Tank 44 and slightly down gradient of the AOC No. 26 area. The soil borings extended to approximately 44.25 ft and 43.25 ft bgl, respectively. Soil boring AOC 26-8 and AOC 26-9 were completed as permanent monitoring wells (MW-65 and MW-66, respectively).

A total of 22 soil samples, including two field duplicate samples, were collected from the two soil boring and seven additional surface soil sample locations (AOC 26-1 through AOC 26-7) for laboratory analysis

# 3.4 Monitoring Well Installation, Completion, and Development

# Monitoring Well Installation

Each of the eight permanent monitoring wells (MW-59 through MW-66) were completed in accordance with the requirements of Section IX of the Order. Each monitoring well was drilled to the top of bedrock (Nacimiento Formation). Slotted (0.01-inch) PVC well screen was placed at the bottom of the well, extending for 10 to 15 feet to ensure that each well is screened across the water table and, to the extent possible; the entire saturated zone is open to the well, with approximately five feet of screen above the water table. A 10/20 sand filter pack was installed a minimum of two feet over the top of the well screen, and a bentonite annular seal was installed on top of the filter pack at a minimum of 2 feet thick. A grout seal was installed on top of the annular seal, and extends to within a few feet of ground surface. The grout seal was allowed to cure for a minimum of 24-hours before the concrete surface pad was installed.

# Monitoring Well Completion

The surface completions consisted of either flush mount completions or stickup completions. The flush mount completions consisted of an 8-inch well vault centered within a concrete pad. The concrete pad was wire reinforced. The stickup completions consisted of a protective aluminum enclosure with a cap that was secured in a concrete pad. The aluminum protective casing extended approximately 4 ft above the top surface of the concrete pad. One permanent monitoring well (MW-60) was completed as a flush-mounted well. The other seven monitoring wells, including the one temporary monitoring well (TW-01) was completed with above-grade completions. MW-60 is protected with a well cap and steel meter box installed around the well

casing, which is equipped with a rubber gasket to minimize surface water accumulation. Each monitoring well above-grade completion includes the installation of four bollards located near each corner of the surface pad.

# Monitoring Well Development

Following monitoring well completion activities, each of the new monitoring wells were developed using a combination of mechanical surging and air-lift techniques. Initially, a surge block attached to the end of the drill rod was used to swab the inside of the well casing within the screen interval. The repeated plunging motion drew filter pack fines and loosened sediment into the well casing, improving the water quality within the surrounding formation and filter pack.

Once the well was surged, the air-lift apparatus was used to remove the loosened sediment and fines from inside the well casing. Using an air compressor and dedicated 1-inch PVC eductor piping, compressed air was injected into the well. The air flow rate was manually adjusted to produce a continuous flow of water/sediment mixture out the top of the well casing via the 1-inch eductor piping. Air lifting ceased once the purge water was relatively clear.

# 3.5 Soil Boring Plug and Abandonment

Each soil boring not completed as a permanent or temporary monitoring well was pressure grouted via the tremie pipe method from the bottom of the borehole to the ground surface. The soil borings were plugged so that the borehole would not act as a conduit for migration of surface water to the lower soil and to ground water.

#### 3.6 Ground Water Sampling and Vadose Zone Vapor Sampling

Two rounds of water sampling were conducted following completion of well development activities at each of the eight permanent monitoring wells (MW-59 through MW-66). In addition, two sets of ground water samples were collected from temporary well TW-01 (located at boring AOC 22-12) and one set of ground water samples were collected at AOC 22-13 (sample ID was AOC 22-13 (GW)). A total of 18 ground water samples were collected as part of the Group 3 investigation activities using disposable bailers. All ground water samples were sent to Hall Environmental Analytical Laboratory in Albuquerque, New Mexico and analyzed using the following:

Volatile Organic Compounds (VOCs) by SW-846 Method 8260;

- Semi-Volatile Organic Compounds (SVOCs) by SW-846 Method 8270;
- Gasoline, diesel, and motor oil range petroleum hydrocarbons by SW-846 Method 8015B;
- Total recoverable metals (Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, vanadium, and zinc) by SW846 Method 6010/6020;
- Cyanide by SW-846 method 9012;
- Mercury by EPA Method 7470;
- Ethanol by SW-846 Method 8015 (AOC 26 samples only);
- Anions (chloride, Nitrate/Nitrite, and sulfate) by USEPA Method 300.0;
- Alkalinity (total alkalinity, carbonate, and bicarbonate) by USEPA Method 310.1;
- Dissolved metals (iron, calcium, magnesium, potassium, and sodium) by USEPA Method 6010B; and
- Total dissolved solids by SM-2540C

All samples were placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. Prior to collection of the ground water sample at each well, a total well vapor sample was collected and field analyzed for percent carbon dioxide and oxygen. Field vapor measurements were collected using a multi-gas meter, and the results recorded on a field sampling log.

In addition, ground water level and separate-phase hydrocarbon (SPH) thickness measurements were collected from each new monitoring well prior to well purging. Measurement data and pertinent field information was recorded on field sampling log. The depth-to-groundwater and depth-to-SPH were measured to the nearest 0.01 ft and recorded relative to the surveyed well casing rim.

#### 3.7 Decontamination Procedures

Drilling equipment was decontaminated between each borehole using a high pressure portable water wash. Sampling equipment that were in direct contact with the samples (e.g. hand augers and split-spoon samplers) were decontaminated using a brush, as necessary, to remove larger

particulate matter followed by a rinse with potable water, wash with non-phosphate detergent, rise with potable water, and double rinse with deionized water. The field methods are also summarized in Appendix F.

In the event that more than one SWMU/AOC was investigated during the day, a new batch of wash water and rinse water was prepared for the new SWMU/AOC prior to decontamination. The decontamination water was collected in buckets and placed in open top 55-gallon drums, which were labeled and sealed at the end of each work day.

# 3.8 Quality Assurance / Quality Control Measures

Quality Assurance/Quality Control (QA/QC) samples were collected to monitor the validity of the soil sample and ground water sample collection procedures, as well as to monitor any cross contamination during sample shipment and/or sample contamination during laboratory analysis activities. QA/QC samples collected during field investigation activities included the collection of field duplicates at a rate of 10%, equipment blanks at a rate of 10% or one per day when disposable sampling equipment was used, and field blanks at a rate of one per day.

A total of 80 QA/QC samples were collected during the Group 3 investigation event. A data validation assessment was completed that included review of the field sample data, laboratory QA/QC summaries, and results of the QA/QC samples. The field data was qualified accordingly based on results of the data validation process. Appendix H provides a detailed data validation summary for the field samples collected as part of the Group 3 investigation activities.

# 3.9 Field Equipment Calibration

Field sampling equipment was calibrated daily prior to commencement of field sampling activities. For soil sampling, headspace vapor screening for soil samples was conducted using a MiniRae 2000 portable VOC monitor. The instrument was calibrated at the beginning of each work day to a concentration of 100 ppm isobutylene.

Field vapor monitoring was completed using a multi-gas Eagle Meter manufactured by RKI Instruments, Inc. The meter was calibrated with 15% CO<sub>2</sub>, 12.0% O<sub>2</sub>, and 100 ppm isobutylene each work day.

An Ultrameter 6P manufactured by Myron L Company was used to measure ground water stabilization parameters. The calibration solutions used at the beginning of each day are as follows:

- 4.0 pH solution;
- 7.0 pH solution;
- 10.0 pH solution; and
- 1.413 mS/cm conductivity solution.

# 3.10 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with soil borings were contained and characterized based on the boring location and type of contaminants suspected or encountered in DOT certified 55-gallon drums.

A total of three composite samples were collected from drums containing soil with known constituent concentrations above NMED residential soil screening levels. A composite sample was collected to characterize soil for waste disposal from AOC No. 24, AOC No. 26, AOC No. 22, and SWMU No. 4. One composite sample was collected for soil from AOC No. 22 and SWMU No. 4 since less than one drum of cuttings was generated from investigations at SWMU No. 4, and the investigation results shown that only a limited impact of TPH was detected at a concentration higher than NMED residential screening levels, but below NMED industrial screening level for waste oil. Each composite soil sample was analyzed for the following:

- BTEX and MTBE by EPA Method 8021B;
- Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8310;
- TCLP RCRA 8 Metals by EPA Method 6010B; and
- Ignitability, Corrosivity, and Reactivity.

The associated analytical is included in Appendix C. Composite samples were not collected for soils cuttings generated from AOC 23 and AOC 25 because investigation sample results show that the detected concentrations in the soil were below NMED residential screening levels. All analytical results for waste characterization purposes were submitted to Waste Management, Inc. for review and approval of acceptance. Soils were disposal of at the Painted Desert Landfill, In Joseph City, Arizona.

All purged ground water and decontamination water was disposed in the refinery wastewater treatment system upstream of the API Separator. Personal protective equipment (e.g., gloves) was disposed in the refinery's general waste bins.

# 3.11 Surveys

Known site features and/or site survey grid markers were used as references to locate each boring and surface sample location prior to surveying the locations using a registered professional land surveyor. The boring locations were measured to the nearest foot, and locations were placed on a scaled map. In addition, a hand-held GPS receiver was used to record the coordinates of each soil boring. These coordinates were recorded on the boring logs. The soil boring locations were subsequently surveyed by a registered surveyor.

The horizontal coordinates and elevation of each surface sampling location; the surface coordinates and elevation of each boring, the top of each monitoring well casing, and the ground surface at each monitoring well location; and the locations of all other pertinent structures were determined by a registered New Mexico professional land surveyor in accordance with the State Plane Coordinate System (NMSA 1978 47-1-49-56 (Repl. Pamp. 1993)). The surveys were conducted in accordance with Sections 500.1 through 500.12 of the Regulations and Rules of the Board of Registration for Professional Engineers and Surveyors Minimum Standards for Surveying in New Mexico. Horizontal positions were measured to the nearest 0.1-ft, and vertical elevations were measured to the nearest 0.01-ft. The survey data is included in Appendix D.

# Section 4 Field Investigation Results

This section provides a summary of the procedures used and the results of all field investigation activities conducted at the site as part of Group 3 investigation activities. This summary includes the dates that investigation activities were conducted, the type and purpose of field investigation activities performed, field screening measurements, logging and sampling results, monitoring well construction details and conditions observed. Field observations or conditions that altered the planned work or may have influenced the results of sampling, testing and logging are also reported in this section.

#### 4.1 Surface Conditions

Regionally, the surface topography slopes toward the floodplain of the San Juan River, which runs along the northern boundary of the refinery complex. To the south of the refinery, the drainage is to the northwest. North of the refinery, across the San Juan River, surface water flows in a southeasterly direction toward the San Juan River. The active portion of the refinery property, where the process units and storage tanks are located, is generally of low relief with an overall northwest gradient of approximately 0.02 ft/ft. The refinery sits on an alluvial floodplain terrace deposit and there is a steep bluff (approx. drop of 90 feet) at the northern boundary of the refinery where the San Juan River intersects the floodplain terrace, which marks the southern boundary of the floodplain.

There are two locally significant arroyos, one immediately east and another immediately west of the refinery, which collect most of the surface water flows in the area, thus significantly reducing surface water flows across the refinery. A minor drainage feature is located on the eastern portion of the refinery, where the Landfill Pond (SWMU No. 9) was located and there are several steep arroyos along the northern refinery boundary that primarily capture local surface water flows and minor ground water discharges.

The refinery complex is bisected by County Rd #4990 (Sullivan Road), which runs east-west. The process units, storage tanks (crude oil and liquid products), and wastewater treatment systems are located north of the county road. The crude oil and product loading racks, LPG storage tanks and loading racks, maintenance buildings/90-day storage area, pipeline offices, transportation truck shop, and the Class I injection well are located south of the county road. There is very little vegetation throughout these areas with most surfaces composed of concrete,

asphalt, or gravel. The area between the refinery and the San Juan River does have limited vegetation on slopes that are not too steep to support vegetation.

# 4.2 Exploratory Drilling Investigations

A total of 13 soil borings were drilled as part of Group 3 investigation activities using hollow-stem auguring (HSA) method or air rotary-ODEX method. All soil borings were drilled to a minimum depth of 10 feet with at least one boring at each of the individual potential source areas drilled to the top of saturation, with the exception of SWMU No. 5 where only surface soil samples were collected. If there was any indication of impacts based on field screening results at 10 feet or evidence of waste materials or other signs of impacts, then the boring was drilled deeper until reaching a depth of five feet below any observed impacts (e.g., odors or elevated PID readings) or to the top of saturation, whichever was achieved first. If impacted media was detected at the water table, then the boring was drilled five feet below the water table or to refusal (whichever occurred first) to facilitate collection of ground water samples. Total depths of each soil boring completed as a permanent monitoring well ranged between 10 ft to 59 ft bgl, with the deepest soil boring/monitoring well being AOC 23-1/MW-62.

At designated locations where only surface soil samples were collected (i.e. sample intervals being (0-0.5') and (1.5-2.0') below ground level only), sampling was accomplished using a hand auger with the soil samples collected from the auger bucket. Soil samples collected from soil borings extending greater than 2 ft below ground level were collected using split spoon samplers.

Soil samples were screened continuously from split spoon samplers or hand auger and logged by a qualified geologist. The soil descriptions were made in accordance with USCS nomenclature and recorded on the individual field boring logs. As shown on the boring logs (Appendix E), the data recorded included the lithologic interval, USCS symbol, percent recovery and a sample description of the cuttings and core samples.

The drilling equipment was decontaminated between each borehole using a high pressure potable water wash. The split-spoon samplers and hand augers were decontaminated between each use using a potable water rinse, an Alconox wash and then a distilled water rinse. In the event that more than one SWMU/AOC was investigated during the day, a new batch of wash water and rinse water was prepared for the new SWMU/AOC prior to decontamination. The decontamination water was collected in buckets and placed in open top 55-gallon drums, which

were labeled and sealed at the end of each work day. Soil cuttings were also placed in labeled open top 55-gallon drums and were sealed when not in use.

#### 4.3 Subsurface Conditions

Numerous soil borings and monitoring wells have been completed across the refinery property during previous site investigations and installation of the slurry wall, which runs along the northern and western refinery boundary. Thirteen soil borings, eight of which were completed as permanent monitoring wells, were completed under this scope of work for Group No. 3. One additional temporary well designated as TW-01 was installed in the AOC No. 22 area.

Based on the available site-specific and regional subsurface information, the site is underlain by the Quaternary Jackson Lake terrace deposits, which unconformably overlie the Tertiary Nacimiento Formation. The Jackson Lake deposits consist of fine grained sand, silt and clay that grades to coarse sand, gravel and cobble size material closer to the contact with the Nacimiento Formation. The Jackson Lake Formation is over 40 feet near thick near the southeast portion of the site and generally thins to the northwest toward the San Juan River. The Nacimiento Formation is primarily composed of fine grained materials (e.g., carbonaceous mudstone/claystone with interbedded sandstones) with a reported local thickness of approximately 570 feet (Groundwater Technology, 1994).

Figures 3 and 4 present cross-sections of the shallow subsurface based on borings logs from on-site monitoring well completions.

Underground piping is present in the area of AOC Nos. 22, 24, and 26 (see Figure No. 2), which includes piping used to transfer crude oil from the loading racks to AOC No. 22, piping for gasoline additives from AOC No. 26 to the product loading rack, crude oil transfer piping to the tank farm north of County Rd. 4990, product transfer piping from the tank farm to product loading rack, and piping used to transfer product and crude oil within the individual loading racks. There was no indication that the underground piping is acting as a preferential pathway for contaminant migration and the generally transmissive nature of the native soils would tend to lesson any affects from the underground utilities.

# 4.4 Soil Boring Installation, Monitoring Well Construction, and Boring Abandonment

This section describes the methods and details of soil boring installation, monitoring well construction, and soil boring abandonment activities. Details of soil sample collection activities conducted during soil boring installation are provided in Section 6. Each soil boring is discussed under the appropriate SWMU or AOC. The borings are discussed in chronological order within each SWMU/AOC. Copies of the boring and well construction logs are provided in Appendix E. A description of the surface soil sampling at each SWMU or AOC is discussed in Section 6.1.

Soil borings completed as a permanent or temporary monitoring well were drilled to the top of bedrock (Nacimiento Formation). The completion depths ranged between 40 to 59 feet. Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 10 to 15 feet to ensure that the entire saturated zone is open to the well. Rigid PVC with threads was utilized for the well casing and no glues/solvents were utilized. Permanent monitoring wells were constructed with 4-inch diameter PVC casing; the temporary wells were constructed using 2-inch diameter PVC casing. A 10/20 sand filter pack was installed to a minimum of two feet over the top of the well screen. A 6-inch sand bed was also installed at the base of the monitor well. Pursuant to Section IX.C. of the Order, a minimum of two feet of bentonite seal was placed over the filter pack and hydrated. An annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours before surface pad and protective casing were installed.

The surface completions consisted of either flush mount completions or stickup completions. The flush mount completions consisted of an 8-inch well vault centered within a concrete pad measuring 4-feet by 4-feet wide by 6-inches thick. The concrete pad was wire reinforced. The stickup completions consisted of a protective aluminum enclosure with cap that was secured in a concrete pad measuring 4-feet by 4-feet wide by 6-inches thick. The concrete pad was wire reinforced. The aluminum protective casing extended 4 feet above the top surface of the concrete pad.

Four-inch diameter steel bollards were installed 6 inches from each corner of the concrete pad to further protect the monitoring wells constructed with stick-up completions. Bollards were not placed around temporary well TW-01 since its location is not near vehicle access areas. The bollards were installed two feet below grade and extended three feet above grade. The bollards were installed vertically level and extend the same height. The holes for the bollards were dug

by hand with the diameter of the borehole measured a minimum of 6-inches. Each bollard was cemented into the ground with the cement extending from the bottom of the hole to the surface. The bollard was filled with cement. Each bollard was pretreated to remove rust, primed, and painted with two coats of safety-yellow paint.

# SWMU No. 4 - Transportation Terminal Sump

# SWMU 4-1/MW-59

On April 6, 2009 the drilling rig was set up on location SWMU 4-1/MW-59 (Figure 6). Sample collection began with the use of the HSA drilling method and split spoon samplers. The borehole was advanced to a depth of 36 feet bgl. The rig was modified to drill using the ODEX drilling method and sampling continued. The sampling was terminated at 43.5 feet bgl.

As shown on the well construction log for MW-59, the Nacimiento Formation was encountered at 42.5 feet bgl and consisted of dense, damp, yellowish brown sandstone. In order to accommodate the well setting, the borehole was advanced to a depth of 44.25 feet bgl.

Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (28 to 43 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to two feet over the top of the well screen. As the sand was installed in the wellbore the ODEX casing was removed. Two feet of bentonite was placed over the filter pack and hydrated. On April 7, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 10, 2009, the surface pad and protective aluminum stick-up cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

#### SWMU No. 5 - Heat Exchanger Bundle Cleaning Area

As described in Section 6, 12 surface soil samples (i.e., 0-0.5' and 1.5–2') were collected in the SWMU No. 5 area (Figure 7). The samples were collected from sample locations SWMU 5-1, SWMU 5-2, SWMU 5-3, SWMU 5-4, SWMU 5-5, and SWMU 5-6. No deep soil borings or monitor wells were installed at the SWMU; however, a soil boring and permanent monitoring well (AOC 25-2/MW-60) was installed at AOC No. 25, which is adjacent to SWMU No. 5.

# AOC No. 22 - Product Loading Racks and Crude Receiving Loading Racks

In addition to the five soil borings installed at AOC No. 22 as described below, surface samples only were collected at eleven additional designated locations (AOC 22-1 through AOC 22-11). Details pertaining to surface sample collection is provided in Section 6 of this report.

### AOC 22-14

On April 8, 2009 the drilling rig was set up on location AOC 22-14 (Figure 8). Sample collection was accomplished using the HSA drilling method and split spoon samplers. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to a depth of 10 feet bgl. The sampling terminated at 10 feet bgl. The borehole was grouted to the surface on April 9, 2009.

### AOC 22-13

On April 8, 2009 the drilling rig was set up on location AOC 22-13. Sample collection was accomplished using the HSA drilling method and split spoon samplers. As shown on the soil boring log, AOC 22-13, the Nacimiento Formation was encountered at 40.5 feet bgl. The sampling was terminated at 42.5 feet bgl.

This location was not designated for a well installation. However, due the elevated PID readings, the visual observation of staining, and the presence of odor throughout the soil boring it was decided that a ground water sample would be collected from the boring. As temporary well supplies were not immediately available for installation, the augers were left in the borehole overnight. Soil cuttings were placed in open-top 55 gallon drums and that sealed when not in use.

On April 9, 2009 the borehole was gauged and the depth to ground water was measured at 37.80 feet bgl. The total depth of the borehole was gauged as 38.75 feet bgl. Ground water sample AOC 22-13-GW was collected using a disposable bailer. The ground water in the augers was not purged prior to sampling since saturation had been encountered less than 24 hours earlier and would be representative of the formation's ground water. The augers were removed and the borehole was grouted to the surface.

#### AOC 22-12/TW-01

On April 13, 2009 the drilling rig was set up on location AOC 22-12. Sample collection was accomplished using the HSA drilling method and split spoon samplers. As shown on the soil boring log for AOC 22-12, the Nacimiento Formation was encountered at 41 feet bgl and consisted of clayey/sand-weathered sandstone. The sampling was terminated at 42 feet bgl.

Due the elevated PID readings, the visual observation of soil discoloration, and the presence of odor, it was decided that a ground water sample would be collected from the boring. Slotted (0.01 inch) rigid PVC well screen was placed at the bottom and extended for five feet (36.5 to 41.5 feet). Rigid 2-inch diameter Schedule 40 PVC with threads was utilized for the well casing. A 10/20 sand filter pack was installed to 3.5 feet over the top of the well screen. As the sand was installed in the wellbore the hollow stem augers were removed. Two feet of bentonite was placed over the filter pack and hydrated. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

On April 14, 2009 the temporary well was gauged and the depth to ground water was measured at 37.95 feet bgl. The total depth of the well was gauged as 42.51 feet bgl. Ground water sample AOC 22-12-GW was collected using a disposable bailer. It was decided to not plug and abandon the boring but rather to complete the boring as a temporary well TW-01. On April 17, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. A stickup surface completion was installed at this location.

#### AOC 22-16/MW-63

On April 13, 2009 the drilling rig was set up on location AOC 22-16. Sample collection was accomplished using the HSA drilling method and split spoon samplers. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to a depth of 34 feet bgl. The drilling and sampling continued to a depth of 34 feet bgl before shutting down for the day.

On April 14, 2009 the drilling and sampling resumed with the ODEX drilling method and split spoon samplers. As shown on the well construction log for MW-63, the Nacimiento Formation was encountered at 44 feet bgl and consisted of dense, fine grained, dry, greenish gray

weathered sandstone. In order to accommodate the well setting the borehole was advanced to a depth of 46 feet bgl.

Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (29.75 to 44.75 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to 2.75 feet over the top of the well screen. As the sand was installed in the well bore the ODEX casing was removed. Two feet of bentonite was placed over the filter pack and hydrated. On April 17, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 23, 2009 the surface pad and protective aluminum cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

#### AOC 22-15/MW-61

On April 15, 2009 the drilling rig was set up on location AOC 22-15. Sample collection was accomplished using the HSA drilling method and split spoon samplers to a depth of 36 feet. The rig was modified to drill using the ODEX drilling method and sampling continued. As shown on the well construction log, MW-61, the Nacimiento Formation was encountered at 38 feet bgl and consisted of low plasticity, firm, dry to damp, yellowish brown to greenish gray silty sandy clay. In order to accommodate the well setting the borehole was advanced to a depth of 40.25 feet bgl.

Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (24 to 39 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to two feet over the top of the well screen. As the sand was installed in the well bore the ODEX casing was removed. Two feet of bentonite was placed over the filter pack and hydrated. On April 17, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 23, 2009 the surface pad and a flush mount vault were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

### **AOC No. 23 - Southeast Holding Ponds**

#### AOC 23-1/MW-62

On April 21, 2009 the drilling rig was set up on location AOC 23-1 (Figure 14). Sample collection was initially accomplished using the HSA drilling method and split spoon samplers. After encountering gravelly sand at 8 to 10 feet bgl the rig was modified to drill using the ODEX drilling method. Sampling continued to a depth of 31 feet bgl before shutting down for the day.

On April 22, 2009 the drilling and sampling resumed with the ODEX drilling method and split spoon samplers. As shown on the well construction log for MW-62, the Nacimiento Formation was encountered at 55.5 feet bgl and consisted of very dense, black, dry, silt/shale. In order to accommodate the well setting, the borehole was advanced to a depth of 58.25 feet bgl.

Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (42 to 57 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to two feet over the top of the well screen. As the sand was installed in the well bore the ODEX casing was removed. Two feet of bentonite was placed over the filter pack and hydrated. On April 23, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 24, 2009 the surface pad and protective aluminum cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

#### AOC No. 24 - Tank Areas 41 and 43

In addition to the three soil borings installed at AOC No. 24 as described below, surface samples only were collected at four additional designated locations (AOC 24-1 through AOC 24-4). Details pertaining to surface sample collection is provided in Section 6 of this report.

#### AOC 24-7/MW-64

On April 7, 2009 the drilling rig was set up on location AOC 24-7 (Figure 15). Sample collection was initially accomplished using the HSA drilling method and split spoon samplers. After encountering gravelly sand at 38 feet bgl, the rig was modified to drill using the ODEX drilling method. Sampling continued to a depth of 51 feet bgl before shutting down for the day. As

shown on the well construction log for MW-64, the Nacimiento Formation was encountered at 49 feet bgl and consisted of dense, very stiff, dry to damp, yellowish brown sandy clay. On April 8, 2009, the borehole was advanced to a depth of 58.25 feet bgl in order to accommodate the well setting.

Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (34 to 49 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to 2.25 feet over the top of the well screen. As the sand was installed in the well bore the ODEX casing was removed. Approximately 3.25 feet of bentonite was placed over the filter pack and hydrated. On April 9, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 23, 2009 the surface pad and protective aluminum cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

#### AOC 24-5

On April 8, 2009 the drilling rig was set up on location AOC 24-5. Sample collection was accomplished using the HSA drilling method and split spoon samplers. The sampling terminated at 10 feet bgl. The borehole was grouted to the surface on April 9, 2009.

#### AOC 24-6

On April 8, 2009 the drilling rig was set up on location AOC 24-6. Sample collection was accomplished using the HSA drilling method and split spoon samplers. The sampling terminated at 10 feet bgl. The borehole was grouted to the surface on April 9, 2009.

#### AOC No. 25 - Auxiliary Warehouse and 90- Day Storage Area

In addition to the one soil boring installed at AOC No. 25 as described below, surface samples only were collected at one additional designated location (AOC 25-1). Details pertaining to surface sample collection are provided in Section 6 of this report.

#### AOC 25-2/MW-60

On April 5, 2009 the drilling rig was set up on location AOC 25-2 (Figure 16). Sample collection was initially accomplished using the HSA drilling method and split spoon samplers. After

encountering gravelly sand at 38 feet bgl the rig was modified to drill using the ODEX drilling method. Sampling continued to a depth of 45.5 feet bgl. As shown on the well construction log for MW-60, the Nacimiento Formation was encountered at 43.5 feet bgl and consisted of dense, fine grain, damp, light yellowish brown weathered sandstone. The borehole was advanced to a depth of 45.5 feet bgl in order to accommodate the well setting.

Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (28.75 to 43.75 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to 2.25 feet over the top of the well screen. As the sand was installed in the well bore the ODEX casing was removed. Two feet of bentonite was placed over the filter pack and hydrated. On April 9, 2009 an annular grout was pumped by tremie method to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 23, 2009 the surface pad and protective aluminum cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

#### AOC No. 26 - Tank Area 44 and 45

In addition to the two soil borings installed at AOC No. 26 as described below, surface samples only were collected at seven additional designated sample locations (AOC 26-1 through AOC 26-7). Details pertaining to surface sample collection are provided in Section 6 of this report.

#### AOC 26-8/MW-65

On April 16, 2009 the drilling rig was set up on location AOC 26-8 (Figure 16). The boring had been hydroexcavated to 10 feet to clear utilities. Soil sampling with the rig began at 10 feet bgl and was accomplished using the HSA drilling method and split spoon samplers. The rig was modified to the ODEX drilling method after a gravelly sand was encountered at 32 feet bgl.

As shown on the well construction log for MW-65, the Nacimiento Formation was encountered at 41.75 feet bgl and consisted of fine grain, very stiff, damp, yellowish brown sandy clay/clayey sand. In order to accommodate the well setting the borehole was advanced to a depth of 44.25 feet bgl. During installation of the well the bentonite formed a "bridge" between the ODEX casing and the well casing. When the ODEX casing was being removed from the bore hole the

well casing moved, which caused the proposed well settings to be adjusted. The ODEX casing and well casing were removed from the borehole and the field activities ceased for the day.

On April 17, 2009 the borehole for AOC 26-8/MW-65 was re-entered and reamed out to a depth of 44.25 feet bgl using the HSA drilling method. Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (28 to 43 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to two feet over the top of the well screen. As the sand was installed in the well bore the augers were removed. Approximately 2.5 feet of bentonite was placed over the filter pack and hydrated.

The rig was sent back to this location on April 20, 2009 to collect and screen the soils from 2 feet to 10 feet bgl. The borehole was grouted to the land surface.

On April 23, 2009 an annular grout was pumped by tremie method into well completion borehole to within two feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 24, 2009 the surface completion and protective cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

#### AOC 26-9/MW-66

On April 20, 2009 the drilling rig was set up on location AOC 26-9. Soil sampling was initially conducted using the HSA drilling method and split spoon samplers. The rig was modified to the ODEX drilling method after reaching 36 feet bgl. As shown on the well construction log for MW-66, the Nacimiento Formation was encountered at 41 feet bgl and consisted of a sandy silty clay that was stiff to very stiff, dry and grayish green. In order to accommodate the well setting, the borehole was advanced to a depth of 43.25 feet bgl, and the field activities ceased for the day.

On April 21, 2009 MW-66 was installed. Slotted (0.01 inch) rigid PVC well screen was placed at the bottom of the well and extended for 15 feet (27 to 42 feet) to ensure that the entire saturated zone was open to the well. Rigid Schedule 40 PVC with threads was utilized for the well casing. A 6-inch sand bed was placed at the bottom of the well bore. The 10/20 sand filter pack was installed to 2.25 feet over the top of the well screen. As the sand was installed in the well bore the augers were removed. Approximately 2.25 feet of bentonite was placed over the filter pack and hydrated. On April 23, 2009 an annular grout was pumped by tremie method to within two

feet of the ground surface and allowed to cure for a minimum of 24 hours. On April 24, 2009 the surface completion and protective cover were installed. Soil cuttings were placed in open-top 55 gallon drums that were sealed when not in use.

# 4.5 Monitor Well Development

Following monitoring well completion activities, each of the new monitoring wells were developed using a combination of mechanical surging and air-lift techniques. The following well development activities were conducted at each new monitoring well prior to ground water sampling activities.

Using a surge block attached to the end of the drill rod, ground water was forced to flow in and out of the well screen by the repeated upward and downward motion of the surge block along the entire length of the well screen. The repeated plunging motion drew filter pack fines and loosened sediment into the well casing, improving the water quality within the surrounding formation and filter pack.

Once the well was surged for a minimum of 20-minutes, the surge block was removed and the air-lift apparatus was used to remove the loosened sediment and fines from inside the well casing. Using an air compressor and dedicated 1-inch PVC eductor piping, compressed air was injected into the well. The air flow rate was manually adjusted to produce a continuous flow of water/sediment mixture out the top of the well casing via the 1-inch eductor piping. The groundwater/sediment mixture discharged directly into a 55-gallon drum. A glass jar was used to capture a sample of the purge water every 15 minutes to monitor the improving clarity of the purge water. Air lifting ceased once the purge water was relatively clear.

# 4.6 Ground Water Conditions

The uppermost aquifer is under water table conditions and occurs within the sand and gravel deposits of the Jackson Lake Formation. The Nacimiento Formation functions as an aquitard at the site and prevents site related contaminants from migrating to deeper aquifers. The potentiometric surface as measured in July/August 2009 is presented in Figure 5 and shows the ground water flowing to the northwest, toward the San Juan River. The potentiometric surface at the site is consistent with the regional gradient in that movement is toward to the San Juan River, which is a location of regional ground water discharge.

The depth to water in the area of the Group No. 3 SWMUs varies from approximately 34 feet near AOC No. 26 to 53 feet at AOC No. 23. Approximately 0.5 feet of separate phase hydrocarbon (SPH) was measured in one of the new wells (MW-61) installed during this investigation.

The saturated thickness in the water table aquifer varies from zero feet in the southern portion of the site to a maximum of approximately eight feet along the northern portion of the refinery. The areas with the greatest saturated thickness are found near and along the Hammond Ditch and on-site surface impoundments (i.e., the current and former Raw Water Ponds). The predominant source of recharge to the shallow aquifer beneath the refinery is recharge from man-made features (e.g., the Hammond Ditch and on-site surface impoundments).

#### 4.7 Surface Water Conditions

The only local surface water body, excluding on-site surface impoundments and the Hammond Irrigation Ditch, is the San Juan River, which flows along the northern most property boundary. There were no accumulations of surface water observed during the site investigation or conditions likely to result in the future accumulation of surface water. Regionally, the surface topography slopes toward the floodplain of the San Juan River, and across most of the refinery and to the south of the refinery, the drainage is to the northwest. The active portion of the refinery property, where the process units and storage tanks are located, is generally of low relief with an overall northwest gradient of approximately 0.02 ft/ft. There is a steep bluff (approx. drop of 90 feet) at the northern boundary of the refinery where the San Juan River intersects the floodplain terrace, which marks the southern boundary of the floodplain.

There are two locally significant arroyos, one immediately east and another immediately west of the refinery, which collect most of the surface water flows in the area. A minor drainage feature is located on the eastern portion of the refinery, where the Landfill Pond (SWMU No. 9) was located, and there are several steep arroyos along the northern refinery boundary that primarily capture local surface water flows.

The average annual rainfall is only approximately 7.5 inches, thus the threat of surface water transport of contaminants as suspended load or dissolved phase is low. Further, the refinery implements a Stormwater Pollution Prevention Plan to ensure that surface waters of the State are not impacted by refinery operations.

# Section 5 Regulatory Criteria

The applicable screening and cleanup levels are specified in Section VII of the Order issued by NMED on July 2, 2007. The soil cleanup levels are based on a target excess cancer risk of 10<sup>-5</sup> for carcinogenic contaminants and a target hazard index of 1.0 for noncarcinogenic contaminants. The Order specifies a hierarchy of screening levels, with the screening levels based on NMED guidance taking precedence over EPA's Region VI Human Health Medium Specific Screening Levels with one exception for ground water that is discussed below. Based on direction received from NMED subsequent to issuance of the Order, EPA's Region VI Human Health Medium Specific Screening Levels have been replaced with EPA Regional Screening Levels dated April 2009. NMED guidance used to establish cleanup levels includes the *Technical Background Document for Development of Soil Screening Levels* (Revision 5.0 dated August 2009) and *Total Petroleum Hydrocarbon (TPH) Screening Guidelines* (dated October 2006).

For non-residential properties (e.g., the Bloomfield Refinery), the soil screening levels must be protective of commercial/industrial workers throughout the upper two feet of surface soils and construction workers throughout the upper ten feet based on NMED criteria. NMED residential soil screening levels are applied to the upper ten feet and soil screening levels for protection of ground water apply throughout the vadose zone. EPA soil screening levels for direct contact exposure apply to the upper two feet of the vadose zone. To achieve closure as "corrective action complete without controls", the affected media must meet residential screening levels, which are presented in Table 6. Table 7 provides a list of the available NMED and EPA soil screening levels for non-residential properties.

The ground water cleanup levels are based on New Mexico WQCC standards (20.6.2.7 WW NMAC, 20.6.2.3103, and 20.6.2.4103) unless there is a federal maximum contaminant level (MCL), in which case the lower of the two values is selected as the cleanup level. If neither a WCQQ standard nor an MCL is available, then the cleanup level is based on an EPA Regional Screening Level. Table 8 presents the ground water cleanup levels, with the applicable cleanup level highlighted.

The screening levels that are compared to individual sample results are presented in Tables 9, 10, and 11 for soils and Table 14 for ground water. Table 9 includes soil samples results for

SWMUs No. 4 and 5, and AOCs No. 23 and 25. The screening levels in Table 9 are based on residential land use. Since the investigation data for SWMU No. 4, SWMU No. 5, AOC No. 23, and AOC No. 25 indicate there is no threat to ground water in these areas, the applicable screening levels do not include the soil-to-ground water leachate pathway. Table 10 includes soil sample results for samples collected near the product loading rack portion of AOC No. 22 and AOC No. 26. The screening levels in Table 10 are based on non-residential land use and include the potential for constituents to migrate to ground water using a dilution attenuation factor (DAF) of 1.0. The soil analytical results for AOC No. 22 (crude receiving rack) and AOC No. 24 are presented in Table 11. The screening levels in Table 11 are based on non-residential land use. Based on investigation data discussed in Section 6, the constituents in Table 11 do not pose a threat to ground water, and thus these screening levels do not include the soil-to-ground water pathway.

The total petroleum hydrocarbon (TPH) screening levels are taken from NMED's October 2006 TPH Screening Guidelines. When no or insufficient information (e.g., site operational knowledge or laboratory chromatograms) is available to determine the type of petroleum product (e.g., diesel fuel, gasoline, or crude oil), the default product type of "unknown oil" is used to select a screening level for comparison to the gasoline range and diesel range organic analyses. Where information is available to identify particular product types, the screening level is selected accordingly from either Table 2a or 2b of NMED guidance. If two products have been handled in the same area (e.g., both diesel and gasoline at the product loading rack), then the most conservative (lowest) screening level of the two products is used. Screening values from Table 2b are used only in situations where impacts to shallow soils do not pose a threat to underlying ground water and there is limited potential for exposure to impacted soil (e.g., elevated concentrations occur mostly at depth and not at the land surface).

The motor oil range organic (MRO) results are compared to the "waste oil" screening levels, as waste oil is the only petroleum product category in the NMED guidance that includes similar carbon ranges as reported in the MRO analyses. The waste oil is assumed to be composed of 100% C19-C36 aliphatics and the MRO analyses include the C28 – C36 carbon range.

Some of the individual constituents reported by the laboratory did not have screening levels but were all non-detect in soil samples except 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, and sec-butylbenzene. Similarly, there were detections of constituents in ground water samples that do not have screening levels. This includes the four constituents

listed above for soil and magnesium, phenanthrene, bicarbonate, calcium, potassium and sodium. None of these constituents are classified as a carcinogen.

# Section 6 Site Impacts

This section provides a description of sampling intervals and methods for detection of surface and subsurface impacts in soils and ground water. It explains the methods of sample collection, sample logging methods, screening sample selection methods, and field screening results. The analytical results are presented and compared to applicable screening levels, as described in Section 5.0.

# 6.1 Soil Sampling

Shallow soil sampling down to a maximum of 2 feet bgl was accomplished using a hand auger. These "surface" soil samples were collected from the auger bucket. The soil borings greater than 2 feet in depth were drilled using hollow-stem auguring (HSA) method or air rotary-ODEX method. Sample collection for analysis was completed with split-spoon samplers. The drilling equipment was decontaminated between each borehole using a high pressure potable water wash. The sampling equipment coming in direct contact with the samples (e.g., hand augers and split-spoon samplers) were decontaminated using a brush, as necessary, to remove larger particulate matter followed by a rinse with potable water, wash with nonphosphate detergent, rinse with potable water, and double rinse with deionized water. The field methods are also summarized in Appendix F.

All soil borings were drilled to a minimum depth of 10 feet with at least one boring at each of the individual potential source areas drilled to the top of saturation, with the exception of SWMU No. 5 where only shallow soil samples were collected. If there was any indication of impacts based on field screening results at 10 feet or evidence of waste materials or other signs of impacts, then the boring was drilled deeper until reaching a depth five feet below any indications of impacts or to the top of saturation, whichever was achieved first. If impacts were detected at the water table, then the boring was drilled five feet below the water table or to refusal, whichever occurred first.

Soil samples were collected continuously and logged by a qualified geologist. The soil sample descriptions were made in accordance with USCS nomenclature and recorded on the individual field boring logs. As shown on the boring logs (Appendix E) the data recorded included the lithologic interval, symbol, percent recovery and a sample description of the cuttings and core samples.

Known site features and/or site survey grid markers were used as references to locate each boring prior to surveying the location. The boring locations were measured to the nearest foot, and locations were placed on a scaled map. In addition, a hand held GPS receiver was used to record the coordinates of each soil boring. These coordinates were recorded on the boring logs. The soil boring locations were subsequently surveyed by a registered surveyor.

Samples obtained from the borings were screened in the field on 2 foot intervals for evidence of contaminants. Field screening results were recorded on the soil boring logs. Field screening results were used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds.

Visual screening included examining the soil samples for evidence of staining caused by petroleum-related compounds or other substances that may have caused staining of natural soils such as elemental sulfur or cyanide compounds. Headspace vapor screening was conducted as described in Section 6.2.

The selected portion of the sample interval was placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. Two soil samples were collected for VOC analysis. An Encore® Sampler was used for collection of soil samples for low-level VOC analysis and the second sample was placed in a laboratory-prepared container with a methanol preservative.

#### 6.1.1 SWMU No. 4 Transportation Terminal Sump

One soil boring was advanced in the area of SWMU No 4 (Figure 6) on April 6, 2009. This boring was subsequently converted to monitor well MW-59. The drilling and well installation is discussed in Section 4. The following text summarizes the soil sampling that was conducted at location SWMU 4-1.

As discussed in Section 4.4, soil was continuously logged at SWMU 4-1 to a depth of 43.5 feet bgl. Elevated PID readings were recorded in the interval from 4 to 12 feet bgl. The highest reading was at 6 to 8 feet bgl (214 ppm). A soft, black, sticky material mixed with clayey silt was encountered from 4 to 8 feet and soil discoloration and odor were observed down to 12 feet. None of the PID readings below 12 feet exceeded 10 ppm nor were there any visual or olfactory evidence of impacts below 12 feet.

Soil samples were collected at the following intervals from SWMU 4-1:

- 0 − 0.5 feet;
- 1.5 2 feet;
- 6 8 feet (interval with highest PID reading); and
- 36 38 feet (interval above saturation).

No constituents were detected at concentrations above the residential screening levels in either of the two surface soil samples (i.e., 0-0.5' and 1.5-2') or the deepest sample (36-38') collected just above the depth of saturation. TPH as DRO and MRO was detected at concentrations exceeding the residential screening levels (Table 9) in the sample with the highest PID reading in the 6-8' interval. The applicable screening levels used in Table 9 do not include the soil-to-ground water pathway because the impacted soil is vertically limited to the upper 12 feet and there is no indication that the relatively low concentrations of constituents are a threat to ground water that is already impacted by up-gradient sources.

Because only TPH was detected at concentrations above the screening levels, no cumulative risk evaluation was performed. The TPH screening levels were conservatively based on "unknown oil" for the DRO fraction and "waste oil" for the MRO fraction.

# 6.1.2 SWMU No. 5 - Heat Exchanger Bundle Cleaning Area

Soil samples were collected from six surface soil locations (SWMU 5-1, SWMU 5-2, SWMU 5-3, SWMU 5-4, SWMU 5-5, and SWMU 5-6) in the SWMU No. 5 area (Figure 7). On April 23, 2009 discrete soil samples, including one field duplicate sample (SWMU 5-5 (1.5-2.0')), were collected from all six surface soil locations at SWMU No. 5 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. The samples were collected using a hand auger.

There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts in 0 to 2 foot interval in any of the six sample locations. No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening.

No organic constituents were detected at concentrations exceeding the residential screening levels; however, mercury and arsenic were detected in surface soil samples (0-0.5' interval) at concentrations above the residential screening levels. Mercury was exceeded at sample locations SWMU 5-1, SWMU 5-2, SWMU 5-3, SWMU 5-4, SWMU 5-5, and SWMU 5-6, while arsenic was

exceeded only at SWMU 5-3. The applicable screening levels do not include the soil-to-ground water pathway because the impacted soil is vertically limited to surface soils and neither mercury nor arsenic was detected in ground water above the screening levels. The concentrations of mercury (as well as arsenic) attenuated very rapidly from the surface (0-0.5') samples to shallow subsurface (1.5-2.0') samples. The analytical results are summarized in Table 9.

# 6.1.3 AOC No. 22 - Product Loading Racks and Crude Receiving Loading Racks

Soil sampling was conducted at the following locations at AOC No. 22:

- Eleven surface soil sample locations AOC 22-1 thru AOC 22-11;
- Two soil borings AOC 22-13 and AOC22-14 (discussed in Section 4); and
- Three soil borings converted to monitor wells AOC 22-12/TW-01, AOC 22-15/MW-61 and AOC 22-16/MW-63 area (discussed in Section 4).

The following text summarizes the soil sampling that was conducted at AOC No. 22 in chronological order and the resulting analyses. The analytical results for AOC No. 22 are separated into two summary tables. The samples collected near the product loading rack are presented in Table 10 and the samples collected near the crude receiving rack are included in Table 11. The screening levels used in both tables are based on non-residential land use but Table 10 includes the soil-to-ground water pathway using a DAF of 1.0; whereas Table 11 screening levels do not include the soil-to-ground water pathway. A DAF of 1.0 is used in Table 10 due to the greater potential for constituents in soils to migrate to ground water and the soil-to-ground water pathway is eliminated for samples presented in Table 11 because the constituents in these areas do not indicate a threat to ground water.

The TPH screening criteria are also different for the areas near the crude rack vs. the product loading rack. The product type at the crude receiving rack is a weathered crude oil based on operations information and a review of chromatograms of samples collected in this area. Chromatograms for several soil samples characteristic of the crude receiving area are included in Appendix G. For comparison, chromatograms are also included for three fresh crude oils. No NMED screening level is provided for crude oil, weathered or otherwise, therefore "unknown oil" is utilized.

The TPH at the product loading racks is a mix of gasoline and diesel based on operations information. Since there is no NMED TPH screening level for gasoline, the screening level for diesel was utilized for evaluation of samples collected near the product loading rack.

# AOC 22-14

Soil boring AOC 22-14 was extended to a depth of 10 feet on April 8, 2009. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination depth. No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening. Soil samples were collected from AOC 22-14 at the following intervals:

- 0 0.5 feet; and
- 1.5 2 feet;

The analytical results for samples AOC 22-14 (0-0.5') and (1.5-2.0') are presented in Table 11. As shown, none of the concentrations exceed their respective screening levels.

#### AOC 22-13

Soil boring AOC 22-13 was drilled to a depth of 39 feet on April 8, 2009. Elevated PID readings were recorded from the surface to the termination depth. The readings ranged from 908 ppm (35 -37 feet) to 1,694 ppm (32 -33 feet). Soil discoloration was apparent from 20 to 39 feet bgl and the soil cores exhibited odor throughout the entire soil boring. Soil samples were collected from AOC 22-13 at the following intervals:

- 0 0.5 feet;
- 1.5 2 feet;
- 18 20 feet (high PID reading 1660 ppm silty sand);
- 32 34.5 feet (high PID reading 1694 ppm sand); and
- 37 39 feet (interval above saturation).

The analytical results, which are summarized in Table 10, indicate the presence of multiple volatile and semi-volatile organic constituents, cobalt, DRO, and GRO at concentrations above the respective screening levels protective of migration to ground water; however, detected concentrations of all SVOCs and cobalt were below the respective residential screening levels for direct contact.

### AOC 22-12/TW-01

Soil boring AOC 22-12 was extended to a depth of 37.75 feet on April 13, 2009. Elevated PID readings were recorded from 28 to the termination depth. The readings ranged from 22.7 ppm (28 - 30 feet) to 220 ppm (36 – 37.75 feet). Soil discoloration and an odor were apparent in the soil cores from 26 to 37.75 feet bgl. The soil cores collected from the saturated portion of the boring also exhibited an odor. Soil samples were collected at AOC 22-12 from the following intervals:

- 0 0.5 feet also duplicated;
- 1.5 2 feet;
- 32 35 feet (highest PID reading 68 ppm); and
- 36 37.75 feet (interval above saturation).

As summarized in Table 10, cobalt was identified at concentrations above the non-residential screening level protective of migration to ground water; however the detected concentrations of cobalt were below the EPA Regional screening level for residential soils via direct contact. Concentrations of several organic constituents were detected in the 36-37.75 foot interval sample but are below the screening levels, with the exception of naphthalene that was detected at 6.22 µg/kg which exceed the respective screening level protective of ground water migration (4.19 µg/kg). However, the detected concentration of naphthalene was below the respective NMED residential soil screening level via direct contact.

#### AOC 22-16/MW-63

Soil boring AOC 22-16 drilled to a depth of 46 feet bgl on April 13 and 14, 2009. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination depth. Soil samples were collected at AOC 22-16 from the following intervals:

- 0 0.5 feet:
- 1.5 2 feet; and
- 36-38 feet (interval above saturation).

All analytical results for the AOC 22-16 soil samples were below the screening levels (Table 11).

# AOC 22-7 through AOC 22-9

On April 13, 2009 discrete soil samples were collected from three surface soil locations at AOC No. 22 (AOC 22-7, AOC 22-8, and AOC 22-9) for laboratory analyses from 0 to 0.5 feet bgl and

1.5 to 2 feet bgl. Soil samples collected include one field duplicate sample (AOC 22-8 (1.5-2.0')). The samples were collected using a hand auger. There were no indications of impacts based on the field screening results nor were there any visual or olfactory evidence of impacts in 0 to 2 foot interval in any of the three soil borings. The analytical results (Table 11) for samples collected at locations AOC 22-7 through AOC 22-9 did not indicate the presence of constituents above the respective non-residential screening levels listed in Table 11. In addition, all detected concentrations were below respective residential soil screening levels for direct contact.

#### AOC 22-10 and AOC 22-11

On April 14, 2009 discrete soil samples were collected from two surface soil locations at AOC No. 22 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. There were no indications of impacts based on the field screening results nor were there any visual or olfactory evidence of impacts in the 0 to 2 foot interval in either of soil borings. The analytical results (Table 11) for soil samples collected at locations AOC 22-10 and AOC 22-11 do not indicate the presence of constituents above the screening levels.

#### AOC 22-15/MW-61

Soil boring AOC 22-15 was extended to a depth of 40.25 feet on April 15, 2009. Slightly elevated PID readings were observed from 1.5 feet to 32 feet. The highest readings were found between 1.5 to 4 feet (29.5 ppm and 23.4 ppm). There was no visual or olfactory evidence of impacts from the surface to a depth of 30 feet bgl. Two soil samples were collected from the upper most part of the boring at AOC 22-15:

- 1.0 1.5 feet; and
- 1.5 2 feet (duplicated).

In the interval from 30 to 32 feet, staining was observed, an odor was evident and the PID reading increased to 165 ppm. A PID reading of 510 ppm was collected from 34 to 36 feet. Soil samples were collected for laboratory analysis from both intervals (30-32' and 34-36').

Cobalt was detected above the screening level in all samples collected at AOC 22-15. Several organic constituents, including methylene chloride, MTBE, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were detected at concentrations above the screening levels. The results are presented in Table 10.

# AOC 22-1 through AOC 22-4

On April 15, 2009 discrete soil samples were collected from four surface soil locations at AOC No. 22 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. The samples were collected using a hand auger.

No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening. There were no indications of impacts based on the field screening results nor were there any visual or olfactory evidence of impacts in 0 to 2 foot interval in soil borings AOC 22-1 or AOC 22-3.

At surface soil location AOC 22-2 the surface soil had a PID reading of 16.1 ppm. No staining or odor was apparent. In surface soil location AOC 22-4 the soil encountered in the 1.5 to 2 foot interval had a PID reading of 2429 ppm. No staining was apparent; however, the soil did exhibit an odor.

AOC 22-4 (1.5 – 2.0') was the only sample at locations AOC 22-1 through AOC 22-4 with multiple detections of organic constituents above the respective screening levels protective of migration to ground water, which is consistent with the field screening results. There were multiple volatile and semi-volatile organic constituents, DRO and cobalt with concentrations above the screening levels listed in Table 10; however the detected concentrations are below the NMED and/or EPA Regional screening levels for residential soil via direct contact. AOC 22-3 (1.5-2') contained methylene chloride at 11  $\mu$ g/kg, which slightly exceeds the screening level of 10.7  $\mu$ g/kg.

#### <u>AOC</u> 22-5 and AOC <u>22-6</u>

On April 23, 2009 discrete soil samples were collected from two surface soil locations at AOC No. 22 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. The samples were collected using a hand auger.

There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts in 0 to 2 foot interval at either location. No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening.

No constituents, with the exception of cobalt, were detected at concentrations above the respective screening level protective of ground water migration in any of the soil samples collected from locations AOC 22-5 or 22-6. However, the detected concentration of cobalt was below the EPA Regional soil screening level for residential soil via direct contact. The analytical results are summarized in Table 10.

# AOC No. 22 Cumulative Risk Evaluation

As multiple constituents were detected at concentrations above the screening levels in soil samples collected at AOC No. 22, a cumulative risk evaluation was conducted. The constituents with concentrations above the screening level are listed below with a notation if they are considered to be carcinogenic or non-carcinogenic. For non-carcinogens, the target organ is listed.

| Constituent            | Carcinogenic vs. Non-<br>Carcinogenic | Non-Carcinogenic Target Organ                                 |
|------------------------|---------------------------------------|---|
| Cobalt                 | Non-Carcinogenic                      | Lungs (National Toxicology<br>Program, 2009)                  |
| 1,2,4-Trimethylbenzene | Non-Carcinogenic                      | Eyes, skin, respiratory, central nervous system (NIOSH, 2004) |
| 1,3,5-Trimethylbenzene | Non-Carcinogenic                      | Liver, neurotoxicity (NIOSH, 2002),                           |
| 1-Methylnaphthalene    | Carcinogenic                          | Not applicable  |
| 2-Methynaphthalene     | Non-Carcinogenic                      | Lungs (IRIS, 2009a)   |
| Benzene                | Carcinogenic                          | Not applicable  |
| Ethylbenzene           | Carcinogenic                          | Not applicable  |
| Methylene chloride     | Carcinogenic                          | Not applicable  |
| Naphthalene            | Carcinogenic                          | Not applicable  |
| Toluene                | Non-Carcinogenic                      | Kidney (IRIS, 2009b)  |
| Xylenes                | Non-Carcinogenic                      | neurological effects (IRIS, 2009c)                            |
| DRO                    | Not specified in NMED guidance        | NA  |
| MRO                    | Not specified in NMED guidance        | NA  |

Based on the aforementioned sources, two of the non-carcinogens could have similar target organs (i.e., lungs). Cobalt and 2-methylnaphthalene are both present at concentrations that exceed the soil-to-ground water screening level based on a DAF of 1 but are not present at concentrations that exceed the direct contact screening levels as provided in Table 7. Cumulative effects are not a concern for cobalt and 2-methylnaphthalene.

Five of the constituents are listed as potential carcinogens based on the NMED and EPA sources referenced in Section 5.0. This could result in a cumulative carcinogenic risk level of 5.0 E-5.

The screening level included in Table 10 for cobalt assumes a DAF of 1 for the soil-to-ground water pathway; however, cobalt is not detected in concentrations above the screening level in any of the ground water samples collected during this site investigation effort. Cobalt does not appear to present a threat to ground water and the soil-to-ground water pathway should not be considered to be complete at AOC No. 22.

# 6.1.4 AOC No. 23 - Southeast Holding Ponds

One soil boring was advanced in the area of AOC No. 23 (Figure 14) on April 13, 2009. This boring was subsequently converted to monitor well MW-62. The drilling, sampling and well installation is discussed in Section 4. The following text summarizes the soil sampling that was conducted at location AOC 23-1.

Soil boring AOC 23-1 extended to a depth of 58.25 feet bgl. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination depth. Soil samples were collected from AOC 23-1 on April 21, 2009 from the following intervals:

- 0 − 0.5 feet (duplicate);
- 1.5 2 feet; and
- 52-53 feet (interval above saturation).

None of the analytical results for the soil samples collected at AOC 23 indicate concentrations of constituents above the residential screening levels and the results are summarized in Table 9. The residential screening levels do not include the soil-to-ground water pathway because there is no indication of the presence of site-related impacts to soil and all of the concentrations of constituents detected are low with only cobalt present above the soil-to-ground water screening level with a DAF of 20. Cobalt is present in all of the soil samples analyzed from the SWMU Group #3 areas at similar concentrations but does not appear in any of the ground water samples at concentrations above the ground water screening level. The soil-to-ground water exposure pathway is not considered to be complete at AOC No. 23.

### 6.1.5 AOC No. 24 - Tank Areas 41 and 43

The following field activities were conducted at AOC No. 24:

- Four surface soil samples AOC 24-1 thru AOC 24-4;
- Two soil borings AOC 24-5 and AOC 24-6 (discussed in Section 4); and
- One soil boring converted to a monitor well AOC 24-7/MW-64 (discussed in Section 4).

The following text summarizes the soil sampling that was conducted at location AOC No. 24 in chronological order. The chemical analyses are summarized in Table 11, where screening levels are based on non-residential land use without the soil-to-ground water pathway. The field screening data and chemical analyses indicate the few detections of constituents, which indicate site-related impacts, are limited to shallow soils and do not threaten to impact ground water, which occurs at nearly 40 feet beneath the land surface.

#### AOC 24-7/MW-64

Soil boring AOC 24-7 was extended a depth of 51 feet bgl on April 7, 2009. Drilling resumed the next day to a depth of 58.25'. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination. Soil samples were collected from the following intervals:

- 0 0.5 feet;
- 1.5 2 feet; and
- 39 42 feet (interval above saturation).

There are no analytical results for the three samples collected at AOC 24-7 that exceed the screening levels. The analyses are summarized in Table 11.

#### AOC 24-5

Soil Boring AOC 24-5 extended to a depth of 10 feet bgl. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination depth. The sampling terminated at 10 feet bgl. Soil samples were collected from AOC 24-5 on April 18, 2009 from the following intervals:

- 0 − 0.5 feet (duplicate); and
- 1.5 2 feet;

All of the analytical results for the samples collected at AOC 24-5 were less than the non-residential screening levels. All of the results are summarized in Table 11.

# AOC 24-6

Soil boring AOC 24-6 extended to a depth of 10 feet bgl. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination depth. Soil samples were collected on April 8, 2009 from the following intervals:

- 0 0.5 feet; and
- 1.5 2 feet;

All of the analytical results for the samples collected at AOC 24-6 were less than the non-residential screening levels with the exception of DRO in sample AOC 24-6 (1.5-2.0'). All of the results are summarized in Table 11.

#### AOC 24-1 through AOC 24-4

On April 23, 2009 discrete soil samples were collected from four surface soil locations at AOC No. 24 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. The soil samples collected include one field duplicate sample (AOC 24-4 (1.5-2.0')). The samples were collected using a hand auger.

There were no indications of impacts based on the field screening results nor were there any visual or olfactory evidence of impacts in 0 to 2 foot interval in soil borings AOC 24-1 through AOC 24-4. No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening.

All of the analytical results for the samples collected at AOC 24-1 through 24-4 are less than the non-residential screening levels. The analytical results are summarized in Table 11.

# 6.1.6 AOC No. 25 - Auxiliary Warehouse and 90-Day Storage Area

The following field activities were conducted at AOC No. 25:

- One surface soil location AOC 25-1; and
- One soil boring converted to a monitor well AOC 25-2/MW-60 (discussed in Section 4).

The following text summarizes the soil sampling that was conducted at location AOC No. 25 in chronological order. The analytical results are summarized in Table 9 and are compared to the residential screening levels that do not include the soil-to-ground water pathway. An initial review of the analytical results shows that only cobalt is present at concentrations above the soil-to-ground water screening levels using a DAF of 20. The cobalt concentrations are similar to all of the other analyses for cobalt performed at the site and do not indicate elevated concentrations near AOC No. 25. Cobalt is not detected in ground water above the screening level at MW-60 and the soil-to-ground water exposure pathway is not considered to be complete at AOC No. 25.

#### AOC 25-2/MW-60

Soil boring AOC 25-2 extended to a depth of 45.5 feet bgl. There were no indications of impacts based on the field screening results nor was there any visual or olfactory evidence of impacts from the surface to the termination depth. Soil samples were collected from AOC 25-2 on April 5, 2009 from the following intervals:

- 0 0.5 feet (duplicate);
- 1.5 2 feet; and
- 36–38 feet (interval above saturation).

All of the analytical results for the samples collected at AOC 25-2 were less than the screening levels. All of the results are summarized in Table 9.

# AOC 25-1

On April 23, 2009 two discrete soil samples were collected from AOC 25-1 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. The samples were collected using a hand auger. There were no indications of impacts based on the field screening results nor were there any visual or olfactory evidence of impacts in 0 to 2 foot interval. No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening.

All of the analytical results for the samples collected at AOC 25-1 were less than the screening levels. The results are summarized in Table 9.

#### 6.1.7 AOC No. 26 - Tank Area 44 and 45

The following field activities were conducted at AOC No. 26:

- Seven surface soil locations AOC 26-1 thru AOC 26-7; and
- Two soil borings converted to monitor wells AOC 26-8/MW-65 and AOC 26-9/MW-66 (discussed in Section 4).

The following text summarizes the soil sampling that was conducted at location AOC No. 26 in chronological order. The analytical results are presented in Table 10, where they are compared to the non-residential screening levels. The soil-to-ground water screening level is based on a DAF of 1.0 based on documented ground water impacts in the area of chemicals that were historically stored in Tanks 44 and 45.

# AOC 26-8/MW-65

Soil boring AOC 26-8 extended to a depth of 44.25 feet on April 16, 2009. A faint odor was initially detected at 28 feet bgl and became stronger with depth. Elevated PID readings were observed from 30 feet to 36 feet. The highest reading was 145 ppm in the core sample from 34 feet to 36 feet bgl. Surface soil samples were collected from AOC 26-8 from the following intervals:

- 0 to 1.0 feet (duplicate);
- 1.5-2 feet: and
- 32-36 feet.

Barium and cobalt are detected in the soil samples collected at AOC 26-8 at concentrations above the NMED DAF=1 screening level protective of groundwater, and the EPA protection of ground water risk-based screening level, respectively; however, detected concentrations of both analytes are below the respective NMED and EPA Regional screening level for residential soils via direct contact. All of the results are summarized in Table 10.

#### AOC 26-9/MW-66

On April 20, 2009, soil boring AOC 26-9 as drilled to a total depth of 43.25 feet. Elevated PID readings were observed from 34 feet to 38 feet. The highest reading was 3939 ppm in the core sample from 36 feet to 38 feet bgl. An odor was initially detected at 36 feet bgl and was also evident in the saturated soils.

Soil samples were collected from the following intervals:

- 0 to 0.5 feet;
- 1.5 to 2 feet; and
- 36-38 feet.

All of the analytical results for the surface soil samples (0-0.5' and 1.5-2.0') collected at AOC 26-9 are less than the screening levels with the exception of cobalt, which is detected at low concentrations above the EPA protection of groundwater risk-based screening level in all samples; however the detected cobalt concentrations were below the EPA Regional screening level for residential soils via direct contact. There are numerous organic constituents, including volatile and semi-volatile organics that have concentrations above the non-residential screening levels in soil sample AOC 26-9 (36-38'). The concentration detected in AOC 26-9 at 36-38' are believed to be associated with ground water impacts in the area and not a soil source in the immediate area. All of the soil analytical results are summarized in Table 10.

#### AOC 26-1 through AOC 26-7

On April 20, 2009 discrete soil samples were collected from seven surface soil locations at AOC No. 26 for laboratory analyses from 0 to 0.5 feet bgl and 1.5 to 2 feet bgl. Soil samples collected include one duplicate sample (AOC 26-3 (1.5-2.0')). The samples were collected using a hand auger.

All borings were advanced to a depth of 2 feet bgl. There were no indications of impacts based on the field screening results nor were there any visual or olfactory evidence of impacts in 0 to 2 foot interval in soil borings AOC 26-1 through AOC 26-7. No conditions that occurred during the field activities are considered to be capable of influencing the results of the field screening.

All of the analytical results for the soil samples collected at AOC 26-1 through 26-7 are less than the non-residential screening levels on Table 10 with the exception of Barium at 26-4 (0-0.5'), MTBE at 26-5 (1.5-2'), and cobalt; however the detected concentrations of barium, MTBE, and cobalt were below the respective NMED and/or EPA Regional soil screening levels for residential soil via direct contact..

An evaluation of the cumulative risk from the presence of multiple constituents is presented below. Each of the constituents with concentration exceeding the screening levels are listed,

with the exception of the constituents detected in sample AOC 26-9 (36-38'), which are associated with ground water impacts and not a soil source.

| Constituent | Carcinogenic vs.<br>Non-Carcinogenic | Non-Carcinogenic Target Organ                |
|-------------|--------------------------------------|--|
| Barium      | Non-Carcinogenic                     | Kidney (IRIS, 2009d)                         |
| Cobalt      | Non-Carcinogenic                     | Lungs (National Toxicology<br>Program, 2009) |
| MTBÉ        | Carcinogenic                         | Not applicable                               |

The two non-carcinogens affect different target organs and thus the hazard index is 1. In addition, the concentrations of barium and cobalt are all less than the screening levels for direct contact exposures. There is only one carcinogenic constituents present above screening levels, thus the cumulative risk is 1E-05.

The screening level included in Table 10 for cobalt assumes a DAF of 1 for the soil-to-ground water pathway; however, cobalt is not detected in concentrations above the screening level in any of the ground water samples collected during this site investigation effort. Cobalt does not appear to present a threat to ground water and the soil-to-ground water pathway should not be considered to be complete at AOC No. 26.

#### 6.2 Soil Sample Field Screening Results

Headspace vapor screening was conducted by placing a soil sample in a plastic sealable bag allowing space for ambient air. The bag was sealed, labeled and then shaken gently to expose the soil to the air trapped in the container. The sealed bag was then allowed to set for a minimum of 5 minutes while the vapors equilibrated. Vapors present within the sample bag's headspace were then measured by inserting the probe of a MiniRae 2000 volatile organic compound monitor (i.e., photoionization detector) in a small opening in the bag. The maximum value and the ambient air temperature were recorded on the field boring log for each sample. The MiniRae 2000 was calibrated to 100 ppm isoButylene each day to the manufacturer's standard for instrument operation. Field screening results and any conditions that were considered to be capable of influencing the results of the field screening were recorded on the field logs. A summary of the vapor screening results for surface soil samples is located in Table 12 and screening results for the soil samples collected from the soil borings are included in Table 13.

The screening results are discussed above in Section 6.1 for each individual soil boring/sample location.

#### 6.3 Soil Sampling Chemical Analytical Results

Soil samples were sent to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico for analysis using the following methods for organic constituents:

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline, diesel, and motor oil range petroleum hydrocarbons.

In addition, soil samples were analyzed for the following metals using the indicated analytical methods.

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

The soil analytical results are presented in Tables 9, 10, and 11. There were no conditions observed during the sample collection efforts that are thought to have had any impact on the analytical results. The site screening levels, as described in Section 5, are included in each table

to facilitate a comparison between the reported concentrations and the applicable screening levels. Concentrations that exceed the applicable screening levels are bolded. Some of the samples have two analyses reported for VOCs. All data is reported to the lowest achievable limits expressed in units of ug/kg where possible. A second set of data has a higher reporting limit expressed in units of mg/kg due to higher concentrations being present in the samples.

The soils analyses were completed as provided in the site investigation work plan with only two exceptions. Soil sample AOC 22-12 (36-37.75') was inadvertently not analyzed for cyanide due to laboratory mis-communication; however analysis was completed for all other requested constituents for sample AOC 22-12 (36-37.75'). Due to limited sample recovery, sample AOC 22-13 (37-39') was not analyzed for metals and SVOCs; all other required analyses were completed. The data exceptions to the approved work plan are also discussed in the Data Validation Report in Appendix H. Also, additional analyses for ethanol were conducted for some soil samples at AOC No. 26, beyond those required in the NMED letter of February 18, 2009, which approved the investigation work plan.

Four metals (arsenic, barium, cobalt, and mercury) were detected at concentrations above the screening levels. Eleven organic constituents (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, benzene, ethylbenzene, methylene chloride, naphthalene, toluene, xylenes, and MTBE) and gasoline, diesel, and motor oil range hydrocarbons were also identified in concentrations exceeding the screening levels in soils. The constituents that exceed screening levels were identified in one or more samples collected from SWMU No. 4, SWMU No. 5, and AOCs No. 22. Maps showing the distribution of detected constituents with concentrations exceeding the applicable cleanup levels that are the most widespread or representative are included as Figures 6 - 16. For soil and ground water quality assurance/quality control sampling and analysis information is discussed in Appendix H and laboratory data reports are included Appendix C.

#### 6.4 Ground Water Sampling

Ground water samples were collected from both temporary wells and all permanent monitoring wells as described below. Ground water samples were also collected from each of the eight permanent wells (MW 59 through MW-66) installed throughout the area south of County Road 4990 (Figure 17). The temporary wells were installed in soil borings AOC 22-12 and AOC 22-13, as discussed above in Section 4.4. Water samples were collected from the temporary and

permanent wells using disposable bailers. The samples from temporary wells were collected within 24 hours of well installation.

The permanent wells installed for the Group No. 3 SWMUs include MW-59 (SWMU 4-1), MW-60 (AOC 25-2), MW-61 (AOC 22-15), MW-62 (AOC 23-1), MW-63 (AOC 22-16), MW-64 (AOC 24-7), MW-65 (AOC 26-8), and MW-66 (AOC 26-6). Two ground water sampling events were completed at the permanent monitoring wells. The first sampling event was conducted at the end of the initial well installation field effort on May 12 through May 14, 2009 and the second (confirmation) sampling event was completed on July 15, 16, and 29, 2009.

The fluid levels are presented in Table 15 and the depths to water are essentially the same as the collection depth because there is only a few feet or less of water in each well. The water samples were collected from each well for analysis as specified in the Investigation Work Plan.

#### 6.5 General Ground Water Chemistry

The measurement of field purging parameters included measurements of pH, specific conductance, total dissolved solids, dissolved oxygen concentrations, oxidation-reduction potential, and temperature. The measurements were taken using an Ultrameter 6P manufactured by Myron L Company. The Ultrameter was calibrated daily (pH calibrated with 4.0, 7.0, and 10.0 solutions and conductivity calibrated with 1,413 uS/cm solution). A minimum of three well volumes were removed from each permanent monitoring well prior to sample collection. There were no conditions encountered during sample collection that affected field screening results. The measurements are included in Table 14.

#### 6.6 Ground Water Chemical Analytical Results

The ground water samples were analyzed for organic constituents by the following methods:

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds;
- SW-846 Method 8015B gasoline, diesel, and motor oil range organics; and
- SW-846 Method 8015 ethanol (for AOC 26 samples only).

Ground water samples were analyzed for the following metals using the indicated analytical methods.

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

In addition, ground water samples were analyzed for the following general chemistry parameters.

| Analyte                          | Analytical Method       |
|----------------------------------|-------------------------|
| Bicarbonate/Carbonate/Alkalinity | SM-2320B                |
| Chloride                         | EPA method 300.0        |
| Sulfate                          | EPA method 300.0        |
| Calcium                          | EPA method 6010B        |
| Magnesium                        | EPA method 6010B        |
| Sodium                           | EPA method 6010B        |
| Potassium                        | EPA method 6010B        |
| Manganese                        | SW-846 method 6010/6020 |
| Nitrate/nitrite                  | EPA method 300.0        |
| Ferric/ferrous Iron              | EPA method 6010B        |
| Fluoride                         | EPA method 300.0        |
| Phosphorus                       | EPA method 300.0        |
| Total Dissolved Solids           | SM-2540C                |
| Specific Conductance             | EPA 120.1               |

The ground water analyses were completed as approved in the site investigation work plan with the exceptions noted in the following discussion. During the initial sampling event, separate analyses of nitrate and nitrite were completed for water samples collected from MW-61, MW-62, AOC 22-12/TW-01, and AOC 22-13, and total results for nitrate plus nitrite was reported for MW-59, MW-60, MW-63, MW-64, MW-65, and MW-66. For the second or confirmation sampling

event, a separate analysis for nitrate and nitrite was reported for MW-63, MW-64, MW-66 and TW-01, and total results for nitrate plus nitrite was reported for MW-59, MW-61, MW-62, and MW-65. Samples must be analyzed within the 48-hour hold time to report nitrate and nitrite separately.

The work plan listed analyses for ferric/ferrous iron. The laboratory reported iron by method 6010B Total Recoverable Metals, which represents the sum of both ferric and ferrous iron. In addition, the analyses include iron by method 6010B dissolved metals, which represents ferrous iron. Ferric iron can be calculated by subtracting the dissolved analytical result from the total recoverable result.

There were no field conditions observed during sample collection that should have affected the analytical results. The analytical results and the applicable cleanup levels are presented in Table 16. The individual results that exceed the applicable cleanup levels are bolded. The results for the associated QA/QC samples are provided in Appendix H. Thirteen organic constituents (1,2,4-trimethylbenzene, 1,2-dichloroethane, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, benzene, bis(2-ethylhexyl)phthalate, ethylbenzene, MTBE, naphthalene, phenol, toluene, and xylenes) and gasoline and diesel range hydrocarbons were detected in concentrations exceeding the screening levels. Four metals (arsenic, iron, manganese, and lead) were detected at concentrations that exceed the screening levels. The distribution of manganese concentrations in ground water is presented in Figure 21.

#### 6.7 Air and Subsurface Vapor Sampling/Field Screening Results

Subsurface vapor samples were screened during ground water sample collection activities for the presence of carbon dioxide, oxygen, and organic vapors. A total well vapor sample was screened in the field for percent carbon dioxide and oxygen. The vapor monitoring was completed by sealing the top of the well with a cap containing a sample port. Polyethylene tubing was inserted through the sample port and attached to a low-velocity pump and an Eagle Meter manufactured by RKI Instruments, Inc., which was calibrated to 15% CO<sub>2</sub>, 12.0% O<sub>2</sub>, and 100 ppm Isobutylene. The results are included in Table 14.

### Section 7 Conclusions and Recommendations

An investigation of soil and ground water was conducted at the Group 3 SWMUs and AOCs to assess and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil samples and/or ground water samples were collected at each of the SWMUs/AOCs and analyzed for potential site-related contaminants.

All soil borings were drilled to a minimum depth of 10 feet with at least one boring at each of the main potential source areas drilled to the top of saturation. Surface soil samples were also collected, with depths extending to two feet bgl. Ground water samples were collected at eight permanent and two temporary monitoring wells. Soil samples were collected continuously at all borings and logged by a qualified geologist in accordance with USCS nomenclature. A summary of the investigation results at each SWMU/AOC is provided below, along with conclusions and recommendations based on the investigation results.

#### SWMU No. 4 Transportation Terminal Sump

At SWMU No. 4, a black material was observed in soils at boring SWMU 4-1 from four to eight feet bgl. It appears that this boring may have penetrated the actual location of the former sump. Field screening results using a PID identified elevated readings from four feet to 10 feet bgl (with significantly lower PID readings below 10 feet) indicate that soil impacts related to the sump are limited in vertical extent. In addition, analytical results from the deeper sample (SWMU 4-1 (36-38')), which detected only one organic constituent (methylene chloride) at very low concentrations, indicate that the materials encountered at four to 10 feet do not pose a threat to ground water. The screening levels included in Table 9 are based on residential land use without inclusion of the cross-media soil-to-ground water screening level. Only the concentrations for motor oil and diesel range organics exceeds the NMED residential soil screening level.

Boring SWMU 4-1 was extended to the top of the Nacimiento and completed as MW-59. Ground water samples collected from the well indicate the presence of 1,2,4-trimethylbenzene, 1,2-dichloroethane, 1-methylnaphthalene, benzene, MTBE, naphthalene, gasoline range organics, diesel range organics, arsenic, and manganese in ground water at concentrations above the respective screening levels listed in Table 16. The presence of 1,2-dichloroethane and MTBE in ground water samples and not in the soil samples suggests that ground water is

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impacted from up-gradient source. Subsurface vapor samples did not indicate significant concentrations of organic constituents with PID readings ranging from 37.5 to 41.1 ppm. Measurements of oxygen and carbon dioxide in subsurface vapor samples did not indicate significant biological activity with oxygen levels at approximately 19% by volume and carbon dioxide measured at approximately 0.5 % (Table 14). Additional assessment is recommended to delineate the lateral extent of the impacts in soils near AOC 4-1.

#### SWMU No. 5 Heat Exchanger Bundle Cleaning Area

Surface soil samples were collected from depths of 0-0.5 feet and 1.5-2.0 feet at 6 locations (SWMU 5-1 through SWMU 5-6) around the northern, eastern, and southern sides of the bundle cleaning pad to locate any evidence of impacts from historical site operations. The western side of the cleaning area abuts the eastern wall of AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area. The majority of the organic analyses are non-detect, with none of the results exceeding the residential screening levels. The metals are concentrated in the upper 6 inches, with the deeper samples (collected in the 1.5 – 2.0 foot interval) having significantly lower concentrations below applicable screening levels. The significant reduction in concentrations of metals over one foot of vertical interval indicates that metals are not migrating into deeper soils and do not pose a threat to the underlying ground water, which occurs at a depth of approximately 42 feet. The soil-to-ground water exposure pathway is not considered to be complete at SWMU No. 5. The soil analytical results for metals indicate that arsenic and mercury are present in surface soils (0-0.5') at concentrations above the residential screening level in the immediate vicinity of the pad (Figure 7). The analytical results are summarized in Table 9.

The bundle cleaning pad drains to a concrete sump located inside the eastern end of AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area. To assess the potential for ground water impacts, a monitoring well (MW-60) was installed down-gradient of the sump, on the north side of AOC No. 25 (Figure 17). The analyses of the ground water samples collected from MW-60 did not indicate any impacts to ground water from activities at either SWMU No. 5 or AOC 25. Subsurface vapor samples collected from MW-60 did not indicate the presence of organic impacts (Table 14). All concentrations of reported constituents are below their respective screening levels with the single exception of manganese, which is barely over the screening level (Table 16).

Additional assessment may be necessary at SWMU No. 5 to delineate the lateral impact to surface soils based on the reported concentrations of mercury. The analytical data indicate that the impacts are limited to the surface soils and do not pose of threat to underlying ground water.

#### AOC No. 22 - Product Loading Racks and Crude Receiving Loading Racks

Samples were collected from 11 surface soil sample locations and five soil borings at the product loading and crude receiving racks. The sample locations were placed in areas most likely to be impacted from historical and current operations and included sumps, overflow areas and locations down-gradient of the racks, where surface spills could flow beyond the concrete covered surfaces.

The analytical results for soil samples collected at AOC No. 22 are presented in Tables 10 and 11. Figures 8 through 13 show the distribution of individual constituents within AOC No. 22. The analyses indicate that the primary area with impacted soils is near the sump located north of the product loading rack. Sample locations AOC 22-4 and AOC 22-13 both have soil samples with concentrations of multiple organic constituents (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, benzene, ethylbenzene, toluene, xylenes, and diesel range organics) that exceed the applicable screening levels listed in Table 10.

Naphthalene was detected at a low concentration but above the screening level at a depth of 36 to 37.7 feet below ground surface at AOC 22-12. However, the concentration of naphthalene is lower and did not exceed the screening level in any of the shallower soil samples at this location. Naphthalene is present in ground water in this area and it is likely the detection of naphthalene in the sample collected at 36-37.7 feet is a capillary fringe impact from the underlying ground water rather than the result of an overlying soil source. There is a similar occurrence at AOC 22-15, where a few organic constituents (MTBE, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene) are detected at concentrations above the screening level in the deepest soil samples near the depth of saturation but are not present in concentrations above the screening level in shallower samples. Methylene chloride was detected at low concentrations that are slightly above the screening level at locations AOC 22-3, AOC 22-13, and AOC 22-15. All of these detections of methylene chloride are qualified due to potential laboratory impacts (see Appendix H).

The screening level included in Table 10 for cobalt assumes a DAF of 1 for the soil-to-ground water pathway; however, cobalt was not detected in concentrations above the screening level in any of the ground water samples collected during the investigation. Cobalt does not appear to

present a threat to ground water and the soil-to-ground water pathway should not be considered to be complete at AOC No. 22.

Ground water samples were collected from four locations within AOC No. 22 (AOC 22-12/TW-01, AOC 22-13, AOC 22-15/MW-61, and AOC 22-16/MW-63). The sample results identified multiple constituents at concentrations exceeding the screening levels, including 1,2,4-trimethylbenzene, 1,2-dichloroethane, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, benzene, ethylbenzene, toluene, xylenes, MTBE, bis(2-ethylhexyl)phthalate, phenol, gasoline range organics, diesel range organics, arsenic, iron, lead, and manganese. The arsenic and lead concentrations were only slightly above the screening level and one of the three detections in the first monitoring event was from a sample collected from a temporary monitoring well at soil boring AOC 22-13. The arsenic and lead detections may not be an indication of actual impacted ground water but rather possible sampling artifacts resulting from the use of a bailer to purge the wells and collect ground water samples. Many of the organics detected above screening levels were also detected in soils above screening levels and are most likely associated with historical site operations with the possible exception of bis(2-ethylhexyl) phthalate, which is a common laboratory contaminant (EPA, 1992). Laboratory quality control data is discussed in Appendix H.

Subsurface vapor samples collected from MW-61, MW-63, and TW-1 have reduced oxygen concentrations and elevated concentrations of carbon dioxide and elevated PID readings. The vapor results are consistent with the presence of organic constituents detected in both soil and ground water, and provide evidence of biological degradation of the organic constituents.

The analytical data indicate that impacts to ground water are elevated in the northern portion of AOC No. 22, which appear to be concentrated near the sump located north of the product loading rack. Figures 18 through 21 show the distribution of representative constituents that are detected in ground water.

Additional investigation is recommended for the impacted soils within AOC No. 22 for the area near borings AOC 22-4, and AOC 22-13. Some additional delineation of ground water impacts may also be useful and should be completed in consideration of any additional investigation to be completed at other nearby SWMUs/AOCs.

#### AOC No. 23 - Southeast Holding Ponds

To assess the potential for releases from the holding/evaporation ponds, a soil boring/monitoring well (AOC 23-1/MW-62) was installed down-gradient of the ponds. The analyses for the soil samples did not detect the presence of any constituents at concentrations above the residential screening levels and most of the organic results were non-detect, with the exception of a few constituents that were qualified bias due to laboratory contaminants (e.g., methylene chloride and acetone) (EPA, 1992). The soil analyses are summarized in Table 9 and the laboratory quality control information is discussed in Appendix H.

The ground water samples collected from MW-62 identified only manganese at concentrations above the screening levels (Table 16). The presence of only manganese above screening levels and no detections of petroleum constituents in water samples collected from MW-62 indicates that the manganese could be representative of background conditions rather than impacts from site operations; however, no background value has been established for manganese at this time. Subsurface vapor samples screened for oxygen and carbon dioxide did not indicate the presence of biological degradation of organic constituents (Table 14). Corrective Action Complete without Controls is recommended for AOC No. 23.

#### AOC No. 24 - Tank Areas 41 and 43

Soil samples were collected from four surface sample locations and three soil borings, one of which was completed as a permanent monitoring well (AOC 24-7/MW-64). All analytes were below the respective soil screening levels (Figure 15).

The analyses of the ground water samples collected from MW-64 identified low concentrations of arsenic and manganese. The analytical results for the first samples collected in May 2009 did not show concentrations of arsenic or manganese above the screening level; however, the results for the July 2009 samples identified low concentrations that exceeded the screening levels. The low concentrations may have been an artifact of sample collection using a bailer rather than a release at the site. Other inorganic constituents detected above screening levels include chloride, nitrate, and sulfate. Chloride and sulfate are naturally occurring constituents with wide-spread occurrence in ground water in the San Juan Basin (Stone, W. J. and others, 1983). The absence of any refinery-related constituents (i.e., petroleum hydrocarbons) in the ground water samples collect from MW-64 indicates that the inorganic constituents might not be related to site operations. The screening results of subsurface vapor samples for the presence of oxygen and carbon dioxide, as

well as, organic vapors with a PID did not indicate the presence of organic constituents in the subsurface (Table 14).

An assessment to evaluate the risk posed by the limited occurrence of TPH at location AOC 24-6 is recommended instead of any additional assessment and/or remediation.

#### AOC No. 25 - Auxiliary Warehouse and 90-Day Storage Area

Samples were collected from one surface location and one soil boring, which was completed as a permanent monitoring well (AOC 25-2/MW-60) (Figure 7). There were no detections of any constituents at concentrations above the residential screening levels in the soil samples. There were also no constituents detected in the ground water samples above the screening levels, with the single exception of manganese, which was only slightly over the screening level. There was not a sufficient volume of ground water present in MW-60 to collect a ground water sample during the second sampling event conducted in July 2009. Corrective Action Complete without Controls is recommended for AOC No. 25.

#### AOC No. 26 - Tank Area 44 and 45

Soil samples were collected from seven surface sample locations and two soil borings, both of which were completed as permanent monitoring wells (Figure 16). Cobalt was detected at concentrations above the EPA risk-based screening level protective of soil-to-groundwater in all soil samples (Table 10); however all detected concentrations were below the EPA Regional screening level (23 mg/kg) for residential soils via direct contact.

Barium was detected in two soil samples (AOC 26-4 (0-0.5') and AOC 26-8 (0-0.1') above the NMED screening level protective of ground water (DAF=1); however both detected concentrations were below NMED residential soil screening level (15,600 mg/kg).

MTBE was detected in one soil sample (AOC 26-5 (1.5-2.0') above EPA risk-based soil screening level protective of soil-to-ground water; however the detected concentration is below EPA Regional screening level for residential soil (39 mg/kg)

Since cobalt and/or barium were not detected in ground water at concentrations above the screening level, the soil-to-ground water exposure pathway should not be complete for these two constituents. Detected concentration of barium, cobalt, and MTBE below residential screening levels indicates that the constituents do not cause an unacceptable risk of exposure.

Additional constituents were detected at concentrations above the screening level in a 36-38' soil sample collected from boring AOC 26-9. This sample was collected just above the depth of saturation, and the detected constituents are most likely the result of capillary fringe impacts from impacted ground water that has migrated to this location since there is no analytical or field screening evidence (i.e., PID readings of individual soil samples) of overlying soil sources in this area.

Two permanent monitoring wells (MW-65 and MW-66) were completed in the immediate area of AOC No. 26. Monitoring well MW-65 is located down-gradient of Tank 44 and MW-66 is located down-gradient of Tank 45 and the underground pipeline that connects Tank 45 to the product loading rack. The analyses of the ground water samples collected from these two wells indicate impacts from the storage and handling of petroleum products and additives (e.g., MTBE and 1,2-dichloroethane).

Subsurface vapor samples collected at MW-65 and MW-66 have reduced oxygen levels and elevated carbon dioxide levels. PID readings are also elevated in vapor samples collected from both wells (Table 14). This information is consistent with the presence of and biological degradation of organic constituents, which were detected in ground water and capillary fringe soil samples.

Although MTBE was not detected in surface soil samples collected at AOC 26-6 and AOC 26-7, nor was MTBE detected in shallow and deeper soil samples collected from the down-gradient soil boring AOC 26-9, additional soil sampling near AOC 26-5 may be considered to confirm the limited presence of MTBE that was detected in the 1.5-2.0' sample interval. Additional monitoring wells may be considered to better define the up-gradient extent of ground water impacts.

#### **Ground Water General Chemistry**

All of the nitrite results are non-detect and the concentrations of nitrate in samples where both species were reported are very low (Table 16). The data does not indicate potential reducing conditions but is not definitive. Most of the nitrate + nitrite concentrations are also low, with the highest concentrations identified in up-gradient wells (MW-63 and MW-64). Similarly, the highest concentrations of sulfate and total dissolved solids were identified at up-gradient wells MW-62, MW-63, and MW-64. The only chloride concentration above the screening level was identified at MW-64, which is an up-gradient well that did not show any indication of hydrocarbon impacts.

The analyses for iron were reported as dissolved metals and as total recoverable metals. The dissolved metals analyses represent ferrous iron concentrations and analyses of total recoverable metals include concentrations of both ferrous and ferric iron. The ferric iron concentrations can be derived by subtracting the dissolved iron concentrations from the total iron concentrations. In unaffected areas of the site where the aerobic ground water conditions should exist, iron is expected to be present as ferric (Fe<sup>+3</sup>) iron. In impacted areas, as petroleum hydrocarbons in ground water are degraded, reducing conditions may develop with ferric iron being reduced to ferrous (Fe<sup>+2</sup>) iron. The percentage of iron present in the ferrous state was elevated in ground water samples collected at AOC 22-13, MW-61, MW-65, and MW-66. Ground water samples collected from these same locations also demonstrates significant hydrocarbon impacts. Ground water samples collected from temporary wells TW-01 (AOC 22-12) and AOC 22-13, and MW-61, MW-65, and MW-66 contained concentrations of dissolved iron above the screening level.

Manganese was detected in ground water samples at concentrations above the screening level of 0.2 mg/l at all locations. The results at MW-60 were barely over the screening level and one of the two samples collected at MW-64 did not exceed the screening level. A review of the facility-wide ground water sampling information reveals that manganese is widespread across the refinery property (Figure 21). There is no direct evidence (e.g., a soil source area) to associate manganese's presence in shallow ground water beneath Group 3 SWMUs or AOCs with site operations or waste management activities. However, there does appear to be a correlation between the dissolved oxygen concentrations in ground water and the dissolved manganese concentrations. This relationship is discussed in detail in the Site Investigation Report for SWMU Group No. 2 (RPS JDC, 2009). Elevated dissolved manganese concentrations may be the result of natural degradation of petroleum hydrocarbons causing reducing conditions, which in turn could mobilize manganese that was previously adsorbed to the aquifer matrix (Western Refining Southwest, Inc., 2009).

#### **Summary and Recommendations**

#### <u>Soils</u>

Based on the results of the investigation of the Group 3 SWMUs/AOCs, additional assessment of impacted soils is to be considered for SWMU 4-1, SWMU No. 5, AOC 22-4, AOC 22-13, and AOC 26-5.

#### **Ground Water**

Ground water impacts documented during the assessment of SWMU No. 4 and AOCs No. 22 and 26 indicate that the primary constituents exceeding the screening levels across these areas are very similar and appear to be associated with operations at the product loading rack.

Additional ground water investigation at AOCs No. 22 and 26 is recommended to better define the distribution of constituents within these areas and to distinguish potential sources.

A separate investigation work plan will be prepared to detail proposed additional investigation activities for soil and ground water.

### Section 8 References

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### **Tables**

# Table 1 Historical Volatile Organic Ground Water Analytical Results Summary Group 3 Investigation Bloomfield Refinery - Bloomfield, New Mexico

|          |                            |                      | ****                | Parameters   |          |                      |
|----------|----------------------------|----------------------|---------------------|--------------|----------|----------------------|
|          |                            | Benzene              | Toluene             | Ethylbenzene | Xylene   | MTBE                 |
|          |                            | (mg/L)               | (mġ/L)              | (mg/L)       | (mg/L)   | (mg/L)               |
|          | Screening Level<br>(mg/L): | 0.005 <sup>(2)</sup> | 0.75 <sup>(1)</sup> | 0.7 (2)      | 0.62 (1) | 0.012 <sup>(3)</sup> |
| Well ID: | Date Sampled:              |                      |                     |              |          |                      |
| MW #3    | 4/5/2006                   | <0.001               | <0.001              | <0.001       | <0.003   | <0.0025              |
|          | 8/5/2005                   | <0.001               | <0.001              | <0.001       | <0.001   | <0.001               |
|          | 4/11/2005                  | <0.0005              | <0.0005             | <0.0005      | <0.0005  | <0.0025              |
|          | 8/21/2003                  | <0.001               | <0.001              | <0.001       | <0.001   | <0.001               |
| MW-5     | Dry                        |                      |                     |              |          |                      |
| MW-6     | Dry                        |                      |                     |              |          |                      |
| MW #13   | 4/1/2007                   | <0.001               | <0.001              | <0.001       | <0.002   | 0.0048               |
|          | 8/15/2006                  | <0.001               | <0.001              | <0.001       | <0.003   | 0.007                |
|          | 4/5/2006                   | <0.001               | <0.001              | <0.001       | <0.003   | 0.01                 |
|          | 8/5/2005                   | <0.001               | <0.001              | <0.001       | <0.001   | 0.015                |
|          | 4/11/2005                  | <0.0005              | <0.0005             | <0.0005      | <0.0005  | 0.014                |
|          | 8/23/2004                  | <0.0005              | <0.0005             | <0.0005      | <0.0005  | 0.027                |
|          | 3/3/2004                   | <0.0005              | <0.0005             | <0.0005      | <0.0005  | 0.02                 |
|          | 8/21/2003                  | <0.001               | <0.001              | <0.001       | <0.001   | 0.061                |
|          | 3/3/2003                   | <0.0005              | <0.0005             | <0.0005      | 0.0012   | 0.049                |
| MW #30   | 4/1/2007                   | 5.7                  | 3.3                 | 5.4          | 21       | <0.620               |
|          | 4/5/2006                   | 3.5                  | 1.4                 | 2.6          | 6.8      | <0.620               |
|          | 4/11/2005                  | 5.7                  | 3.7                 | 4.4          | 12       | <0.10                |
|          | 8/23/2004                  | 1.7                  | 0.37                | 1.9          | 2.5      | <0.10                |
| MW #31   | 4/1/2007                   | 4.3                  | <0.100              | 1.4          | 4.7      | <0.250               |
|          | 4/5/2006                   | 6.1                  | 1.5                 | 0.94         | 4.5      | <0.120               |
|          | 4/11/2005                  | 2.6                  | 0.062               | 0.45         | 1.2      | <0.250               |
|          | 8/23/2004                  | 3.7                  | 0.4                 | 0.32         | 1.2      | <0.250               |
| MW #44   | 4/1/2007                   | <0.001               | 0.0058              | 0.0026       | 0.034    | <0.0025              |
|          | 4/5/2006                   | <0.001               | <0.001              | <0.001       | <0.003   | 0.0028               |
|          | 4/11/2005                  | <0.0005              | <0.0005             | < 0.0005     | <0.0005  | 0.0041               |

#### Notes:

mg/L = milligram per liter

MW = monitoring well

MTBE = methyl tertiary butyl ether

MW-5 and MW-6 have been dry since at least 2003.

- 1 WQCC 20 NMAC 6.2.3101 = New Mexico Standard for Ground Water of 10,000 ug/L TDS or less.
- 2 EPA Maximum Contaminant Level
- 3 EPA Regional Screening Levels (April 2009)

## Table 2 Historical Total Metals Ground Water Analytical Results Summary Group 3 Investigation Bloomfield Refinery - Bloomfield, New Mexico

|          |                    |                     |                  |                   | Paramet            | ers                  |                    |                  |                   |
|----------|--------------------|---------------------|------------------|-------------------|--------------------|----------------------|--------------------|------------------|-------------------|
|          |                    | Arsenic<br>(mg/L)   | Barium<br>(mg/L) | Cadmium<br>(mg/L) | Chromium<br>(mg/L) | Lead<br>(mg/L)       | Selenium<br>(mg/L) | Silver<br>(mg/L) | Mercury<br>(mg/L) |
| Scre     | ening Level (mg/l) | 0.01 <sup>(1)</sup> | 2.0 (1)          | 0.005 (1)         | NE (2)             | 0.015 <sup>(1)</sup> | 0.05 (1)           | NE (2)           | 0.002 (1)         |
| Well ID: | Date Sampled:      |                     |                  |                   | •                  |                      |                    |                  |                   |
| MW #3    | 8/5/2005           | NA                  | NA               | NA                | 0.016              | <0.005               | NA                 | NA               | NA                |
|          | 8/21/2003          | NA                  | NA               | NA                | 0.029              | 0.022                | NA                 | NA               | <0.0002           |
| MW-5     | Dry                |                     |                  | -                 |                    |                      |                    |                  |                   |
| MW-6     | Dry                |                     | 1                | •                 | -                  |                      | <b></b>            |                  | -                 |
| MW #13   | 8/15/2006          | <0.02               | 0.025            | <0.002            | <0.006             | 0.0078               | <0.05              | <0.005           | <0.0002           |
|          | 8/5/2005           | NA                  | NA               | NA                | 0.012              | <0.005               | NA                 | NA               | NA                |
|          | 8/23/2004          | <0.02               | 0.028            | <0.002            | 0.085              | <0.005               | <0.05              | <0.005           | <0.0002           |
|          | 8/21/2003          | NA                  | NA               | NA                | 0.45               | <0.005               | NA                 | NA               | <0.0002           |
| MW #30   | 8/23/2004          | <0.02               | 0.24             | <0.002            | 0.0073             | 0.011                | <0.05              | <0.005           | 0.00023           |
| MW #31   | 8/23/2004          | <0.02               | 0.35             | <0.002            | 0.0088             | <0.005               | <0.05              | <0.005           | 0.00022           |
| MW #44   | 8/23/2004          | <0.02               | 0.084            | <0.002            | 0.1                | 0.036                | <0.05              | <0.005           | 0.00033           |

#### Notes:

mg/L = milligram per liter MW = monitoring well

NA= not analyzed

MW-5 and MW-6 have been dry since at least 2003.

1- 40 CFR 141.62 MCL = National Primar Drinking Water Regulations: Maxiumum Contaminant Levels

2 - NE = No applicable screening level established for total analysis.

Historical Dissolved Metals Ground Water Analytical Results Summary Group 3 Investigation Bloomfield Refinery- Bloomfield, New Mexico Table 3

|          |                         |          |        |           |         |          |        |        | ď         | Parameters |           |           |              |          |        |          |        |
|----------|-------------------------|----------|--------|-----------|---------|----------|--------|--------|-----------|------------|-----------|-----------|--------------|----------|--------|----------|--------|
|          |                         | Arsenic  | Barium | Cadmium   | Calcium | Chromium | Copper | Iron   | Lead      | Magnesium  | Manganese | Potassium | Selenium     | Silver   | Sodium | Uranium  | Zinc   |
|          |                         | (mg/L)   | (mg/L) | (mg/L)    | (mg/L)  | (mg/L)   | (mg/L) | (mg/L) | (mg/L)    | (mg/L)     | (mg/L)    | (mg/L)    | (mg/L)       | (mg/L)   | (mg/L) | (mg/L)   | (mg/L) |
|          | Screening Level (mg/L): | 0.01 (1) | 1 (2)  | 0.005 (1) | NE      | 0.05 (2) | 1 (2)  | 1 (2)  | 0.015 (1) |            | 0.2 (2)   | NE        | 0.05 (2)     | 0.05 (2) | NE     | 0.11 (2) | 10 (2) |
| Well ID: | Date Sampled:           |          |        |           |         |          |        |        |           |            |           |           |              |          |        |          |        |
| MW #3    | 8/5/2005                | <0.02    | 0.018  | <0.002    | 480     | 900'0>   | 900.0> | 0.047  | <0.005    | 130        | 0.43      | 7.6       | <b>40.05</b> | <0.005   | 1300   | <0.1     | 0.018  |
|          | 8/21/2003               | <0.02    | 0.3    | <0.002    | 490     | 900:0>   | >0.006 | 0.27   | <0.005    | 140        | 0.58      | 10        | 0.024        | <0.005   | 1100   | <0.1     | 0.094  |
| MW-5     | Dry                     |          | 1      | 1         | ŀ       | -        | -      | -      | -         |            |           |           |              |          | 1      | 1        | 1      |
| MW-6     | Dry                     | -        | -      |           |         |          | -      | -      | -         | -          |           |           | :            | -        | 1      |          | 1      |
| MW #13   | 8/15/2006               | <0.02    | 0.025  | <0.002    | 250     | 900:0>   | 0.0063 | <0.02  | 8/00.0    | 82         | 1.1       | 3.6       | <0.05        | <0.005   | 620    | <0.10    | 0.061  |
|          | 8/5/2005                | <0.02    | 0.028  | <0.002    | 240     | 900'0>   | 900'0> | <0.02  | <0.005    | 85         | 1.1       | 3.8       | <0.05        | <0.005   | 570    | <0.1     | 0.0088 |
|          | 8/23/2004               | <0.02    | 0.022  | <0.002    | 210     | 900'0>   | 900.0> | 0.046  | <0.005    | 80         | 0.58      | 3.6       | <0.05        | <0.005   | 610    | <0.1     | 0.021  |
| -        | 8/21/2003               | <0.02    | 0.33   | <0.002    | 270     | 900'0>   | 9600'0 | 0.04   | <0.005    | 110        | 1.1       | 5.3       | 0.16         | <0.005   | 089    | <0.1     | 0.09   |
| MW #30   | 8/23/2004               | <0.02    | 0.13   | <0.002    | 320     | 900'0>   | 0.0061 | 4.7    | 0.0051    | 88         | 2.1       | <10.0     | <0.05        | <0.005   | 750    | <0.1     | 0.046  |
| MW #31   | 8/23/2004               | <0.02    | 0.35   | <0.002    | 220     | 900'0>   | 900'0> | 0.46   | <0.005    | 29         | 0.58      | 4.8       | <0.05        | <0.005   | 640    | <0.1     | 0.019  |
| MW #44   | 8/23/2004               | <0.02    | 0.046  | <0.002    | 520     | 0.034    | 0.027  | 9/     | 0.015     | 87         | 1.7       | 44        | <0.05        | <0.005   | 920    | <0.10    | 0.084  |

Notes:

mg/L = milligram per liter MW = monitoring well NE = not established

MW-5 and MW-6 have been dry since at least 2003.
1- 40 CFR 141.62 MCL = National Primar Drinking Water Regulations: Maxiumum Contaminant Levels 2 - WQCC 20 NMAC 6.2.3101 = New Mexico Standard for Ground Water of 10,000 ug/L or less

Historical General Chemistry Ground Water Analytical Results Summary Bloomfield Refinery - Bloomfield, New Mexico **Group 3 Investigation** Table 4

|          |                         |          |          |         |         |          | Parameters |         |          |            |        |        |
|----------|-------------------------|----------|----------|---------|---------|----------|------------|---------|----------|------------|--------|--------|
|          |                         | Fluoride | Chloride | Bromide | Nitrite | Nitrogen | Phosphorus | Sulfate | SQL      | E.C.       | 202    | Alk    |
|          |                         | (mg/L)   | (mg/L)   | (mg/L)  | (mg/L)  | (mg/L)   | (mg/L)     | (mg/L)  | (mg/L)   | (muhos/cm) | (mg/L) | (mg/L) |
|          | Screening Level (mg/L): | 1.6 (1)  | 250 (1)  | NE      | 1 (2)   | 10 (1)   | NE         | (1) 009 | 1000 (1) | NE         | NE     | R      |
| Well ID: | Date Sampled:           |          |          |         |         |          |            |         |          |            |        |        |
| MW #3    | 8/5/2005                | 0.33     | 1200     | 4.5     | <0.50   | 42       | <0.50      | 2300    | 6200     | 8300       | 089    | 089    |
| !        | 8/21/2003               | 0.17     | 1400     | 22      | NA      | 41       | <0.50      | 1900    | 00/5     | 8500       | NA     | N<br>A |
| MW-5     | Dry                     | 1        | 1        | 1       | -       | -        |            |         | *        | 1          | !      |        |
| MW-6     | Dry                     | -        | 1        | 1       | 1       |          |            |         | -        | 1          | !      |        |
| MW #13   | 8/15/2006               | 0.12     | 310      | 3.7     | 8.3     | NA       | <0.50      | 1100    | 3000     | 4300       | 910    | 096    |
|          | 8/5/2005                | 0.15     | 320      | 4.6     | 0.23    | 6.1      | <0.50      | 1000    | 3000     | 4600       | 1000   | 1000   |
|          | 8/23/2004               | 0.2      | 330      | 4.3     | 1.6     | 9.9      | <0.50      | 950     | 2800     | 3400       | 098    | 950    |
|          | 8/21/2003               | 0.19     | 510      | 13      | <0.10   | 12       | <0.50      | 840     | 3100     | 2000       | 1000   | 917    |
| MW #30   | 8/23/2004               | 0.18     | 360      | 5.6     | <0.10   | <0.10    | <0.10      | 720     | 3100     | 3900       | 1200   | 1400   |
| MW #31   | 8/23/2004               | 0.19     | 370      | 7.2     | <0.10   | 0.14     | <0.50      | 750     | 2800     | 3700       | 086    | 1100   |
| MW #44   | 8/23/2004               | 0.3      | 210      | 62.0    | <0.10   | <0.10    | <0.50      | 2800    | 4800     | 5200       | 400    | 450    |
|          |                         |          |          |         |         |          |            |         |          |            |        | ĵ      |

Notes: Alk = alkalinity, total  $CO_2$  = Carbon Dioxide

E.C. = electrical conductivity
TDS = total dissolved solids
umhos/cm = micro-mhos per centimeter
mg/L = milligram per liter
NE = not established

NA = not analyzed

MW = monitoring well MW-5 and MW-6 have been dry since at least 2003.

1 - WQCC 20 NMAC 6.2.3101 = New Mexico Standard for Ground Water of 10,000 ug/L or less
2 - 40 CFR 141.62 MCL = National Primar Drinking Water Regulations: Maxiumum Contaminant Levels

Table 5
Historical Soil Analytical Results Summary
Group 3 Investigation
Bloomfield Refinery - Bloomfield, New Mexico

|                |  |                      |            |                      |           |              |          |           |            | Pai      | Parameters              |          |          |   |           |         |                 |   |         |
|----------------|--|----------------------|------------|----------------------|-----------|--------------|----------|-----------|------------|----------|-------------------------|----------|----------|---|-----------|---------|-----------------|---|---------|
|                |  |                      | Acotono    | Benzone Tolliene     |           | Ethylhonzone | m.p-     | O-Yvlono  | Methylene  | Semi-    | Total                   |          | To day   | 1   |           | 700     | 1030114         | 111111111111111111111111111111111111111 | 7:2     |
|                |  |                      | (mg/kg)    | (mg/kg) (mg/kg)      | _         | (mg/kg)      | Xylene   | (mg/kg)   |            | Volatile | Petroleum               | (mg/kg)  | (mg/kg)  | (mg/kg) (mg/kg) (mg/kg)   |           | (mg/kg) | (mg/kg) (mg/kg) |   | (mg/kg) |
|                |  |                      |            |                      |           |              | (BV/BI)  |           | (By/Bil)   | Organics | Organics   nydrocarbons |          |          |   |           |         | ;               |   |         |
| SWMU 4         | SWMU 4 & AOC 22 (Crude Loading Rack)                         | oading Rack)         | 263000 (1) | 474 (2)              | 24400 (1) | 6630 (2)     | 0420 (1) | (1) 0070  | 10000 (2)  | VIV      | VIV                     | 444 (1)  | (1)      | (1)   | (1)       | (1)     | (1)             | (1)                                     | (1)     |
| Soi            | Soil Screening Levels (mg/kg):                               | (mg/kg):             | 70000      | 4/1                  | 21100     | 0000         |          | 0010      | 00001      | (        | 2                       | 7 44     |          | 447,000 (1,12400 (1,0))(1,000 (1,000 (1,0))(1,000 (1,000 (1,0))(1,000 (1,0))(1,000 (1,0))(1,000 (1,0))(1,000 (1,0) (1,000 (1,0))(1,0)(1,0)(1,0)(1,0)(1,0)(1,0)(1,0 | 12400     | 2008    | . 06L9          | 20.4                                    | 00676   |
| Sample No.     | Sample Location  | Date Sampled         |            |                      |           |              |          |           |            |          |                         |          |          |   |           |         |                 |   |         |
| B-1 (2.5-4.5') | at SWMU No. 4  | 2/22/1994            | QN         | ND                   | ND        | ND           | QN       | ΩN        | QN         | QN       | ND                      | 99.0     | 4.5      | 9.7   | 12        | Q.      | 8.6             | 25                                      | 46      |
| B-2 (10-12')   | at SWMU No. 4  | 2/22/1994            | QN         | ND                   | ND        | ND           | ND       | QN        | ND         | ND       | ND                      | 0.53     | 3        | 8.5   | 8.9       | Q       | 7               | 15                                      | 34      |
| B-3 (e-8')     | at AOC No. 22  | 2/22/1994            | QN         | ND                   | ND        | ND           | QN       | QN        | 0.11       | QN       | QN                      | 0.54     | 3.2      | ∞   | 8.8       | Q       | 7.4             | 15                                      | 35      |
| AO             | AOC 22 (Product Loading Rack) Soil Screening Levels (mg/kg): | ng Rack)<br>(mg/kg): | 3.84 (3)   | 0.00185 (3) 1.38 (3) | 1.38 (3)  | 0.0146 (3)   | 0.176(1) | 0.176 (1) | 0.0107 (3) | Ą        | NA                      | 57.7 (3) | 1.37 (3) | 447,000 <sup>(1)</sup> 12400 <sup>(1)</sup> 800 <sup>(1)</sup> 47.7 <sup>(3)</sup> 0.172 <sup>(3)</sup>   | 12400 (1) | (1)     | 47.7 (3)        | ı.                                      | 682 (3) |
| B-4 (10-12')   | at AOC No. 22  | 2/22/1994            | QN         | 0.012                | 0.023     | 0.004J       | 0.031    | 0.022     | QN         | QN       | QN                      | 0.53     | 3.1      | 6.6   | 8.2       | ND      | 7.2             | 19                                      | 32      |
|                |  |                      |            |                      |           |              |          |           |            |          |                         |          |          |   |           |         |                 |   |         |

Notes: mg/kg = milligram per kilogram ND - not detected, quantitation limit not provided in 1994 RFI Investigation Report NA = not available

Soil Screening Levels - Revision 5.0 ( August 2009) J = estimated concentration

NMED - Technical Background Document for Development of ((1) NMED - Construction Worker (0-10')

(2) NMED - Industrial (0-2') and Construction Worker (2-10')

(3) NMED DAF=1 SoilGW (All depths)

TABLE 6
Residential Soil Screening Levels
Bloomfield Refinery - Bloomfield, New Mexico

|                             |                                |          |                             |     | Cross Me        | edia Soil-to-G                  | round Water                     | ]                      |
|-----------------------------|--------------------------------|----------|-----------------------------|-----|-----------------|---------------------------------|---------------------------------|------------------------|
|                             | NMI                            | ED       | EPA                         | \   | NMED            |                                 | PA .                            | 1                      |
| Analyte                     | Residential<br>Soil<br>(mg/kg) | Endpoint | Residential<br>Soil (mg/kg) |     | DAF1<br>(mg/kg) | GW_Risk-<br>based SSL<br>(mgkg) | GW_MCL-<br>based SSL<br>(mg/kg) | Constituen<br>Detected |
| Applicable depth interval   | 0-1                            | 0,       | 0-2'                        | L , |                 | All depths                      |                                 |                        |
| Acenaphthene                | 3.44E+03                       | ns       | 3.40E+03                    | n   | 2.05E+01        | 2.70E+01                        | -                               | N                      |
| Acenaphthylene              | - 0.442.00                     | -        | 3.40L100                    |     | 2.002.01        | 2.702.01                        | -                               | N                      |
| Acetone                     | 6.75E+04                       | n        | 6.10E+04                    | n   | 3.84E+00        | 4.40E+00                        | -                               | Y                      |
| Aniline                     | 0.702.04                       | -        | 8.50E+01                    | c** | 2.042.00        | 3.40E-03                        |                                 | N                      |
| Anthracene                  | 1.72E+04                       | ns       | 1.70E+04                    | n   | 3.37E+02        | 4.50E+02                        |                                 | N N                    |
| Antimony                    | 3.13E+01                       | n        | 3.10E+01                    | n   | 6.61E-01        | 6.60E-01                        | 2.70E-01                        | N                      |
| Arsenic                     | 3.59E+00                       | c        | 3.90E-01                    | c*  | 1.31E-02        | 1.30E-03                        | 2.90E-01                        | Y                      |
| Azobenzene                  | - 0.002.00                     | -        | 4.90E+00                    | С   | - 1.0 / 2 02    | 5.10E-04                        | - 2.002 01                      | N                      |
| Barium                      | 1.56E+04                       | n        | 1.50E+04                    | n   | 3.01E+02        | 3.00E+02                        | 8.20E+01                        | Y                      |
| Benz(a)anthracene           | 4.81E+00                       |          | 1.50E-01                    | C   | 3.20E-01        | 1.40E-02                        | -                               | N                      |
| Benzene                     | 1.55E+01                       | c        | 1.10E+00                    | c*  | 1.85E-03        | 2.30E-04                        | 2.80E-03                        | .Y                     |
| Benzo(a)pyrene              | 4.81E-01                       | c        | 1.50E-02                    | С   | 1.09E-01        | 4.60E-03                        | 3.10E-01                        | Y                      |
| Benzo(b)fluoranthene        | 4.81E+00                       | c        | 1.50E-02                    | c   | 1.11E+00        | 4.70E-02                        | -                               | N                      |
| Benzo(g,h,i)perylene        |                                | -        | - 1.552-51                  |     | -               |                                 | <del></del>                     | N                      |
| Benzo(k)fluoranthene        | 4.81E+01                       | С        | 1.50E+00                    | С   | 1.09E+01        | 4.60E-01                        | -                               | N N                    |
| Benzoic acid                | -                              | -        | 2.40E+05                    | nm  | -               | 3.30E+01                        | _                               | N                      |
| Benzyl alcohol              | _                              |          | 3.10E+04                    | n   |                 | 4.20E+00                        | _                               | Y                      |
| Beryllium                   | 1.56E+02                       | n        | 1.60E+02                    | n   | 5.77E+01        | 5.80E+01                        | 3.20E+00                        | Ÿ                      |
| Bis(2-chloroethoxy)methane  | 1.002.02                       | - "      | 1.80E+02                    | 'n  | <u> </u>        | 2.30E-02                        | 3.202.100                       | Ň                      |
| Bis(2-chloroethyl)ether     | 2.56E+00                       | С        | 1.90E-01                    | C   | 2.33E-05        | 2.70E-06                        |                                 | N                      |
| Bis(2-chloroisopropyl)ether | 9.15E+01                       | C        | 1.502-01                    | -   | 2.56E-03        | 2.702-00                        | _                               | N                      |
| Bis(2-ethylhexyl)phthalate  | 2.80E+02                       | c        | 3.50E+01                    | c*  | 1.19E+01        | 1.60E+00                        | 2.00E+00                        | N                      |
| Bromobenzene                |                                | -        | 9.40E+01                    | n   | -               | 1.50E-02                        | 2.002.00                        | N                      |
| Bromodichloromethane        | 5.25E+00                       | С        | 2.80E-01                    | С   | 2.76E-04        | 3.30E-05                        | -                               | N                      |
| Bromoform                   |                                | <u> </u> | 6.10E+01                    | c*  | -               | 2.30E-03                        | _                               | N N                    |
| Bromomethane                | 2.23E+01                       | n        | 7.90E+00                    | n   | 1.94E-03        | 2.20E-03                        | -                               | N                      |
| 4-Bromophenyl phenyl ether  | -                              | -        | -                           | -   | -               | -                               | _                               | N                      |
| 2-Butanone (MEK)            | 3.96E+04                       | n        | 2.80E+04                    | ns  | 1.27E+00        | 1.50E+00                        | _                               | Y                      |
| Butyl benzyl phthalate      |                                |          | 2.60E+02                    | c*  | -               | 6.70E-01                        | -                               | N                      |
| Cadmium                     | 7.79E+01                       | n        | 7.00E+01                    | n   | 1.37E+00        | 1.40E+00                        | 3.80E-01                        | Y                      |
| Carbazole                   |                                | -        | -                           | -   |                 | - 1.102.00                      | -                               | N                      |
| Carbon disulfide            | 1.94E+03                       | ns       | 6.70E+02                    | ns  | 2.52E-01        | 2.70E-01                        | _                               | N                      |
| Carbon tetrachloride        | 4.38E+00                       | С        | 2.50E-01                    | С   | 7.39E-04        | 7.90E-05                        | 2.00E-03                        | N                      |
| Chlorobenzene               | 5.08E+02                       | ns       | 3.10E+02                    | n   | 5.38E-02        | 6.80E-02                        | 7.50E-02                        | N                      |
| Chloroethane                | -                              | -        | -                           | -   | -               | -                               |                                 | N                      |
| Chloroform                  | 5.72E+00                       | С        | 3.00E-01                    | С   | 4.68E-04        | 5.50E-05                        | -                               | N                      |
| Chloromethane               | 3.56E+01                       | С        | 1.20E+02                    | n   | 4.18E-03        | 4.90E-02                        | -                               | N                      |
| 4-Chloro-3-methylphenol     | -                              | -        | -                           | -   | -               |                                 | -                               | N                      |
| 4-Chloroaniline             | -                              |          | 2.40E+00                    | С   | -               | 1.20E-04                        | -                               | N                      |
| 4-Chlorophenyl phenyl ether |                                |          | -                           |     | _               | -                               | <u>-</u>                        | N                      |
| 4-Chlorotoluene             |                                | -        | 5.50E+03                    | ns  |                 | 2.80E+00                        | -                               | N                      |
| 2-Chloronaphthalene         | 6.26E+03                       | ns       | 6.30E+03                    | ns  | 1.35E+01        | 1.80E+01                        | -                               | N                      |
| 2-Chlorophenol              | 3.91E+02                       | n        | 3.90E+02                    | n   | 1.53E-01        | 2.00E-01                        | -                               | N                      |
| 2-Chlorotoluene             | 1.56E+03                       | ns       | 1.60E+03                    | ns  | 6.24E-01        | 8.00E-01                        |                                 | N                      |
| Chromium                    | 1.13E+05                       | nl       | 1.20E+05                    | nm  | 9.86E+07        | 9.90E+07                        | -                               | Υ                      |
| Chrysene                    | 4.81E+02                       | С        | 1.50E+01                    | С   | 3.26E+01        | 1.40E+00                        | -                               | N                      |
| cis-1,2-DCE                 | 7.82E+02                       | n        | 7.80E+02                    | n · | 9.43E-02        | 1.10E-01                        | 2.10E-02                        | N                      |
| cis-1,3-Dichloropropene     | 2.35E+01                       | С        | 1.70E+00                    | C*  | 1.35E-03        | 1.60E-04                        | -                               | N                      |
| Cobalt                      | -                              | -        | 2.30E+01                    | n   | -               | 4.90E-01                        | -                               | Υ                      |
| Cyanide                     | 1.56E+03                       | n        | 1.60E+03                    | n   | 7.44E+00        | 7.40E+00                        | 2.00E+00                        | N                      |
| 1,1-Dichloroethane          | 6.29E+01                       | С        | 3.40E+00                    | С   | 6.09E-03        | 7.00E-04                        | -                               | N                      |
| 1,1-Dichloroethene          | 6.18E+02                       | n        | 2.50E+02                    | n   | 1.19E-01        | 1.20E-01                        | 2.60E-03                        | N                      |

TABLE 6
Residential Soil Screening Levels
Bloomfield Refinery - Bloomfield, New Mexico

|                                |                     |          |              |         | Cross Me | dia Soil-to-G         | round Water                           | 1           |
|--------------------------------|---------------------|----------|--------------|---------|----------|-----------------------|---------------------------------------|-------------|
|                                | NME                 | -D       | EPA          |         | NMED     |                       | PA                                    | -           |
| Г                              | INIVIE              |          |              | Ī       | ININIED  |                       |                                       |             |
| Analyte                        | Residential<br>Soil | Endpoint |              | ResSoil |          | GW_Risk-<br>based SSL | GW_MCL-<br>based SSL                  | Constituent |
|                                | (mg/kg)             |          | Soil (mg/kg) | key     | (mg/kg)  | (mgkg)                | (mg/kg)                               | Detected    |
| Applicable depth interval      | 0-1                 | 0'       | 0-2'         |         |          | All depths            | · · · · · · · · · · · · · · · · · · · |             |
| 1,1-Dichloropropene            | -                   | -        | -            | -       | -        | _                     | -                                     | N           |
| 1,2-Dibromo-3-chloropropane    | 1.94E-01            | С        | 5.60E-03     | С       | 2.97E-06 | 1.50E-07              | 9.20E-05                              | N           |
| 1,2-Dibromoethane (EDB)        | 5.74E-01            | С        | 3.40E-02     | С       | 1.58E-05 | 1.90E-06              | 1.50E-05                              | N           |
| 1,2-Dichlorobenzene            | 3.01E+03            | ns       | 2.00E+03     | ns      | 3.13E-01 | 4.00E-01              | 6.60E-01                              | N           |
| 3,3'-Dichlorobenzidine         | 8.71E+00            | С        | 1.10E+00     | С       | 1.70E-02 | 2.30E-03              | -                                     | N           |
| 1,2-Dichloroethane (EDC)       | 7.74E+00            | С        | 4.50E-01     | С       | 3.65E-04 | 4.40E-05              | 1.50E-03                              | N           |
| 1,2-Dichloropropane            | 1.47E+01            | С        | 9.30E-01     | c*      | 1.11E-03 | 1.30E-04              | 1.70E-03                              | N           |
| 1,3-Dichlorobenzene            | -                   | -        | _            | -       | -        | -                     | -                                     | N           |
| 1,3-Dichloropropane            | -                   | -        | 1.60E+03     | n       | -        | 2.70E-01              | -                                     | N           |
| 1,4-Dichlorobenzene            | 3.21E+01            | С        | 2.60E+00     | С       | 3.57E-03 | 4.60E-04              | 8.10E-02                              | N           |
| 2,2-Dichloropropane            | -                   | -        |              | -       | -        | -                     | -                                     | N           |
| 2,4-Dichlorophenol             | 1.83E+02            | n        | 1.80E+02     | n       | 1.37E-01 | 1.80E-01              | -                                     | N           |
| 2,4-Dimethylphenol             | 1.22E+03            | n        | 1.20E+03     | n       | 9.12E-01 | 1.20E+00              | -                                     | N           |
| 4,6-Dinitro-2-methylphenol     | -                   | -        | -            | -       | -        | -                     | -                                     | N           |
| 2,4-Dinitrophenol              | 1.22E+02            | n        | 1.20E+02     | n       | 5.25E-02 | 6.80E-02              | -                                     | N           |
| 2,4-Dinitrotoluene             | 1.26E+01            | С        | 1.60E+00     | C*      | 1.56E-03 | 2.00E-04              | -                                     | N           |
| 2,6-Dinitrotoluene             | 6.12E+01            | n        | 6.10E+01     | n       | 2.67E-02 | 3.40E-02              | -                                     | N           |
| Dibenz(a,h)anthracene          | 4.81E-01            | С        | 1.50E-02     | С       | 3.62E-01 | 1.50E-02              | -                                     | N           |
| Dibenzofuran                   | -                   | -        | -            | -       | -        | -                     | -                                     | N           |
| Dibromochloromethane           | 1.13E+01            | С        | 7.00E-01     | С       | 3.38E-04 | 4.00E-05              | -                                     | N           |
| Dibromomethane                 | -                   | -        | 7.80E+02     | n       | -        | 9.10E-02              | -                                     | N           |
| Dichlorodifluoromethane        | 4.81E+02            | n        | 1.90E+02     | n       | 7.23E-01 | 6.10E-01              | -                                     | N           |
| Diethyl phthalate              | 4.89E+04            | n        | 4.90E+04     | n       | 1.06E+01 | 1.30E+01              | -                                     | N           |
| Dimethyl phthalate             | 6.11E+05            | nl       | -            | -       | 8.36E+01 | -                     | -                                     | N           |
| Di-n-butyl phthalate           | 6.11E+03            | n        | -            | -       | 8.63E+00 | _                     | -                                     | N           |
| Di-n-octyl phthalate           | -                   | -        | -            | -       | -        | -                     | -                                     | N           |
| Ethylbenzene                   | 6.96E+01            | С        | 5.70E+00     | С       | 1.46E-02 | 1.90E-03              | 8.90E-01                              | Y           |
| Fluoranthene                   | 2.29E+03            | n        | 2.30E+03     | n       | 1.55E+02 | 2.10E+02              | -                                     | N           |
| Fluorene                       | 2.29E+03            | ns       | 2.30E+03     | n       | 2.50E+01 | 3.30E+01              | -                                     | N           |
| Hexachlorobenzene              | 2.45E+00            | С        | 3.00E-01     | С       | 2.21E-03 | 2.90E-04              | 7.00E-03                              | N           |
| Hexachlorobutadiene            | -                   | -        | 6.20E+00     | C**     | -        | 1.90E-03              | -                                     | N           |
| Hexachlorocyclopentadiene      | 3.67E+02            | n        | 3.70E+02     | n       | 6.13E-01 | 8.00E-01              | 1.80E-01                              | N           |
| Hexachloroethane               | 6.11E+01            | n        | 3.50E+01     | C**     | 1.93E-02 | 3.20E-03              | -                                     | N           |
| 2-Hexanone                     | -                   | -        | -            | -       | -        | -                     | -                                     | N           |
| Indeno(1,2,3-cd)pyrene         | 4.81E+00            | С        | 1.50E-01     | С       | 3.70E+00 | 1.60E-01              | -                                     | N           |
| Isophorone                     | 4.13E+03            | С        | 5.10E+02     | c*      | 1.85E-01 | 2.20E-02              | -                                     | N           |
| Isopropylbenzene (cumene)      | 3.21E+03            | ns       | 2.20E+03     | ns      | 9.86E-01 | 1.30E+00              | -                                     | Y           |
| 4-Isopropyltoluene             | -                   | -        | -            | -       | -        | -                     | -                                     | Υ           |
| Lead                           | 4.00E+02            | IEUBK    | 4.00E+02     | nL      | -        | -                     | -                                     | Y           |
| Mercury                        | 7.71E+00            | ns       | 4.30E+00     | ns      | 2.93E-02 | 3.00E-02              | 1.00E-01                              | Y           |
| Methyl tert-butyl ether (MTBE) | 8.62E+02            | С        | 3.90E+01     | С       | 2.29E-02 | 2.70E-03              | -                                     | Y           |
| Methylene chloride             | 1.99E+02            | С        | 1.10E+01     | С       | 1.07E-02 | 1.20E-03              | 1.30E-03                              | Υ           |
| 1-Methylnaphthalene            |                     | -        | 2.20E+01     | С       |          | 1.50E-02              |                                       | Y           |
| 2-Methylnaphthalene            | -                   | -        | 3.10E+02     | n       |          | 9.00E-01              | -                                     | Y           |
| 2-Methylphenol                 | -                   | -        | 3.10E+03     | n       |          | 2.00E+00              |                                       | N           |
| 3+4-Methylphenol               | -                   | -        | 3.10E+02     | n       | -        | 1.90E-01              | -                                     | N           |
| 4-Methyl-2-pentanone           | -                   | -        |              | _       | _        | -                     |                                       | N           |
| 2-Nitroaniline                 | -                   | -        | 1.80E+02     | n       |          | 3.30E-02              |                                       | N           |
| 3-Nitroaniline                 | -                   | -        | -            | -       | -        | -                     | -                                     | N           |
| 4-Nitroaniline                 | -                   | -        | 2.40E+01     | c*      | _        | 1.00E-03              | -                                     | N           |
| 2-Nitrophenol                  | -                   |          | -            |         |          | -                     |                                       | N           |
| 4-Nitrophenol                  | -                   | -        | -            | -       | -        | -                     | -                                     | N           |
|                                |                     |          |              |         |          |                       |                                       |             |

TABLE 6
Residential Soil Screening Levels
Bloomfield Refinery - Bloomfield, New Mexico

|                           |                                |     | •        |  | Cross Me | dia Soil-to-G                   | round Water                     | 1                       |
|---------------------------|--------------------------------|-----|----------|--|----------|---------------------------------|---------------------------------|-------------------------|
|                           | NMI                            | -D  | EPA      | ······································ | NMED     |                                 | PA                              | i                       |
| Analyte                   | Residential<br>Soil<br>(mg/kg) |     |          | ResSoil<br>key                         |          | GW_Risk-<br>based SSL<br>(mgkg) | GW_MCL-<br>based SSL<br>(mg/kg) | Constituent<br>Detected |
| Applicable depth interval | 0-1                            | 0'  | 0-2'     |  |          | All depths                      |                                 |                         |
| Naphthalene               | 4.50E+01                       | С   | 3.90E+00 | c*                                     | 4.19E-03 | 5.50E-04                        | _                               | Y                       |
| n-Butylbenzene            | -                              |     |          | -                                      | -        | -                               | -                               | Y                       |
| Nickel                    | 1.56E+03                       | n   | 1.40E+04 | С                                      | 4.77E+01 | 4.80E+01                        | -                               | Y                       |
| Nitrobenzene              | 4.94E+01                       | С   | 4.40E+00 | c*                                     | 6.86E-03 | 7.10E-05                        | -                               | N                       |
| N-Nitrosodi-n-propylamine | _                              |     | 6.90E-02 | С                                      | -        | 1.10E-05                        | -                               | N                       |
| N-Nitrosodiphenylamine    | 8.00E+02                       | С   | 9.90E+01 | С                                      | 1.29E+00 | 1.70E-01                        | -                               | N                       |
| n-Propylbenzene           | -                              | -   | -        | -                                      | -        | -                               | -                               | Υ                       |
| Pentachlorophenol         | 2.07E+01                       | С   | 3.00E+00 | С                                      | 2.94E-02 | 3.90E-03                        | 7.00E-03                        | N                       |
| Phenanthrene              | 1.83E+03                       | ns  | -        | -                                      | 8.34E+01 | -                               | _                               | Y                       |
| Phenol                    | 1.83E+04                       | n   | 1.80E+04 | n                                      | 6.30E+00 | 8.10E+00                        | -                               | N                       |
| Pyrene                    | 1.72E+03                       | ns  | 1.70E+03 | n                                      | 1.12E+02 | 1.50E+02                        | -                               | .Y                      |
| Pyridine                  | -                              | -   | 7.80E+01 | n                                      | -        | 9.70E-03                        | _                               | N                       |
| sec-Butylbenzene          | -                              | -   | _        | -                                      | -        | -                               |                                 | Υ                       |
| Selenium                  | 3.91E+02                       | n   | 3.90E+02 | n                                      | 9.65E-01 | 9.50E-01                        | 2.60E-01                        | N                       |
| Silver                    | 3.91E+02                       | n   | 3.90E+02 | n                                      | 1.57E+00 | 1.60E+00                        | -                               | N                       |
| Styrene                   | 8.97E+03                       | ns  | 6.50E+03 | ns                                     | 1.56E+00 | 2.00E+00                        | 1.20E-01                        | N                       |
| 1,2,3-Trichlorobenzene    | _                              | -   | -        | -                                      | -        | -                               | -                               | N                       |
| 1,1,1,2-Tetrachloroethane | 2.92E+01                       | С   | 2.00E+00 | C                                      | 1.73E-03 | 2.10E-04                        | -                               | N                       |
| 1,1,1-Trichloroethane     | 2.18E+04                       | ns  | 9.00E+03 | ns                                     | 2.98E+00 | 3.30E+00                        | 7.20E-02                        | N                       |
| 1,1,2,2-Tetrachloroethane | 7.97E+00                       | С   | 5.90E-01 | С                                      | 2.25E-04 | 2.80E-05                        | _                               | N                       |
| 1,1,2-Trichloroethane     | 1.72E+01                       | С   | 1.10E+00 | С                                      | 6.74E-04 | 8.20E-05                        | 1.70E-03                        | N                       |
| 2,4,5-Trichlorophenol     | 6.11E+03                       | n   | 6.10E+03 | n                                      | 7.13E+00 | 9.40E+00                        | -                               | N                       |
| 2,4,6-Trichlorophenol     | 6.11E+01                       | n   | 4.40E+01 | c**                                    | 7.13E-02 | 1.60E-02                        | _                               | N                       |
| 1,2,3-Trichloropropane    | 9.15E-01                       | С   | 9.10E-02 | С                                      | 3.56E-05 | 4.40E-06                        | -                               | N                       |
| 1,2,4-Trichlorobenzene    | 1.43E+02                       | ns  | 8.70E+01 | n                                      | 1.02E-02 | 1.30E-02                        | 1.10E-01                        | N                       |
| 1,2,4-Trimethylbenzene    | -                              | -   | 6.70E+01 | n                                      | -        | 2.40E-02                        | _                               | Y                       |
| 1,3,5-Trimethylbenzene    | _                              | -   | 4.70E+01 | n                                      | -        | 2.00E-02                        | -                               | Y                       |
| tert-Butylbenzene         |                                | -   | _        | -                                      | -        | -                               | -                               | N                       |
| Tetrachloroethene (PCE)   | 6.99E+00                       | С   | 5.70E-01 | С                                      | 4.49E-04 | 5.20E-05                        | 2.40E-03                        | N                       |
| Toluene                   | 5.57E+03                       | ns  | 5.00E+03 | ns                                     | 1.38E+00 | 1.70E+00                        | 7.60E-01                        | Y                       |
| trans-1,2-DCE             | 2.73E+02                       | n   | 1.10E+02 | n                                      | 3.01E-02 | 3.40E-02                        | 3.20E-02                        | N                       |
| trans-1,3-Dichloropropene | 2.35E+01                       | С   | 1.70E+00 | C*                                     | 1.35E-03 | 1.60E-04                        | -                               | N                       |
| Trichloroethene (TCE)     | 4.57E+01                       | _ с | 2.80E+00 | С                                      | 5.30E-03 | 6.10E-04                        | 1.90E-03                        | N                       |
| Trichlorofluoromethane    | 2.01E+03                       | ns  | 8.00E+02 | n                                      | 9.01E-01 | 8.40E-01                        | -                               | N                       |
| Vanadium                  | 3.91E+02                       | n   | 5.50E+02 | n                                      | 1.83E+02 | 2.60E+02                        | -                               | Υ                       |
| Vinyl chloride            | 8.65E-01                       | С   | 6.00E-02 | С                                      | 2.88E-04 | 5.60E-06                        | 7.00E-04                        | N                       |
| Xylenes, Total            | 1.09E+03                       | ns  | 6.00E+02 | ns                                     | 1.76E-01 | 2.30E-01                        | 1.10E+01                        | Υ                       |
| Zinc                      | 2.35E+04                       | n   | 2.30E+04 | n                                      | 6.82E+02 | 6.80E+02                        | -                               | Υ                       |

c - carcinogen n - noncarcinogen

nl - noncarcinogen, SSL may exceed ceiling limit
nls - noncarcinogen, SSL may exceed both saturation and ceiling limit

ns - noncarcinogen, SSL may exceed saturation

no screenig value currently available

NMED - Technical Background Document for Development of Soil Screening Levels - Revision 5.0 (August 2009) EPA - Regional Screening Levels (April 2009)

cs - carcinogen, SSL may exceed saturation

TABLE 7 Non- Residential Soil Screening Levels Bloomfield Refinery - Bloomfield, New Mexico

|   |                       |                          |                      |                                |                       |                 | Cross Me             | dia Soil-to-G                    | round Water                     | 1                      |
|---|-----------------------|--------------------------|----------------------|--------------------------------|-----------------------|-----------------|----------------------|----------------------------------|---------------------------------|------------------------|
|   |                       | NM                       | D                    |                                | EPA                   | ·               | NMED                 |                                  | PA                              | 1                      |
| Analyte   | IndOccSoil<br>(mg/kg) | IndOccSoil<br>(Endpoint) | ConsWork<br>(mg/kg)  | ConsWork<br>Soil<br>(Endpoint) | Industrial<br>(mg/kg) | IndSoil<br>_key | DAF1<br>(mg/kg)      | GW_Risk-<br>based SSL<br>(mg/kg) | GW_MCL-<br>based SSL<br>(mg/kg) | Constituer<br>Detected |
|   |                       | 21                       |                      | 101                            | 0.01                  | L               |                      | All domains                      |                                 |                        |
| Applicable depth interval                       |                       | 2'                       |                      | 10'                            | 0-2'                  |                 |                      | All depths                       |                                 |                        |
| Acenaphthene                                    | 3.67E+04              | ns                       | 1.86E+04             | n                              | 3.30E+04              | n               | 2.05E+01             | 2.70E+01                         |                                 | N N                    |
| Acenaphthylene                                  | - 0.545+05            |                          | 2 625 105            |                                | 6.405.05              |                 | 3.84E+00             | 4 405 : 00                       |                                 | N<br>Y                 |
| Acetone<br>Aniline                              | 8.51E+05              | nls                      | 2.63E+05             | nls<br>-                       | 6.10E+05<br>3.00E+02  | nms<br>c*       | 3.846+00             | 4.40E+00<br>3.40E-03             |                                 | N                      |
| Anthracene                                      | 1.83E+05              | nl                       | 6.68E+04             | ns .                           | 1.70E+05              | nm              | 3.37E+02             | 4.50E+02                         | <del></del>                     | N N                    |
| Antimony  | 4.54E+02              | n                        | 1.24E+02             | n                              | 4.10E+02              | n               | 6.61E-01             | 6.60E-01                         | 2.70E-01                        | N                      |
| Arsenic   | 1.77E+01              | С                        | 6.54E+01             | n                              | 1.60E+00              | С               | 1.31E-02             | 1.30E-03                         | 2.90E-01                        | Y                      |
| Azobenzene                                      | -                     | -                        | _                    | _                              | 2.20E+01              | С               | •                    | 5.10E-04                         | -                               | N                      |
| Barium  | 2.24E+05              | nl                       | 4.35E+03             | n                              | 1.90E+05              | nm              | 3.01E+02             | 3.00E+02                         | 8.20E+01                        | Y                      |
| Beryllium                                       | 2.26E+03              | n                        | 1.44E+02             | n                              | 2.00E+03              | n               | 5.77E+01             | 5.80E+01                         | 3.20E+00                        | N.                     |
| Benz(a)anthracene                               | 2.34E+01<br>8.54E+01  | c                        | 2.13E+02<br>4.71E+02 | C                              | 2.10E+00<br>5.60E+00  | c*              | 3.20E-01<br>1.85E-03 | 1.40E-02<br>2.30E-04             | 2.80E-03                        | Y                      |
| Benzene<br>Benzo(a)pyrene                       | 2.34E+00              | C<br>C                   | 2.13E+01             | n<br>C                         | 2.10E-01              | 6               | 1.09E-01             | 4.60E-03                         | 3.10E-01                        | N                      |
| Benzo(b)fluoranthene                            | 2.34E+01              | c                        | 2.13E+02             | c                              | 2.10E+00              | c               | 1.11E+00             | 4.70E-02                         | 0.10L-01                        | N                      |
| Benzo(g,h,i)perylene                            | -                     |                          | -                    |                                | -                     |                 | -                    | -                                |                                 | N                      |
| Benzo(k)fluoranthene<br>Benzoic acid            | 2.34E+02              | C<br>                    | 2.06E+03             |                                | 2.10E+01<br>2.50E+06  | C<br>nm         | 1.09E+01             | 4.60E-01<br>3.30E+01             | -                               | . N<br>Y               |
| Benzyl alcohol                                  | -                     | -                        | -                    | -                              | 3.10E+05              | nm              | -                    | 4.20E+00                         |                                 | Υ                      |
| Bis(2-chloroethoxy)methane                      | -                     | -                        | -                    | -                              | 1.80E+03              | n               | -                    | 2.30E-02                         |                                 | N                      |
| Bis(2-chloroethyl)ether                         | 1.36E+01              | С                        | 1.47E+02             | С                              | 9.00E-01              | С               | 2.33E-05             | 2.70E-06                         | <u> </u>                        | N                      |
| Bis(2-chloroisopropyl)ether                     | 4.54E+02              | С                        | 3.10E+03             | cs                             | -                     | -               | 2.56E-03             | -                                | -                               | N N                    |
| Bis(2-ethylhexyl)phthalate                      | 1.37E+03              | <u> </u>                 | 4.76E+03             | n                              | 1.20E+02              | С               | 1.19E+01             | 1.60E+00                         | 2.00E+00                        | N                      |
| Bromobenzene Bromodichloromethane               | 2.92E+01              | -<br>C                   | 3.50E+03             | -<br>CS                        | 4.10E+02<br>1.40E+00  | n<br>C          | 2.76E-04             | 1.50E-02<br>3.30E-05             |                                 | N                      |
| Bromoform                                       | 2.922-01              | -                        | 3.30E+03             |                                | 2.20E+02              | c*              | 2.702-04             | 2.30E-03                         | <u> </u>                        | N                      |
| Bromomethane                                    | 8.36E+01              | n                        | 6.71E+01             | n                              | 3.50E+01              | n               | 1.94E-03             | 2.20E-03                         | _                               | N                      |
| 4-Bromophenyl phenyl ether                      | -                     | -                        | -                    | -                              | -                     | -               | -                    | -                                | -                               | N                      |
| 2-Butanone (MEK)                                | 3.69E+05              | nl                       | 1.48E+05             | nis                            | 1.90E+05              | nms             | 1.27E+00             | 1.50E+00                         | -                               | Y                      |
| Butyl benzyl phthalate                          | -                     | -                        | -                    | -                              | 9.10E+02              | ·c              | -                    | 6.70E-01                         | -                               | N                      |
| Cadmium   | 1.12E+03              | n                        | 3.09E+02             | n                              | 8.00E+02              | n               | 1.37E+00             | 1.40E+00                         | 3.80E-01                        | Y                      |
| Carbazole                                       | 7.545+02              |                          | 5.89E+03             |                                | 3.00E+03              |                 | 2.52E-01             | 2.70E-01                         |                                 | N<br>N                 |
| Carbon disulfide Carbon tetrachloride           | 7.54E+03<br>2.43E+01  | ns<br>C                  | 1.99E+02             | ns<br>n                        | 1.30E+00              | ns<br>C         | 7.39E-04             | 7.90E-05                         | 2.00E-03                        | N                      |
| Chlorobenzene                                   | 2.14E+03              | n                        | 1.58E+03             | ns                             | 1.50E+03              | ns              | 5.38E-02             | 6.80E-02                         | 7.50E-02                        | N                      |
| Chloroethane                                    | -                     | -                        | -                    | -                              | - 1.002               | -               | -                    | -                                | -                               | N N                    |
| Chloroform                                      | 3.19E+01              | С                        | 6.71E+02             | С                              | 1.50E+00              | С               | 4.68E-04             | 5.50E-05                         |                                 | N                      |
| Chloromethane                                   | 1.98E+02              | С                        | 1.13E+03             | n                              | 5.10E+02              | n               | 4.18E-03             | 4.90E-02                         | •                               | N                      |
| 4-Chloro-3-methylphenol                         | -                     |                          | •                    |                                | -                     |                 | -                    | -                                | -                               | N                      |
| 4-Chloroaniline                                 | <del></del>           | <u> </u>                 |                      | -                              | 8.60E+00              | С               |                      | 1.20E-04                         |                                 | N                      |
| 4-Chlorophenyl phenyl ether 4-Chlorotoluene     | -                     | -                        | -                    | -                              | 7.20E+04              | -               | <u>-</u>             | 2.80E+00                         | -                               | N<br>N                 |
| 2-Chloronaphthalene                             | 9.08E+04              | ns                       | 2.48E+04             | ns                             | 8.20E+04              | ns<br>ns        | 1.35E+01             | 1.80E+01                         |                                 | N N                    |
| 2-Chlorophenol                                  | 5.68E+03              | n                        | 1.55E+03             | n                              | 5.10E+03              | n               | 1.53E-01             | 2.00E-01                         |                                 | N                      |
| 2-Chlorotoluene                                 | 2.27E+04              | ns                       | 6.19E+03             | ns                             | 2.00E+04              | ns              | 6.24E-01             |                                  | -                               | N                      |
| Chromium  | 1.57E+06              | nl                       | 4.47E+05             | nl                             | 1.50E+06              | nm              | 9.86E+07             |                                  |                                 | Y                      |
| Chrysene  | 2.34E+03              | C                        | 2.06E+04             | С                              | 2.10E+02              | С               | 3.26E+01             | 1.40E+00                         |                                 | N_                     |
| cis-1,2-DCE                                     | 1.14E+04              | ns                       | 3.10E+03             | cs                             | 1.00E+04              | ns<br>o*        | 9.43E-02             | 1.10E-01                         | 2.10E-02                        | N _                    |
| cis-1,3-Dichloropropene<br>Cobalt               | 1.26E+02              |                          | 5.10E+02             | n                              | 8.40E+00<br>3.00E+02  | c*<br>n         | 1.35E-03             | 1.60E-04<br>4.90E-01             | <u> </u>                        | N<br>Y                 |
| Cyanide   | 2.27E+04              | n -                      | 6.19E+03             | n                              | 2.00E+04              | n               | 7.44E+00             | 7.40E+00                         | 2.00E+00                        | N                      |
| 1,1-Dichloroethane                              | 3.50E+02              | C                        | 6.88E+03             | cs                             | 1.70E+01              | c               | 6.09E-03             | 7.40E+00<br>7.00E-04             | 2.002.100                       | N                      |
| 1,1-Dichloroethene                              | 2.22E+03              | ns                       | 1.83E+03             | ns                             | 1.10E+03              | n               | 1.19E-01             | 1.20E-01                         | 2.60E-03                        | N                      |
| 1,1-Dichloropropene                             |                       |                          |                      |                                | -                     |                 |                      | -                                | •                               | N                      |
| 1,2-Dibromo-3-chloropropane                     | 1.09E+00              | С                        | 2.30E+01             | С                              | 7.30E-02              | С               | 2.97E-06             | 1.50E-07                         | 9.20E-05                        | N                      |
| 1,2-Dibromoethane (EDB)                         | 3.14E+00              | C                        | 4.86E+01             | С                              | 1.70E-01              | С               | 1.58E-05             | 1.90E-06                         | 1.50E-05                        | N                      |
| 1,2-Dichlorobenzene                             | 1.43E+04              | ns                       | 9.71E+03             | ns                             | 1.00E+04              | ns              | 3.13E-01             | 4.00E-01                         | 6.60E-01                        | N<br>N                 |
| 3,3'-Dichlorobenzidine 1,2-Dichloroethane (EDC) | 4.26E+01<br>4.28E+01  | C                        | 3.71E+02<br>7.51E+02 | C<br>C                         | 3.80E+00<br>2.20E+00  | C<br>C          | 1.70E-02<br>3.65E-04 | 2.30E-03<br>4.40E-05             | 1.50E-03                        | N<br>N                 |
| 1,2-Dichloropropane                             | 8.17E+01              | c                        | 1.17E+02             | n                              | 4.70E+00              | c*              | 1.11E-03             | 1.30E-04                         | 1.70E-03                        | N                      |
| 1,3-Dichlorobenzene                             | 1                     | -                        | -                    | -                              | -                     | <del>-</del>    | -                    | -                                |                                 | N                      |
| 1,3-Dichloropropane                             | 1 -                   | -                        | -                    | -                              | 2.00E+04              | ns              | -                    | 2.70E-01                         |                                 | N                      |
| 1,4-Dichlorobenzene                             | 1.80E+02              | С                        | 3.78E+03             | cs                             | 1.30E+01              | С               | 3.57E-03             | 4.60E-04                         | 8.10E-02                        | N                      |
| 2,2-Dichloropropane                             | -                     | -                        | -                    |                                | -                     | -               | _                    | -                                |                                 | N                      |
|   |                       |                          |                      |                                |                       |                 |                      |                                  |                                 |                        |
| 2,4-Dichlorophenol                              | 2.05E+03              | n                        | 7.15E+02             | n                              | 1.80E+03              | ก               | 1.37E-01             | 1.80E-01                         |                                 | N                      |
|   | 2.05E+03<br>1.37E+04  | n<br>n                   | 7.15E+02<br>4.76E+03 | n<br>n                         | 1.80E+03<br>1.20E+04  | n<br>n          | 1.37E-01<br>9.12E-01 | 1.80E-01<br>1.20E+00             | -                               | N<br>N                 |

TABLE 7 Non- Residential Soil Screening Levels Bloomfield Refinery - Bloomfield, New Mexico

|  |                      |            |                      |            |                      |          |   |                      | round Water   | ]  |
|--|----------------------|------------|----------------------|------------|----------------------|----------|---|----------------------|---------------|--|
|  |                      | NME        | ED                   |            | EPA                  |          | NMED  | E                    | PA            |  |
|  | ا ي م                | 1-400.0    | 0                    | ConsWork   | 1 4 4 - 4 - 4        |          | DAE.  | GW_Risk-             | GW_MCL-       | Comedition                                       |
| Analyte                                      | IndOccSoil           | IndOccSoil | ConsWork             | Soil       | Industrial           | IndSoil  | DAF1  | based SSL            | based SSL     | Constituer                                       |
|  | (mg/kg)              | (Endpoint) | (mg/kg)              | (Endpoint) | (mg/kg)              | _key     | (mg/kg)                                       | (mg/kg)              | (mg/kg)       | Detected   |
| A - 1'- 1 to double lot - 1                  | 0-                   | 21         |                      | 10'        | 0.21                 | L        |   | All dooths           | <u> </u>      | <del> </del>                                     |
| Applicable depth interval                    |                      |            |                      | 10'        | 0-2'                 | ,        |   | All depths           |               |  |
| 2,4-Dinitrotoluene                           | 1.03E+02             | С          | 4.76E+02             | n          | 5.50E+00             | С        | 1.56E-03                                      | 2.00E-04             | -             | N N  |
| 2,6-Dinitrotoluene                           | 6.87E+02             | n          | 2.39E+02             | n          | 6.20E+02             | n        | 2.67E-02                                      | 3.40E-02             | -             | N N  |
| Dibenz(a,h)anthracene                        | 2.34E+00             | C          | 2.13E+01             | c          | 2.10E-01             | <u> </u> | 3.62E-01                                      | 1.50E-02             | <del></del> - | N  |
| Dibenzofuran Dibromochloromethane            | 6.13E+01             | -<br>C     | 1,99E+03             | - c        | 3.40E+00             | c        | 3.38E-04                                      | 4.00E-05             | <del>-</del>  | N N  |
| Dibromomethane                               | 0.13E+01             | <u> </u>   | 1,992+03             |            | 1.00E+04             | ns       | 3.36E-04                                      | 9.10E-02             |               | N  |
| Dichlorodifluoromethane                      | 1.55E+03             | ns         | 1.37E+03             | ns         | 7.80E+02             | n        | 7.23E-01                                      | 6.10E-01             |               | N N  |
| Diethyl phthalate                            | 5.47E+05             | nì         | 1.91E+05             | n)         | 4.90E+05             | nm       | 1.06E+01                                      | 1.30E+01             | _             | N  |
| Dimethyl phthalate                           | 6.84E+06             | nl         | 2.38E+06             | nl         | -                    | -        | 8.36E+01                                      | -                    |               | N  |
| Di-n-butyl phthalate                         | 6.84E+04             | n          | 2.38E+04             | n          |                      | -        | 8.63E+00                                      | -                    |               | N  |
| Di-n-octyl phthalate                         | -                    |            | -                    | -          | -                    | -        |   | -                    | -             | N  |
| Ethylbenzene                                 | 3.85E+02             | C          | 6.63E+03             | cs         | 2.90E+01             | С        | 1.46E-02                                      | 1.90E-03             | 8.90E-01      | Y  |
| Fluoranthene                                 | 2.44E+04             | n          | 8.91E+03             | n          | 2.20E+04             | n        | 1.55E+02                                      | 2.10E+02             |               | N  |
| Fluorene                                     | 2.44E+04             | ns         | 8.91E+03             | ns         | 2.20E+04             | n        | 2.50E+01                                      | 3.30E+01             |               | N  |
| Hexachlorobenzene                            | 1.20E+01             | С          | 1.03E+02             | С          | 1.10E+00             | С        | 2.21E-03                                      | 2.90E-04             | 7.00E-03      | N  |
| Hexachlorobutadiene                          |                      |            | -                    | -          | 2.20E+01             | c*       |   | 1.90E-03             | -             | - N  |
| Hexachlorocyclopentadiene                    | 4.10E+03             | n          | 8.11E+02             | n          | 3.70E+03             | n        | 6.13E-01                                      | 8.00E-01             | 1.80E-01      | N N  |
| Hexachloroethane                             | 6.84E+02             | n          | 2.38E+02             | n          | 1.20E+02             | C**      | 1.93E-02                                      | 3.20E-03             | <u> </u>      | N  |
| 2-Hexanone                                   |                      |            |                      | -          | -                    |          | - 705.00                                      | 1 005 01             | <del>-</del>  | N N  |
| Indeno(1,2,3-cd)pyrene                       | 2.34E+01<br>2.02E+04 | C          | 2.13E+02<br>4.75E+04 | C          | 2.10E+00<br>1.80E+03 | C*       | 3.70E+00                                      | 1.60E-01<br>2.20E-02 | -             | N<br>N   |
| Isophorone                                   | 1.49E+04             | _ c        | 1.03E+04             | <u>n</u>   | 1.10E+04             |          | 1.85E-01<br>9.86E-01                          | 1.30E+00             |               | Y  |
| Isopropylbenzene (cumene) 4-Isopropyltoluene | 1.49E+04             | ns         | 1.03E+04             | ns         | 1.10E+04             | ns       | 9.80E-01                                      | 1.30E+00             | <u> </u>      | <del>                                     </del> |
| Lead   | 8.00E+02             | IEUBK      | 8.00E+02             | IEUBK      | 8.00E+02             | nL       |   | <del>-</del>         | -             | Ÿ  |
| Mercury                                      | 4.99E+01             | n          | 6.36E+01             | ns         | 2.40E+01             | ns       | 2.93E-02                                      | 3.00E-02             | 1.00E-01      | Ÿ  |
| Methyl tert-butyl ether (MTBE)               | 4.69E+03             | C          | 6.55E+04             | CS         | 1.90E+02             | C        | 2.29E-02                                      | 2.70E-03             | 1.002-01      | Y  |
| Methylene chloride                           | 1.09E+03             | C          | 1.06E+04             | ns         | 5.40E+01             | c        | 1.07E-02                                      | 1.20E-03             | 1.30E-03      | Y  |
| 1-Methylnaphthalene                          | -                    |            | -                    | -          | 9.90E+01             | c        | -   | 1.50E-02             | -             | Ÿ  |
| 2-Methylnaphthalene                          | -                    |            |                      |            | 4.10E+03             | ns       |   | 9.00E-01             |               | Ý  |
| 2-Methylphenol                               | -                    | -          | -                    |            | 3.10E+04             | n        | -   | 2.00E+00             | -             | N  |
| 3+4-Methylphenol                             | _                    |            |                      |            | 3.10E+03             | n        | -   | 1.90E-01             |               | N  |
| 4-Methyl-2-pentanone                         | ~                    | <u> </u>   |                      |            | -                    | -        |   |                      | -             | N  |
| 2-Nitroaniline                               |                      |            | <del>-</del>         |            | 1.80E+03             | n        |   | 3.30E-02             | -             | N  |
| 3-Nitroaniline                               | -                    |            |                      |            |                      |          |   |                      |               | N_   |
| 4-Nitroaniline                               | -                    |            |                      |            | 8.60E+01             | c*       | -   | 1.00E-03             |               | N  |
| 2-Nitrophenol                                |                      |            |                      |            |                      | <u> </u> |   |                      |               | N .  |
| 4-Nitrophenol                                | 0.505.00             | <u> </u>   | 7.005.00             |            | 0.005.04             |          | 4 405 00                                      | 5.505.04             |               | N N  |
| Naphthalene                                  | 2.52E+02             | cs         | 7.02E+02             | ns         | 2.00E+01             | c*       | 4.19E-03                                      | 5.50E-04             | <del>-</del>  | Y  |
| n-ButylbenzeneNickel                         | 2.27E+04             | n -        | 6.19E+03             | n -        | 6.90E+04             | -<br>C   | 4.77E+01                                      | 4.80E+01             |               | Y  |
| Nitrobenzene                                 | 2.77E+02             |            | 5.20E+02             | n          | 2.20E+01             | C*       | 6.86E-03                                      | 7.10E-05             |               | N  |
| N-Nitrosodi-n-propylamine                    | 2.712.02             |            | - 0.202 02           |            | 2.50E-01             | c        | 0.00L-03                                      | 1.10E-05             |               | N  |
| N-Nitrosodiphenylamine                       | 3.91E+03             | С          | 3.40E+04             | С          | 3.50E+02             | c        | 1,29E+00                                      | 1.70E-01             |               | N  |
| n-Propylbenzene                              | -                    |            | -                    |            | -                    |          | ,, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u> | -                    | -             | Ÿ  |
| Pentachlorophenol                            | 1.00E+02             | U          | 1.03E+03             | c          | 9.00E+00             | С        | 2.94E-02                                      | 3.90E-03             | 7.00E-03      | N  |
| Phenanthrene                                 | 2.05E+04             | ns         | 7.15E+03             | ns         | -                    | -        | 8.34E+01                                      | -                    | -             | Y  |
| Phenol                                       | 2.05E+05             | nl         | 6.88E+04             | n          | 1.80E+05             | nm       | 6.30E+00                                      | 8.10E+00             |               | N  |
| Pyrene                                       | 1.83E+04             | ns         | 6.68E+03             | ns         | 1.70E+04             | n        | 1.12E+02                                      | 1.50E+02             |               | Y  |
| Pyridine                                     | -                    |            |                      |            | 1.00E+03             | ก        |   | 9.70E-03             |               | N  |
| sec-Butylbenzene                             |                      |            | -                    |            |                      |          |   |                      |               | Y  |
| Selenium                                     | 5.68E+03             | n          | 1.55E+03             | <u>n</u>   | 5.10E+03             | n        | 9.65E-01                                      | 9.50E-01             | 2.60E-01      | N N  |
| Silver                                       | 5.68E+03             | n          | 1.55E+03             | <u> </u>   | 5.10E+03             | n        | 1.57E+00                                      |                      | 4 005 04      | N N  |
| Styrene<br>1,2,3-Trichlorobenzene            | 5.12E+04             | ns         | 3.03E+04             | ns<br>-    | 3.80E+04             | ns<br>-  | 1.56E+00                                      | 2.00E+00             | 1.20E-01      | N N  |
| 1,1,1,2-Tetrachloroethane                    | 1.61E+02             | - 0        | 2.78E+03             |            | 9.80E+00             | C        | 1.73E-03                                      | 2.10E-04             | <del></del> - | N<br>N   |
| 1,1,1-Trichloroethane                        | 7.71E+04             | ns         | 6.43E+04             | CS<br>ns   | 3.90E+04             | ns       | 2.98E+00                                      | 3.30E+00             | 7.20E-02      | N  |
| 1.1.2.2-Tetrachloroethane                    | 4.33E+01             | C          | 5.99E+02             | C          | 2.90E+00             | C        | 2.25E-04                                      | 2.80E-05             | 1.201.02      | - N  |
| 1,1,2-Trichloroethane                        | 9.43E+01             |            | 1.24E+03             | ns         | 5.50E+00             | c        | 6.74E-04                                      | 8.20E-05             | 1.70E-03      | N N  |
| 2,4,5-Trichlorophenol                        | 6.84E+04             | n          | 2.38E+04             | n          | 6.20E+04             | n        | 7.13E+00                                      |                      | -             | N  |
| 2,4,6-Trichlorophenol                        | 6.84E+02             | n          | 2.38E+02             | n          | 1.60E+02             | C**      | 7.13E-02                                      | 1.60E-02             | -             | N N  |
| 1,2,3-Trichloropropane                       | 4.54E+00             | C          | 3.10E+01             | C          | 4.10E-01             | c        | 3.56E-05                                      | 4.40E-06             |               | N N  |
| 1,2,4-Trichlorobenzene                       | 5.25E+02             | ns         | 4.27E+02             | ns         | 4.00E+02             | ns       | 1.02E-02                                      | 1.30E-02             | 1.10E-01      | N  |
| 1,2,4-Trimethylbenzene                       |                      | -          |                      |            | 2.80E+02             | ns       | -   | 2.40E-02             | -             | Y  |
| 1,3,5-Trimethylbenzene                       |                      |            | -                    | -          | 2.00E+02             | n        |   | 2.00E-02             |               | Υ  |
| tert-Butylbenzene                            | -                    |            |                      |            |                      | -        | -   | -                    |               | N  |
| Tetrachloroethene (PCE)                      | 3.64E+01             | С          | 3.38E+02             | cs         | 2.70E+00             | С        | 4.49E-04                                      | 5.20E-05             | 2.40E-03      | N  |
| Toluene                                      | 5.79E+04             | ns         | 2.11E+04             | ns         | 4.60E+04             | ns       | 1.38E+00                                      | 1.70E+00             | 7.60E-01      | Y  |

#### TABLE 7 Non- Residential Soil Screening Levels Bloomfield Refinery - Bloomfield, New Mexico

|                           |                       |                          |                     |                                |                       |                 | Cross Me        | dia Soil-to-G                    | round Water                     | ]                       |
|---------------------------|-----------------------|--------------------------|---------------------|--------------------------------|-----------------------|-----------------|-----------------|----------------------------------|---------------------------------|-------------------------|
|                           |                       | NM                       | ED                  |                                | EPA                   | \               | NMED            | E                                | PA                              |                         |
| Analyte                   | IndOccSoil<br>(mg/kg) | IndOccSoil<br>(Endpoint) | ConsWork<br>(mg/kg) | ConsWork<br>Soil<br>(Endpoint) | Industrial<br>(mg/kg) | IndSoil<br>_key | DAF1<br>(mg/kg) | GW_Risk-<br>based SSL<br>(mg/kg) | GW_MCL-<br>based SSL<br>(mg/kg) | Constituent<br>Detected |
| Applicable depth interval | 0-                    | 2'                       | 0-                  | 10'                            | 0-2'                  |                 |                 | All depths                       |                                 |                         |
| trans-1,2-DCE             | 9.95E+02              | n                        | 8.14E+02            | n                              | 5.00E+02              | n               | 3.01E-02        | 3.40E-02                         | 3.20E-02                        | N                       |
| trans-1,3-Dichloropropene | 1.26E+02              | С                        | 5.10E+02            | n                              | 8.40E+00              | c*              | 1.35E-03        | 1.60E-04                         | -                               | N                       |
| Trichloroethene (TCE)     | 2.53E+02              | С                        | 4.60E+03            | cs                             | 1.40E+01              | С               | 5.30E-03        | 6.10E-04                         | 1.90E-03                        | N                       |
| Trichlorofluoromethane    | 6.76E+03              | ns                       | 5.82E+03            | ns                             | 3.40E+03              | ns              | 9.01E-01        | 8.40E-01                         | -                               | N                       |
| Vanadium                  | 5.68E+03              | n                        | 1.55E+03            | n .                            | 7.20E+03              | n               | 1.83E+02        | 2.60E+02                         | -                               | Y                       |
| Vinyl chloride            | 2.59E+01              | С                        | 2.48E+02            | С                              | 1.70E+00              | С               | 2.88E-04        | 5.60E-06                         | 7.00E-04                        | N                       |
| Xylenes, Total            | 3.61E+03              | ns                       | 3.13E+03            | ns                             | 2.60E+03              | ns              | 1.76E-01        | 2.30E-01                         | 1.10E+01                        | Y                       |
| Zinc                      | 3.41E+05              | nl                       | 9.29E+04            | n                              | 3.10E+05              | nm              | 6.82E+02        | 6.80E+02                         | -                               | Υ                       |

c - carcinogen

nl - noncarcinogen, SSL may exceed ceiling limit

nls - noncarcinogen, SSL may exceed both saturation and ceiling limit

ns - noncarcinogen, SSL may exceed saturation

no screenig value currently available

NMED - Technical Background Document for Development of Soil Screening Levels - Revision 5.0 ( August 2009) EPA - Regional Screening Levels (April 2009)

n - noncarcinogen

cs - carcinogen, SSL may exceed saturation

## TABLE 8 Ground Water Screening Levels Bloomfield Refinery - Bloomfield, New Mexico

|                             | NMED                                      |   | PA       |               | ]                       |
|-----------------------------|---|---|----------|---------------|-------------------------|
| Analyte                     | New Mexico<br>WQCC<br>Standards<br>(ug/L) | EPA Screening<br>Levels.Tap Water<br>(ug/L) | TapW_key | MCL<br>(ug/L) | Constituent<br>Detected |
| Acenaphthene                |   | 2200  | n        | -             | Y                       |
| Acenaphthylene              | -   | -   | -        | <u> </u>      | N                       |
| Acetone                     | -   | 22000                                       | n        | -             | Υ                       |
| Aniline                     | -   | 12  | c*       | -             | N                       |
| Anthracene                  | -   | 11000                                       | n        | -             | N                       |
| Antimony                    | -   | 15  | n        | 6             | Y                       |
| Arsenic                     | 100                                       | 0.045                                       | С        | 10            | Y                       |
| Azobenzene                  | -   | 0.12  | С        | -             | N                       |
| Barium                      | 1000                                      | 7300  | n        | 2000          | Y                       |
| Benz(a)anthracene           | -   | 0.029                                       | С        | -             | N                       |
| Benzene                     | 10  | 0.41  | С        | 5             | Y                       |
| Benzo(a)pyrene              | 0.7                                       | 0.0029                                      | С        | 0.2           | N                       |
| Benzo(b)fluoranthene        | -   | 0.029                                       | c        |               | N                       |
| Benzo(g,h,i)perylene        |   | -   |          |               | N                       |
| Benzo(k)fluoranthene        |   | 0.29  | С        |               | N                       |
| Benzoic acid                |   | 150000                                      | n        |               | N                       |
| Benzyl alcohol              |   | 18000                                       | n n      |               | N                       |
| Beryllium                   |   | 73  | n        | 4             | N                       |
| Bis(2-chloroethoxy)methane  |   | 110   | n        |               | N                       |
| Bis(2-chloroethyl)ether     |   | 0.012                                       | C        | -             | N                       |
| Bis(2-chloroisopropyl)ether |   | - 0.012                                     | -        |               | N                       |
| Bis(2-ethylhexyl)phthalate  | _   | 4.8   | С        | 6             | Y                       |
| Bromobenzene                |   | 20  | n        |               | N                       |
| Bromodichloromethane        | -   | 0.12  | C        | -             | N                       |
| Bromoform                   |   | 8.5   | c*       |               | N                       |
| Bromomethane                | _   | 8.7   | n        | _             | N                       |
| 4-Bromophenyl phenyl ether  | <del>-  </del>                            | - 0.7                                       | - ''     |               | N                       |
| Butyl benzyl phthalate      |   | 35  | c        |               | N                       |
| 2-Butanone (MEK)            |   | 7100  | n        | <u> </u>      | N                       |
| Cadmium                     | 10  | 18  | n        | 5             | N                       |
| Carbazole                   | - 10                                      | -   | - "      |               | N                       |
| Carbon disulfide            | -   | 1000  | n        |               | N                       |
| Carbon tetrachloride        | 10  | 0.2   | C        |               | N                       |
| Chlorobenzene               | -   | 91  | n        | 100           | N                       |
| Chloroethane                | -   |   | -        | - 100         | N                       |
| Chloroform                  | 100                                       | 0.19  | С        | -             | Y                       |
| Chloromethane               | -   | 190   | c        |               | N                       |
| 4-Chloro-3-methylphenol     | -   | -   | -        | <u>-</u> -    | N N                     |
| 4-Chloroaniline             |   | 0.34  | С        |               | N                       |
| 4-Chlorophenyl phenyl ether |   | 0.54  | -        |               | N                       |
| 4-Chlorotoluene             | -   | 2600  | n        |               | N                       |
| 2-Chloronaphthalene         | <del>-  </del>                            | 2900  | n        |               | N                       |
| 2-Chlorophenol              | <del></del>                               | 180   | n        |               | N N                     |
| 2-Chlorotoluene             |   | 730   |          |               | N                       |
| Chromium                    | 50  | 55000                                       | n        | -             | Y                       |
| Chrysene                    | - 30                                      | 2.9   | n<br>C   | <u>-</u>      | N N                     |
| Only Selle                  |   | J 4.3                                       | , ,      | -             | ] IV                    |

## TABLE 8 Ground Water Screening Levels Bloomfield Refinery - Bloomfield, New Mexico

|                             | NMED                                      | E  | PA .     |                |                         |
|-----------------------------|---|--|----------|----------------|-------------------------|
| Analyte                     | New Mexico<br>WQCC<br>Standards<br>(ug/L) | EPA Screening<br>Levels.Tap Water<br>(ug/L)        | TapW_key | MCL<br>(ug/L)  | Constituent<br>Detected |
| Cobalt                      | 50  | 11   | n n      | -              | Υ                       |
| Cyanide                     | 200                                       | 730  | n        | 200            | Υ                       |
| Dibenz(a,h)anthracene       | -   | 0.0029   | С        |                | N                       |
| Dibenzofuran                | -   | -  | -        |                | N                       |
| Dibromochloromethane        | -   | 0.15   | С        | -              | N                       |
| cis-1,2-DCE                 |   | 370  | n        | 70             | N                       |
| trans-1,2-DCE               | -   | 110  | n        | 100            | N                       |
| cis-1,3-Dichloropropene     | -   | -  | -        | -              | N                       |
| trans-1,3-Dichloropropene   | -   | 0.43   | С        | -              | N                       |
| Dibromomethane              |   | 370  | n        |                | N                       |
| 1,2-Dibromo-3-chloropropane | -   | 0.00032  | С        | 0.2            | N                       |
| 1,2-Dibromoethane (EDB)     | 0.1                                       | 0.0065   | c        | 0.05           | N                       |
| 1,2-Dichlorobenzene         |   | 370  | n        | 600            | N                       |
| 1,3-Dichlorobenzene         |   |  | -        |                | N                       |
| 1,4-Dichlorobenzene         | <del></del>                               | 0.43   | С        | 75             | N                       |
| 3,3´-Dichlorobenzidine      |   | 0.15   | c        |                | N                       |
| Dichlorodifluoromethane     |   | 390  | n        |                | N                       |
| 1,1-Dichloroethane          | 25  | 2.4  | C        |                | N N                     |
| 1,2-Dichloroethane (EDC)    | 10  | 0.15   | c        |                | Y                       |
| 1,1-Dichloroethene          | 5   | 340  |          | $\frac{-3}{7}$ | N                       |
| 2,4-Dichlorophenol          |   | 110  | n        |                | N                       |
|                             | <del></del>                               | 0.39   | n<br>c*  | 5              | N N                     |
| 1,2-Dichloropropane         | <del>-</del>                              | <del>                                       </del> |          |                |                         |
| 2,2-Dichloropropane         |   | 720  |          |                | N                       |
| 1,3-Dichloropropane         | -   | 730  | n        |                | N                       |
| 1,1-Dichloropropene         | -   |  |          |                | N N                     |
| Diethyl phthalate           |   | 29000  | n        | <u> </u>       | N                       |
| Dimethyl phthalate          |   |  | -        |                | N                       |
| 2,4-Dimethylphenol          | <u>-</u>                                  | 730  | n        |                | Y                       |
| 4,6-Dinitro-2-methylphenol  | <u>-</u>                                  | -  | -        |                | N                       |
| 2,4-Dinitrophenol           | <u> </u>                                  | 73   | n        |                | N                       |
| 2,4-Dinitrotoluene          |   | 0.22   | n        |                | N                       |
| 2,6-Dinitrotoluene          | <u>-</u>                                  | 37   | n        |                | N                       |
| Di-n-butyl phthalate        |   |  |          |                | N                       |
| Di-n-octyl phthalate        | -   | -  |          | <u> </u>       | N                       |
| Ethylbenzene                | 750                                       | 1.5  | СС       | 700            | Y                       |
| Fluoranthene                |   | 1500   | n        |                | N                       |
| Fluorene                    |   | 1500   | n        |                | Y                       |
| Hexachlorobenzene           |   | 0.042  | С        | 1              | N                       |
| Hexachlorobutadiene         | -   | 0.86   | С*       | -              | N_                      |
| Hexachlorocyclopentadiene   | <u> </u>                                  | 220  | n        | 50             | N                       |
| Hexachloroethane            | •   | 4.8  | C**      |                | N                       |
| 2-Hexanone                  | •   | -  |          | <u>-</u>       | N                       |
| Indeno(1,2,3-cd)pyrene      | -   | 0.029  | С        | -              | N                       |
| Isophorone                  | -   | 71   | С        |                | N                       |
| Isopropylbenzene (Cumene)   |   | 680  | n        | -              | Y                       |
| 4-Isopropyltoluene          | -   | -  | -        | -              | Y                       |
|                             |   |  |          |                |                         |

TABLE 8
Ground Water Screening Levels
Bloomfield Refinery - Bloomfield, New Mexico

|                                | NMED                                      | E   | PA       |               | 7                       |
|--------------------------------|---|---|----------|---------------|-------------------------|
| Analyte                        | New Mexico<br>WQCC<br>Standards<br>(ug/L) | EPA Screening<br>Levels.Tap Water<br>(ug/L) | TapW_key | MCL<br>(ug/L) | Constituent<br>Detected |
| Lead                           | 50  | -   | -        | 15            | Y                       |
| Magnesium                      | -   | -   | -        |               | Y                       |
| Manganese                      | 200                                       | 880   | n        |               | Y                       |
| Mercury                        | 2   | 0.57  | n        | 2             | Y                       |
| Methyl tert-butyl ether (MTBE) |   | 12  | С        | -             | Y                       |
| Methylene chloride             | 100                                       | 4.8   | С        | 5             | N                       |
| 1-Methylnaphthalene            | -   | 2.3   | С        | -             | Y                       |
| 2-Methylnaphthalene            | -   | 150   | n        | -             | Y                       |
| 2-Methylphenol                 | -   | 1800  | n        | -             | Y                       |
| 3+4-Methylphenol               | -   | 180   | n        | -             | Υ                       |
| 4-Methyl-2-pentanone           | -   | -   | -        | -             | N                       |
| Naphthalene                    | -   | 0.14  | c*       | -             | Υ                       |
| n-Butylbenzene                 | -   | -   | -        | -             | Υ                       |
| Nickel                         | 200                                       | 730   | n        | -             | Υ                       |
| 2-Nitroaniline                 | <u>-</u>                                  | 110   | n        | •             | N                       |
| 3-Nitroaniline                 | -   | -   | -        |               | N                       |
| 4-Nitroaniline                 | -   | 3.4   | C*       | •             | N                       |
| 2-Nitrophenol                  | -   | -   | -        | -             | N                       |
| 4-Nitrophenol                  | -   | -   | -        | -             | N                       |
| Nitrobenzene                   | -   | 0.12  | С        |               | N                       |
| N-Nitrosodimethylamine         | -   | 0.00042                                     | С        |               | N                       |
| N-Nitrosodi-n-propylamine      | -   | 0.0096                                      | С        | -             | N                       |
| N-Nitrosodiphenylamine         | -   | 14  | С        | -             | N                       |
| n-Propylbenzene                | _   | -   | -        | -             | Υ                       |
| Pentachlorophenol              | -   | 0.56  | С        | 1             | N                       |
| Phenanthrene                   | -   | -   | -        | -             | Υ                       |
| Phenol                         | 5   | 11000                                       | n        | -             | Υ                       |
| Pyrene                         | -   | 1100  | n        |               | Y                       |
| Pyridine                       | -   | 37  | n        | -             | N                       |
| sec-Butylbenzene               | -   | -   | -        | -             | Y                       |
| Selenium                       | 50  | 180   | n        | 50            | Υ                       |
| Silver                         | 50  | 180   | n        | -             | N                       |
| Styrene                        | -   | 1600  | n        | 100           | N                       |
| tert-Butylbenzene              | -   | -   | -        | •             | N                       |
| Tetrachloroethene (PCE)        | 20  | 0.11  | С        | 5             | N                       |
| 1,1,1,2-Tetrachloroethane      | -   | 0.52  | С        | -             | N                       |
| Toluene                        | 750                                       | 2300  | n        | 1000          | Υ                       |
| 1,2,3-Trichlorobenzene         | -   | -   | •        | -             | N                       |
| 1,2,4-Trichlorobenzene         | -   | 8.2   | n        | 70            | N                       |
| 2,4,5-Trichlorophenol          | -   | 3700  | n        | -             | N                       |
| 2,4,6-Trichlorophenol          | -   | 6.1   | C**      | -             | N                       |
| 1,2,3-Trichloropropane         | -   | 0.0096                                      | С        | -             | N                       |
| 1,2,4-Trichlorobenzene         | -   | 8.2   | n        | 70            | N                       |
| 1,2,4-Trimethylbenzene         | -   | 15  | n        | -             | Υ                       |
| 1,1,1-Trichloroethane          | 60  | 9100  | n        | 200           | N                       |
| 1,1,2,2-Tetrachloroethane      | 10  | 0.067                                       | С        | -             | N                       |

### TABLE 8 Ground Water Screening Levels Bloomfield Refinery - Bloomfield, New Mexico

|                                | NMED                                      | E   | PA       |               | ]                       |
|--------------------------------|---|---|----------|---------------|-------------------------|
| Analyte                        | New Mexico<br>WQCC<br>Standards<br>(ug/L) | EPA Screening<br>Levels.Tap Water<br>(ug/L) | TapW_key | MCL<br>(ug/L) | Constituent<br>Detected |
| 1,1,2-Trichloroethane          | 10  | 0.24  | С        | 5             | N                       |
| Trichloroethene (TCE)          | 100                                       | 1.7   | С        | 5             | N                       |
| Trichlorofluoromethane         |   | 1300  | n        |               | N                       |
| 1,3,5-Trimethylbenzene         | -   | 12  | n        |               | Y                       |
| Vanadium                       | -   | 260   | n        | _             | N                       |
| Vinyl chloride                 | 1   | 0.016                                       | С        | 2             | N                       |
| Xylenes, Total                 | 620                                       | 200   | n        | 10000         | Y                       |
| Zinc                           | 10000                                     | 11000                                       | n        | -             | Y                       |
| General Chemistry              |   |   |          |               |                         |
| Alkalinity                     | _   | <u>-</u>                                    | -        | -             | Y                       |
| Bicarbonate                    | -   | -   | -        | -             | Υ                       |
| Carbonate                      | -   | -   | -        |               | N                       |
| Calcium                        | -   | -   | -        |               | Υ                       |
| Chloride                       | 250000                                    |   |          |               | Υ                       |
| Fluoride                       | 1600                                      |   |          |               | Υ                       |
| Iron                           | 1000                                      | 26000                                       | n        |               | Υ                       |
| Nitrite                        |   | 3700  | n        | 1000          | Y                       |
| Nitrate (NO3 as N)             | 10000                                     | 58000                                       | n        | 10000         | Y _                     |
| Potassium                      | -   |   | -        |               | Υ                       |
| Sodium                         |   | •   | -        |               | Y                       |
| Sulfate                        | 600000                                    | -   | -        |               | Y                       |
| Total Dissolved Solids         | 1000000                                   |   |          |               | Υ                       |
| Motor Oil Range Organics (MRO) | -   | <u></u>                                     | -        |               | N                       |
| Diesel Range Organics (DRO)    | -   |   | -        | <u> </u>      | Υ                       |
| Gasoline Range Organics (GRO)  | -   | - 407 - 61                                  | -        |               | Υ                       |

c - cancer, \* = where n SL < 100X c SL, \*\* = where n SL < 10X c SL

620 - Bolded value is applicable screening level

- no screenig value currently available

EPA - Regional Screening Levels (April 2009)

NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less

n - noncancer

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

| Residential e Soil Con Screening Scr | . 1         | g)  | λι           |              |       |              | }     | m <sub>n</sub> | Cvanide (1,56E+03 (1) |          | Aur       | Nickel 1.56E+03 (1) mg/Kg | mn           | Vanadium 3 915+02 (1) |         | tile Organic Compo | 1,1,1,2-Tetrachloroethane 2.92E+01 (1) | 1,1,1-Trichloroethane 2,18E+04 (1) | Jane   | 1,1,2-Trichloroethane 1.72E+01 (1) |   | 1, I-Dichlorographs 6. 10E+02 (1) | Trichlorohenzene |                | $\overline{}$ | 6.70E+01 | 1.94E-01     |               |   | 1.2-Dichloropropane 147E+01 (1) | 4.70E+01                              | 1              | 1,3-Dichloropropane 1.60E+03 (2) | 3.21E+01 | 2.20E+02 | -     | K) 3.96E+04 | 1.56E    | !        | 2-Methylnaphthalene 3.10E+02 (2) | 5.50E+03        | 4-Isopropyitoluene |                | Acetone 6.75E+04 (1) |
|--|-------------|-----|--------------|--------------|-------|--------------|-------|----------------|-----------------------|----------|-----------|---------------------------|--------------|-----------------------|---------|--------------------|--|------------------------------------|--------|------------------------------------|---|-----------------------------------|------------------|----------------|---------------|----------|--------------|---------------|---|---------------------------------|---------------------------------------|----------------|----------------------------------|----------|----------|-------|-------------|----------|----------|----------------------------------|-----------------|--------------------|----------------|----------------------|
| -  | П           |     | mg/Kg        | mg/Kg        | mg/Kg | mg/Kg        | mg/Kg | mg/Kg          | ma/Ka                 | mg/Kg    | mg/Kg     | mg/Kg                     | mg/kg        | mg/Kg                 | ma/Ka   | mg/kg              | mg/Kg                                  | Mg/Kg                              | mg/Kg  | mg/Kg                              | mg/Kg   | _                                 | Mo/Kg            | ╀              | mg/Kg         | Щ        | _            | _             | 4   | mg/Kg                           | ↓                                     | ╄              | ╙                                | ┖        | Ļ        | L.    | _           | _        | _        | ) mg/Kg                          | _               | mg/Kg              | 4              | mg/Kg                |
| ('6-0-6')  | -           | l F | <2.5         | <2.5         | 120   | 0.3          | 01.0  | +              | +                     | ╁        | Н         | 4.2                       | C.2.5        | 12                    | 20      | -                  |  | <0.050                             | +      | +                                  | 40.10<br>40.10                                | +                                 | 2 0              | +              | <0.050        | H        | $\dashv$     | +             | +   | <0.050                          | ╀                                     | ╁              | -                                | ┝        | ┝        | <0.10 | Н           | <0.050   | <0.50    | <0.20                            | <0.050          | <0.050             | \$0.50<br>2.71 | <0.75                |
| (1.5-2.0') t-4 UWW   | +           |     | <2.5         | <2.5<br>4.50 | 160   | 0.31         | 0.10  | 4.4            | <0.5                  | 3.6      | <0.033    | 4.4                       | 2007         | 11                    | 19      | -                  | <0.050                                 | <0.050                             | <0.050 | <0.050                             | 01.0  | <0.000<br><0.100<br><0.100        | 0 0              | <0.10          | <0.050        | <0.050   | <0.10        | <0.050        | <0.050<br>0.050                               | <0.050                          | <0.050                                | <0.050         | <0.050                           | <0.050   | <0.20    | <0.10 | <0.50       | <0.050   | <0.50    | <0.20                            | <0.050          | <0.050<br>50.050   | 20.30          | c/.U>                |
| (6-8°) (4-1 (6-8°)   | +           |     | <13          | <13          | 2/0   | 27.02        | 3.1   | ¥ 4            | <0.5                  | $\vdash$ | Н         | 9                         | 2 5          | 19                    | 110     |                    | <0.10                                  | <0.10                              | <0.10  | 0.10                               | 07.0  | \$0.10<br>\$0.00                  | \$0.20           | <0.20          | <0.10         | 8.1      | <0.20        | <0.10<br>5.45 | 0.10  | \$0.10<br>\$0.10                | 3.4                                   | <0.10          | <0.10                            | <0.10    | <20      | <0.20 | <1.0        | <0.10    | ×1.0     | 29                               | \$ 0.10<br>8.00 | 0.82               | 0.1            | C.I.>                |
| 64-1 (36-38°)  |             |     | <2.5<br>5.7  | <2.5         | 140   | \$ 0.15      | 20.10 | 4.1            | <0.5                  | -        | <0.033    | 1.3                       | 20.05        | 7                     | 7.4     |                    |  | ;                                  | 1      | -                                  | 1   |                                   |                  | 1              | -             | ı        | -            | 1             |   |                                 | :                                     | ;              | -                                | 1        | -        | 1     | 1           | 1        | 1        | 1                                | 1               | 1                  | :              | :                    |
| (0-0.5')   | /23/2009 4/ |     | +            | +            | +     | +            | +-    | +              | +                     | ╁        | Н         | 26                        | ╁            | ╁                     | ╁       |                    | -                                      | 1                                  | 1      | -                                  |   |                                   | ;                | 1              | -             | 1        | 1            | 1             | 1   |                                 |                                       | :              | 1                                | -        | -        | -     | :           | 1        | -        |                                  | 1               | +                  | 1              | -                    |
| (1.5-2.0) 1-3 UMW8   | /23/2009 4  |     | <13          | <13          | 110   | 20.75        | 4.50  | 2.5            | <0.5                  | 5.6      | 0.04      | 5.5                       | 25           | 14                    | 23      |                    | -                                      | !                                  | -      | -                                  | 1   | 1                                 |                  |                | -             | 1        | 1            | 1             | 1   |                                 | -                                     |                | 1                                | -        | -        | -     | -           | 1        | -        | 1                                | 1               | -                  | +              | ;                    |
| SWMU 5-2 (0-0.5°)  | 60          | ,   | +            | +            | +     | +            | +     | +              | <0.5                  | $\vdash$ | H         | -                         | 20.05        | ╁                     | ╁       |                    | -                                      | -                                  | -      | 1                                  | 1   | 1 1                               |                  |                |               | 1        | 1            | 1             | 1   |                                 | ì                                     | 1              | 1                                |          | -        | 1     | 1           | -        | -        | -                                |                 | 1                  | +              | :                    |
| (1.5-2.0) S-2 UMWS   | 909         | 1   | +            | +            | +     | +            | +     | +              | -                     | -        | Н         | 3.8                       | +            | +                     | -       | 1                  | -                                      | 1                                  | 1      |                                    | 1   | +                                 |                  | -              | -             | -        | 1            | 1             | 1   | ;                               | 1                                     |                |                                  | -        | -        | 1     | 1           | +        | -        | 1                                | 1               | 1                  | 1              |                      |
| 5-3 (0-0.5°)   |             | Ĥ   | +            | +            | +     | +            | +     | +              | +                     | $\vdash$ | Н         | 11                        | +            | +                     | +       | 1                  | -                                      | -                                  | +      | -                                  | 1   |                                   | -                | ,              |               | 1        | 1            |               | :   |                                 | 1                                     |                | 1                                |          | -        | -     | -           | -        | -        | 1                                | 1               |                    | +              |                      |
| (1.5-2.0') S-3 UMWS  | 23/2009 4/2 |     | $\downarrow$ | 4            | +     | $\downarrow$ | +     | +              | +                     | -        |           | 4.4                       | +            | $\perp$               | ļ       |                    | -                                      |                                    | -      | -                                  | +   | +                                 |                  | 1              | -             | 1        | -            | :             |   |                                 | -                                     |                | 1                                | -        |          | -     | -           |          | :        | -                                | 1               | 1                  |                | !                    |
| (0-0.5') 5-4 (0-0.5')  | 3/2009 4/2  | }   | +            | +            | +     | +            | +     | +              | -                     | -        | $\sqcup$  | 6.4                       | +            | +                     | +       |                    | 1                                      | -                                  | -      | -                                  |   |                                   |                  | -              | -             | 1        | :            | 1             | •   |                                 | 1                                     |                |                                  | -        | -        | . 1   | ;           | -        | 1        | -                                | 1               |                    |                |                      |
| (1.5-2.0') <del>I-</del> 3 UMW8  | 3/2009 4/2: | }   | +            | +            | +     | +            | +     | +              | -                     | -        |           | 6.2                       | +            | +                     | ╀       | } }                | 1                                      | -                                  |        | 1                                  | 1   | +                                 |                  | -              | 1             | -        | ;            | 1             | 1   1   |                                 |                                       |                | 1                                | -        | 1        | 1     | 1           |          | -        | -                                |                 |                    |                |                      |
| SWMU 5-5 (0-0.5°)  |             | -   | +            | +            | +     | +            | +     | +              | +-                    | $\vdash$ | $\square$ | 300                       | +            | +                     | _       |                    | 1                                      |                                    |        | 1                                  | -   | <br> -                            |                  |                |               | -        |              |               |   |                                 |                                       | -              | -                                |          | -        |       |             | -        |          |                                  |                 |                    |                |                      |
| ('0.S-2.1)   | /2009 4/23/ | }   | +            | +            | +     | -            | +     | +              | +                     | H        | Ц         | 6.5                       | $\downarrow$ | +                     | 19 1    |                    |  | -                                  | -      |                                    | 1   |                                   | '                |                |               |          |              | <u>'</u>      | <u>'                                     </u> | '                               |                                       |                |                                  |          |          |       |             | <u>'</u> | <u>'</u> | 1                                |                 | 1 1                | -              | _                    |
| JG (1.6-2.0') D-8 UMW8   | 2009 4/23/  | · [ | +            | +            | +     | +            | +     | +              | ╁                     |          | Н         | 4.8                       | +            | +                     | ╀       | }                  |  |                                    |        | <u> </u>                           | <u>'                                     </u> |                                   | <u>'</u><br> .   | <u> </u><br> - |               | '        | <u>'</u>     |               |   |                                 |                                       | '<br> -<br>  ; | -                                |          |          |       |             | -        | }        |                                  | <u> </u>        |                    | <u> </u>       | _                    |
| 5.0-0) 9-9 NWW   | 4/2         |     | $\dashv$     | +            | +     | +            | +     | +              | +                     | $\vdash$ | Н         | 11 4.3                    | +            | +-                    | 20      |                    |  | <u>'</u>                           | !      | <u>'</u>                           | 1   |                                   | '                | <u>'</u><br> - |               | 1        | -            | !             | -   |                                 | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | '<br>          | -                                |          |          | 1     | ;  <br>     | <u>'</u> | -        |                                  | 1               | <u>'</u>           | -              | -                    |
| 7OC 53-1 (0-0.5')  |             |     | +            | +            | +     | +            | +     | +              | ╁                     | $\vdash$ | H         | 4.6                       | +            | ╁                     | $\perp$ |                    | <0.0                                   | 0.0<br>0.0                         | <0.050 | 0.0                                | 7.00  | , Ç                               | 9                | <u>^</u>       | <0.0          | <0.0     | <del>\</del> | 0.0           | 0.00  | 000                             | 0.0                                   | 0.0            | 0.0                              | <0.0     | <0.2     | <0.1  | <0.5        | 0.0      | 0.5      | <0.2                             | <0.050          | 0.0                | 00.00          | \.O.                 |

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Day/Kg

Day/Kg 
 Volatile Organic Compounds - (EPA Method 8260B) pg/kg-dr

 1,1,1,2-Tetrachloroethane
 2.92E+04
 (1) µg/kg-dr

 1,1,1,2-Tetrachloroethane
 7.97E+03
 (1) µg/kg-dr

 1,1,2-Trichloroethane
 1.72E+04
 (1) µg/kg-dr

 1,1-Dichloroethane
 6.29E+04
 (1) µg/kg-dr

 1,1-Dichloroethane
 6.29E+04
 (1) µg/kg-dr

 1,1-Dichloroethane
 6.18E+05
 (1) µg/kg-dr
 (1) µg/Kg (2) µg/Kg (1) µg/Kg (1) µg/Kg (1) µg/K 5.57E+03 (1)
2.73E+02 (1)
2.35E+01 (1)
4.57E+01 (1)
2.01E+03 (1)
8.65E-01 (1) (3) (2)Source <u>ଅଟାଟାଟା</u> 2.23E+01 1.94E+03 5.72E+00 3.56E+01 7.82E+02 2.35E+01 1.13E+01 7.80E+02 4.81E+02 6.96E+01 6.20E+01 3.21E+03 8.62E+02 1.99E+02 4.50E+01 Soil Screening 9.40E+01 5.25E+00 6.10E+02 4.38E+00 5.08E+02 6.99E+00 Residentia 8.97E+03 1.43E+05 6.70E+04 1.94E+02 5.74E+02 3.01E+06 9.15E+02 Level ŀ Isopropylbenzene Methyl tert-butyl ether (MTBE) Methylene chloride Naphthalene 1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene 1,1,1,2-Tetrachloroethane
1,1,1,2,2-Tetrachloroethane
1,1,2,2-Trichloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethene
1,1-Dichloroptopene trans-1,2-DCE trans-1,3-Dichloropropene Trichloroethene (TCE) Trichlorofluoromethane Chloroethane
Chloroform
Chloromethane
cis-1,2-DCE
cis-1,3-Dichloropropene Bromobenzene Bromodichloromethane Bromoform Bromomethane tert-Butylbenzene Tetrachloroethene (PCE) Dichlorodifluoromethane Analytes Dibromochloromethane ,2,4-Trimethylbenzene ,2,3-Trichlorobenzene ,2,4-Trichlorobenzene ,2,3-Trichloropropane Ethylbenzene Hexachlorobutadiene Carbon tetrachloride n-Propylbenzene sec-Butylbenzene Dibromomethane Carbon disulfide n-Butylbenzene Chlorobenzene Xylenes, Total Vinyl chloride Toluene Styrene

Soil Analytical Results Summary - AOC 23 and AOC 25 Bloomfield Refinery, Bloomfield, New Mexico

Group 3

<0.978 AOC 23-1 (0-0.5') <0.874</li>
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\( \cdot \) \\ \cdot \) \\ \cdot \) \\ \cdot \cdot \) \\ \cdot \) \\\ \cdot \) \\ \cdot \) \\\ \cdot \) \\\ \cdot \) \\ \c <0.930 4.05 <0.930 <0.930 <0.930 <0.930 <0.930 <0.930 1.02 <0.930 <0.930 <0.930 6.94 <0.930 <0.930 ('2.0-0) 1-2 UMWS 102 102 102 102 102 102 103 <1.02
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Trichlorofluoromethane
Vinyl chloride
Xylenes, Total Bromobenzene Bromodichloromethane Bromoform Bromomethane etrachloroethene (PCE) cis-1,2-DCE cis-1,3-Dichloropropene Dichlorodifluoromethane ,3,5-Trimethylbenzene,3-Dichlorobenzene Dibromochloromethane Analytes 4-Methyl-2-pentanone Hexachlorobutadiene 1,2-Dichloropropane 1,3-Dichloropropane 2-Dichloropropane Carbon tetrachloride n-Propylbenzene sec-Butylbenzene 4-Isopropyltoluene tert-Butylbenzene Isopropylbenzene 2-Butanone 2-Chlorotoluene Dibromomethane Carbon disulfide 4-Chlorotoluene n-Butylbenzene Chlorobenzene Chloromethane Chloroethane Ethylbenzene 2-Hexanone Naphthalene Chloroform Benzene Acetone Toluene Styrene

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

| AOC 23-1 (0-0.5')   | 02.07                                      | 0.20                   | <0.20                   | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50<br>5         | 0.00               | \$0.20<br>\$0.20    | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <0.50<br>\$0.50                             | ×0.20                      | 20.50                   | 800             | <0.25                       | <0.20          | <0.20        | \$ 0.20<br>\$ 0.20 | 0.20           | <0.20          | <0.20             | <0.20          | <0.20<br>20.20   | 00.00                | <0.50            | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | 07.00                  | <0.20          | <0.20                 | <0.20        |
|---------------------|--|------------------------|-------------------------|---------------------|--|-----------------------|--------------------|--------------------|-------------------|--------------------|--------------------|---------------------|-------------------------------|-------------------------|----------------|---------------|------------------------|------------------|----------------|---|----------------------------|-------------------------|-----------------|-----------------------------|----------------|--------------|--------------------|----------------|----------------|-------------------|----------------|--|----------------------|------------------|----------------|----------------------------|-------------------------|---|----------------------------|------------------------|----------------|-----------------------|--------------|
| (1.5-2.0') 8-6 UMWS | 000  | 02.02                  | <0.20                   | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | 0.50               | \$0.50<br>\$7.50   | 02.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <b>40.50</b>                                | 20.20                      | VO.50                   | 20,00           | <0.25                       | <0.20          | <0.20        | <0.20              | 0.20           | <0.20          | <0.20             | <0.20          | \$ 0.20<br>\$  | 00.00                | <0.50<br><0.50   | <0.20          | <0.20                      | <0.20                   | <0.20<br>2.00   | 0.50                       | 02.00                  | <0.20          | <0.20                 | <0.20        |
| SWMU 5-6 (0-0.5°)   | 000  | 20.20                  | <0.20                   | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$ 0.50<br>5       | 00.00              | 02.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | \$ 0.50<br>\$                               | 07:00                      | V0.50                   | 30.00           | <0.25                       | <0.20          | <0.20        | <0.20              | <0.20          | <0.20          | <0.20             | <0.20          | <0.20  | 00.00                | <0.50<br><0.50   | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50<br>\$                | 02.00                  | <0.20          | <0.20                 | <0.20        |
| 70.5-2.1) 5-5 UMWS  | 000  | 02.02                  | <0.20                   | <0.20<br><0.20      | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | 0.50               | 20.50              | 22.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <0.50                                       | 20.70                      | 20.50                   | 8.00            | <0.25                       | <0.20          | <0.20        | 40.20<br>50.20     | 200            | <0.20          | <0.20             | <0.20          | \$ 0.20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | 00.00                | VO.50            | <0.20          | <0.20                      | <0.20                   | <0.20   | 02.00                      | \$0.20                 | <0.20          | <0.20                 | <0.20        |
| (1.5-2.0') 5-5 UMWS | 000  | 02.02                  | <0.20<br><0.20          | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$ 0.50<br>5       | 20.50              | 02.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | \$ 0.50<br>\$ 0.50                          | 20.20                      | 0.50                    | 2000            | <0.25                       | <0.20          | <0.20        | <0.20              | 07.00          | <0.20<br><0.20 | <0.20             | <0.20          | \$ 0.20<br>20.20   | 2 5                  | <0.50<br><0.50   | <0.20          | <0.20                      | <0.20                   | <0.20<br>5  | 20.50                      | \$0.20                 | <0.20          | <0.20                 | <0.20        |
| SWMU 5-5 (0-0.5')   | 00.07                                      | 20.20                  | <0.20                   | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$ 0.50<br>5       | 50.50<br>25.05     | 20.20               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <0.50<br>50.50<br>50.50                     | 20.20                      | 0.30                    | 22.50           | <0.25                       | <0.20          | <0.20        | <0.20              | 02.02          | <0.20<br><0.20 | <0.20             | 0.22           | \$ 0.20<br>\$  | 00.00                | <0.50            | <0.20          | <0.20                      | <0.20                   | <0.20<br>5.50<br>5.50<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00 | 0.50                       | \$0.20                 | <0.20          | <0.20                 | <0.20        |
| ('0.5-2.1) 4-3 UMWS | 00.07                                      | 02.00                  | <0.20                   | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | 0.50               | 20.50              | 02.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | \$ 50.50<br>\$ 20                           | 40.20<br>5                 | 00.00                   | 00.00           | <0.25                       | <0.20          | <0.20        | <0.20              | 0.20           | <0.20          | <0.20             | <0.20          | \$ 0.20<br>5   | 20.00                | <0.50            | <0.20          | <0.20                      | <0.20                   | <0.20   | 0.50                       | \$0.20<br>\$0.20       | <0.20          | <0.20                 | <0.20        |
| (°6.0-0) 4-3 UMWS   | 00,00                                      | 07.02                  | \$0.20<br>\$0.20        | <0.20<br><0.20      | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$ 0.50<br>5       | 00.00              | 20.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | \$ 0.50<br>50<br>50<br>50<br>50<br>50<br>50 | \$0.20<br>20.20            | 0.50                    | 2000            | <0.25                       | <0.20          | <0.20        | <0.20              | 0,20           | <0.20          | <0.20             | <0.20          | 0.20   | 00.00                | <0.50            | 0.86           | <0.20                      | <0.20                   | <0.20   | 0.50                       | 07.00                  | <0.20          | <0.20                 | <0.20        |
| 5-3 (1.5-2.0°)      |  | 07.0                   | 02.00                   | \$0.20<br>\$0.20    | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$ 0.50<br>2       | 0.00               | 0.00                | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | 0.50  | 07.0                       | 20.50                   | 60.00           | <0.25                       | <0.20          | <0.20        | <0.20              | 0.20           | <0.20          | <0.20             | <0.20          | 40.20  | 00.00                | <0.50            | <0.20          | <0.20                      | <0.20                   | <0.20   | 40.50<br>50.50             | 07.0                   | <0.20          | <0.20                 | <0.20        |
| SWMU 5-3 (0-0.5°)   | 00.07                                      | 02.0                   | 0.20                    | \$0.20              | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$0.50<br>2        | 00.50              | 02.0>               | <0.25<br><0.25                | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | 0.50  | 07.00                      | 0.50                    | 00.00           | <0.25                       | <0.20          | <0.20        | <0.20              | 40.20<br>20.20 | <0.20          | <0.20             | 0.48           | <0.20<br>5   | 00.00                | \$0.50<br>\$0.50 | 0.5            | <0.20                      | <0.20                   | <0.20   | <0.50<br>0.50              | 07.02                  | <0.20          | <0.20                 | <0.20        |
| (1.5-2.1) S-3 UMWS  |  | 20.50                  | <0.20<br><0.20<br><0.20 | <0.20               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | \$ 0.50<br>2       | 0.50               | 0.20                | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <b>6</b> .50                                | 07.0                       | 6.50                    | 20.00           | <0.25                       | <0.20          | <0.20        | <0.20              | 0.20           | <0.20          | <0.20             | <0.20          | 0.20   | 00.00                | <0.50<br><0.50   | <0.20          | <0.20                      | <0.20                   | <0.20   | \$ 0.50<br>5               | 02.02                  | <0.20          | <0.20                 | <0.20        |
| (0-0.5') S-2 (NWS   | 00.07                                      | 02.02                  | 02.02                   | 02.05               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50              | 20.50              | 0.02                | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | ¢0.50                                       | 07.0                       | 20.50                   | 800             | <0.25                       | <0.20          | <0.20        | <0.20              | <0.20          | <0.20          | <0.20             | <0.20          | <0.20  | 00.00                | \$0.50<br>\$0.50 | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | 02.02                  | <0.20          | <0.20                 | <0.20        |
| (1.5-2.0')          | 000  | 02.00                  | 02.02                   | 02.05               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50              | 0.50               | 02.02               | <0.25<br><0.25                | <0.50<br><0.50          | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | \$ 0.50<br>5 0.50                           | 0.20                       | 20.50                   | 00.00           | <0.25                       | <0.20          | <0.20        | <0.20              | <0.20          | <0.20          | <0.20             | <0.20          | <0.20  | 00.00                | <0.50            | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | 0.20                   | 40.20<br>40.20 | <0.20                 | <0.20        |
| (0-0.5')            | 000  | 02.0                   | 200                     | 02.05               | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50              | 0.50               | 22.02               | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <b>CO.50</b>                                | 0.20                       | 0.50                    | 00.00           | <0.25                       | <0.20          | <0.20        | <0.20              | <0.20          | <0.20          | <0.20             | <0.20          | <0.20  | 00.00                | 0.50<br>0.50     | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | 0.20                   | <0.20          | <0.20                 | <0.20        |
| SWMU 4-1 (36-38')   | 000  | 07.0                   | 02.02                   | \$0.50<br>\$0.20    | <0.20  | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50              | 00.50              | 02.0                | <0.25                         | <0.50                   | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | ¢0.50                                       | 40.20<br>5                 | 0.50                    | 200             | <0.25                       | <0.20          | <0.20        | <0.20              | <0.20<br>20.20 | <0.20          | <0.20             | <0.20          | <0.20  | 00.50                | <0.20            | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | 02.0                   | <0.20          | <0.20                 | <0.20        |
| (8-8') t-4 UMWS     | 7  | 5 6                    | 0.0                     | 0 V                 | 0.10   | v-1.0                 | <2.0               | <1.5               | <2.0              | <2.5               | 47.5               | ر<br>د<br>د<br>د    | 33.5                          | <2.5                    | 4.0            | 4.0           | <1.3                   | <1.0             | <1.0           | <2.5  | 0.12                       | 47.5                    | 7,70            | 43                          | ×1.0           | <1.0         | <1.0               | 0.7            | 0.10           | <1.0<br>1.0       | <1.0           | √<br>1.0   | 7 7                  | 5.5              | 0.7            | <1.0                       | <1.0                    | <1.0  | <2.5                       | 0 7                    | 0.1            | <1.0                  | <1.0         |
| ('0.5-3.1) t-4 UMW2 | 000  | 0,000                  | 02.02                   | 2020                | \$0.20<br>\$0.20                             | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50              | 0.50               | 50.00               | 0.25                          | <0.50<br><0.50<br><0.50 | <0.20          | <0.20         | <0.25                  | <0.20            | <0.20          | <0.50<br>8                                  | 0.20                       | 20.50                   | 200             | <0.25                       | <0.20          | <0.20        | <0.20              | ¢ 0.50         | 02.02          | <0.20             | <0.20          | <0.20  | 000                  | 20.50            | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | <0.20                  | <0.20<br><0.20 | <0.20                 | <0.20        |
| ('6.0-0) f-4 UMWS   | 000  | 40.20<br>40.20         | 02.00                   | 02.02               | 40.20<br>40.20                               | <0.20                 | <0.40              | <0.30              | <0.40             | <0.50              | 40.50              | \$ 6.23             | 40.25<br>0.25<br>0.25<br>0.25 | <0.50                   | 40.20<br>40.20 | <0.20         | <0.25                  | <0.20            | <0.20          | <0.50                                       | \$0.20                     | \$ 50.50                | 20.00           | <0.20<br><0.25              | 40.20<br>40.20 | <0.20        | <0.20              | \$ 0.20<br>\$  | 02.02          | <0.20             | <0.20          | <0.20  | 0.50                 | V0.20            | <0.20          | <0.20                      | <0.20                   | <0.20   | <0.50                      | 40.20<br>20.20         | <0.20          | <0.20                 | <0.20        |
| Units               |  | mg/Kg                  | mg/Kg                   | BO/KG               | ma/Ka  | mg/Kg                 | mg/Kg              | mg/Kg              | mg/Kg             | mg/Kg              | mg/Kg              | mg/kg               | mg/Kg                         | mo/Ko                   | mo/Ko          | ma/Ka         | mg/Kg                  | mg/Kg            | mg/Kg          | mg/Kg                                       | mg/Kg                      | mg/Kg                   | mg/Kg           | mg/Kg                       | mg/Kg          | mg/Kg        | mg/Kg              | mg/Kg          | mg/Kg          | ma/Ka             | mg/Kg          | mg/Kg  | mg/Kg                | mg/Kg            | ma/Ka          | mg/Kg                      | mg/Kg                   | mg/Kg   | mg/Kg                      | mg/Kg                  | ma/Ka          | mg/Kg                 | mg/Kg        |
| Source              | 9  | Ξ                      |                         | Ē                   | Έ  | Ξ                     | Ξ                  | Ξ                  | Ξ                 | Ξ                  | $\widehat{\Xi}$    | ΞĒ                  | <u> </u>                      | 2 (5                    | 10             | ì             | Ξ                      | (2)              |                |   |                            | Ś                       | গ্ৰ             | e e                         |                | Ξ            |                    | ଚ୍ଚି           | <u> </u>       | Ξ                 | Ξ              | E  | Ę                    | 3                | 3 (0           | 2                          | Ξ                       | (I  | Ξ                          | <u>ල</u>               | Ξ              | $\hat{\epsilon}$      |              |
|                     | od 8270) mg/kg                             | 1.43E+02               | 3.01=+03                | 3.21E+01            | 6 11F+03                                     | 6.11E+01              | 1.83E+02           | 1.22E+03           | 1.22E+02          | 1.26E+01           | 6.12E+01           | 9.20E+U3            | 3.91E+02<br>3.10E+02          | 3 10F+03                | 1.80E+02       |               | 8.71E+00               | 3.10E+02         | 1              | -   | 1                          |                         | Z.40E+01        | 2 40F+02                    |                | 3.44E+03     |                    | 8.50E+02       | 4 90F+01       | 4.81E+00          | 4.81E-01       | 4.81E+00   | 1 04 04              | 2 40E+01         | 3 10F+04       | 1.80E+02                   | 2.56E+00                | 9.15E+01  | 2.80E+02                   | 2.60E+03               | 4.81E+02       | 4.81E-01              |              |
| Analytes            | Semi Volatile Organics - (EPA Method 8270) | 1,2,4-Trichlorobenzene | 1,2-Dichlorobenzene     | 1,3-Dichlorobenzene | 1,4-Diction Operations 2 4 5-Trichlorophenol | 2,4,6-Trichlorophenol | 2,4-Dichlorophenol | 2,4-Dimethylphenol | 2,4-Dinitrophenol | 2,4-Dinitrotoluene | 2,6-Dinitrotoluene | 2-Chioronaphthalene | 2-Ciliotophierioi             | 2-Methylphanol          | 2-Nitroaniline | 2-Nitrophenol | 3,3'-Dichlorobenzidine | 3+4-Methylphenol | 3-Nitroaniline | 4,6-Dinitro-2-methylphenol                  | 4-Bromophenyl phenyl ether | 4-Chloro-3-methylphenol | 4-Chloroaniline | 4-Chiorophenyi phenyi etner | 4-Nitrophenol  | Acenaphthene | Acenaphthylene     | Aniline        | Azobenzene     | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene   | Benzo(g,h,i)perylene | Denzoic acid     | Renzyl alcohol | Bis(2-chloroethoxy)methane | Bis(2-chloroethyl)ether | Bis(2-chloroisopropyl)ether                                   | Bis(2-ethylhexyl)phthalate | Butyl benzyl phthalate | Chysene        | Dibenz(a,h)anthracene | Dibenzofuran |

Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25 Bloomfield Refinery, Bloomfield, New Mexico Table 9

|   |                   |                    |            | 0                    | 2            | _        | _                 |                     |                           | C                | 2                      |           |             |          | _                         |                        |                   |              |          |          |          | }   | Γ        |          | Π                              |
|---|-------------------|--------------------|------------|----------------------|--------------|----------|-------------------|---------------------|---------------------------|------------------|------------------------|-----------|-------------|----------|---------------------------|------------------------|-------------------|--------------|----------|----------|----------|---|----------|----------|--------------------------------|
| AOC 23-1 (0-0.5')                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.2         | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.2(       | <0.50    | <0.2(                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| SWMU 5-6 (1.5-2.0°)                       | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 44       | <5.0     | 88                             |
| SWMU 5-6 (0-0.5')                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 99       | <5.0     | 200                            |
| 7UG ('0.S-2.1) 5-3 UMWS                   | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| (1.5-2.0°)                                | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| ('8.0-0) 8-8 UMW8                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | 0.24     | <0.50    |   | 210      | <5.0     | 610                            |
| (1.5-2.0°)                                | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 42       | <5.0     | 130                            |
| ('8.0-0) 4-3 UMWS                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 520      | <5.0     | 530                            |
| (1.5-2.0°) 8-3 UMWS                       | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| 6-3.0-0) E-3 UMWS                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 370      | <5.0     | 1200                           |
| (1.5-2.0°)                                | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | 6.2      | <20                            |
| SWMU 5-2 (0-0.5°)                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 130      | <5.0     | 009                            |
| (1.5-2.0')                                | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 70       | <5.0     | <50                            |
| SWMU 5-1 (0-0.5')                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | 280      | <5.0     | 640                            |
| ('8E-3E) 1-4 UMWS                         | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| (.8-9) r-4 UMWS                           | <1.0              | <1.0               | <2.5       | <1.0                 | <1.3         | <2.5     | <1.0              | <1.0                | <1.0                      | <1.0             | <1.3                   | <2.5      | 8.2         | <2.5     | <1.0                      | <1.0                   | <2.0              | 2.8          | <1.0     | <1.0     | <2.5     |   | 7800     | 110      | 4000                           |
| (1.5-2.0') NWWS                           | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| ('6-0') r-4 UMWS                          | <0.20             | <0.20              | <0.50      | <0.20                | <0.25        | <0.50    | <0.20             | <0.20               | <0.20                     | <0.20            | <0.25                  | <0.50     | <0.20       | <0.50    | <0.20                     | <0.20                  | <0.40             | <0.20        | <0.20    | <0.20    | <0.50    |   | <10      | <5.0     | <50                            |
| Units                                     | mg/Kg             | mg/Kg              | mg/Kg      | mg/Kg                | mg/Kg        | mg/Kg    | mg/Kg             | mg/Kg               | mg/Kg                     | mg/Kg            | mg/Kg                  | mg/Kg     | mg/Kg       | mg/Kg    | mg/Kg                     | mg/Kg                  | mg/Kg             | mg/Kg        | mg/Kg    | mg/Kg    | mg/Kg    | mg/kg   | mg/Kg    | mg/Kg    | mg/Kg                          |
| Source                                    | (1)               | (1)                | <u>(1)</u> |                      | (1)          | (J)      | Ξ                 | (3)                 | <u>(1</u>                 | Ξ                | Ξ                      | <u>(1</u> | (1)         | (1)      | (3)                       | (1)                    | (1)               | (1)          | [(1)     | (1)      | (2)      |   | (4)      | (4)      | (2)                            |
| Residential<br>Soil<br>Screening<br>Level | 4.89E+04          | 6.11E+05           | 6.11E+03   | -                    | 2.29E+03     | 2.29E+03 | 2.45E+00          | 6.20E+01            | 3.67E+02                  | 6.11E+01         | 4.81E+00               | 4.13E+03  | 4.50E+01    | 4.94E+01 | 6.90E-01                  | 8.00E+02               | 2.07E+01          | 1.83E+03     | 1.83E+04 | 1.72E+03 | 7.80E+01 | Method 80   | 8.00E+02 | 8.00E+02 | 2.50E+03                       |
| R<br>Analytes                             | Diethyl phthalate | Dimethyl phthalate |            | Di-n-octyl phthalate | Fluoranthene | Fluorene | Hexachlorobenzene | Hexachlorobutadiene | Hexachlorocyclopentadiene | Hexachloroethane | Indeno(1,2,3-cd)pyrene |           | Naphthalene |          | N-Nitrosodi-n-propylamine | N-Nitrosodiphenylamine | Pentachlorophenol | Phenanthrene | Phenol   | Pyrene   | Pyridine | Total Petroleum Hydrocarbons - (EPA Method 8015B) |          |          | Motor Oil Range Organics (MRO) |

-- No screening level or analytical result available (1) NMED - Technical Background Document for Development of Soil Screening Levels - Revision 5.0 ( August 2009)

(2) EPA - Regional Screening Levels (April 2009)
(3) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic
(4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground

water (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil forwapor migration and inhalation of ground water

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

|  |                     |              |                | ļ                |                    | }          |            |             |            |             |            |            |
|--|---------------------|--------------|----------------|------------------|--------------------|------------|------------|-------------|------------|-------------|------------|------------|
|  | Residential<br>Soil | nrce         |                | 9Ua ('8.0-0      | (.0.2-9.)          | 22-23,)    | (.5.0-0    | (.0.2-3.1)  | ('8.0-(    | 9UG-('8.0-0 | (.6-2.0')  | (.88-98    |
|  | Screening<br>Level  | os           |                | OC 53-1 ((       | OC 53-1 (4         | OC 53-1 (6 | OC 52-1 (( | OC 52-1 (.  | OC 52-5 (( | OC 52-5 ((  | OC 52-5 (. | OC 52-5 (: |
| Analytes   |                     |              | Units          | V                |                    |            | V S        | V           | )<br>V     | A           | A          | <b>A</b>   |
| Sample Date  |                     | ŀ            |                | 4/21/2009        | 4/21/2009          | 4/22/2009  | 4/23/2009  | 4/23/2009   | 4/5/2009   | 4/5/2009    | 4/5/2009   | 4/5/2009   |
| Metals (mg/kg)<br>Antimony                         | 3.13E+01            | (1)          | ma/Ka          | <2.5             | <2.5               | <2.5       | <2.5       | <13         | <12        | <2.5        | <2.5       | <2.5       |
| Arsenic  | 3.59E+00            | Ξ            | mg/Kg          | <2.5             | <2.5               | <2.5       | <2.5       | <13         | <12        | <2.5        | <2.5       | <2.5       |
| Barium   | 1.56E+04            | (1)          | mg/Kg          | 140              | 130                | 6.9        | 120        | 160         | 130        | 150         | 120        | 88         |
| Beryllium  | 1.56E+02            | Ξ            | mg/Kg          | 0.28             | 0.3                | 0.27       | 0.2        | <0.75       | <0.75      | 0.26        | 0.23       | <0.15      |
| Cadmium  | 7.79E+01            | (1)          | mg/Kg          | <0.10            | <0.10              | <0.10      | 0.41       | <0.50       | <0.50      | <0.10       | <0.10      | <0.10      |
| Chromium   | 1.13E+05            | Ξ            | mg/Kg          | 3.4              | 3.7                | 2.2        | 4.4        | 5.1         | 6.4        | 3.7         | 2.9        | 1.0        |
| Cobalt   | 2.30E+01            | <u> </u>     | mg/kg          | د در             | 2.5                | 2.4        | 4.4        | 4.5<br>7.05 | 4.0<br>5.5 | 4.6         | 7.7        | 4.0        |
| Cyallide   | 4 DOF+02            | E            | ma/Ka          | 5.07             | 3.5                | 23         | 2 6        | 5.1         | 5.7        | 2.7         | 286        | 2.9        |
| Mercilly   | 7.71E+00            | Ē            | ma/Ka          | <0.033           | <0.033             | <0.032     | 0,1        | <0.033      | <0.033     | <0.033      | <0.033     | <0.033     |
| Nickel   | 1.56E+03            | Ξ            | mg/Kg          | 4.7              | 4.2                | 2.3        | 4.1        | 6.0         | 6.0        | 4.2         | 3.2        | 2.7        |
| Selenium   | 3.91E+02            | (1)          | mg/Kg          | <13              | <13                | <13        | <13        | <13         | <12        | <13         | <13        | <2.5       |
| Silver   | 3.91E+02            | (1)          | mg/Kg          | <0.25            | <0.25              | <0.25      | <0.25      | <1.3        | <1.2       | <0.25       | <0.25      | <0.25      |
| Vanadium   | 3.91E+02            | Ξ            | mg/Kg          | 11               | 11                 | 4.4        | 9.6        | 15          | 15         | 9.3         | 9.5        | 5.5        |
| Zinc   | 2.35E+04            |              | mg/Kg          | 17               | 17                 | 12         | 61         | 25          | 28         | 20          | 14         | 9.5        |
| Volatile Organic Compounds - (EPA Method 8260B)    | Method 826          |              | mg/kg          |                  |                    |            |            |             |            |             |            |            |
| 1,1,1,2-Tetrachloroethane                          | 2.92E+01            | Ξ            | mg/Kg          | <0.050           | <0.050             | :          | ;          | 1           | <u>'</u>   | 1           | 1          | 1          |
| 1,1,1-Trichloroethane                              | 2.18E+04            | Ξ            | mg/Kg          | <0.050           | <0.050             | :          | :          | :           | ;          | :           | :          | :          |
| 1,1,2,2-Tetrachloroethane                          | 7.97E+00            | Ξ            | mg/Kg          | <0.050           | <0.050             | ;          | :          | :           | ;          | :           | ;          | :          |
| 1,1,2-Trichloroethane                              | 1.72E+01            |              | mg/Kg          | <0.050           | <0.050             | 1          | :          |             | :          | :           | '          | :          |
| 1,1-Dichloroethane                                 | 6.29E+01            |              | mg/Kg          | <0.10            | <0.10              | :          | :          | 1           | :          | ,           |            | :          |
| 1,1-Dichloroethene                                 | 6.18E+UZ            |              | mg/Kg          | 00.050           | <0.050<br>50.050   | :          | :          | 1           | :          | :           | :          | -          |
| 1,1-Dichloropropene                                |                     |              | mg/Kg          | <0.10            | 0.10               | •          | :          | 1           | ı          | :           | ;          | :          |
| 1,2,3-Trichlorobenzene                             | 0 450 04            | 5            | mg/kg          | 0.70             | 0.70               | :          | :          | :           | :          | :           | •          | :          |
| 1,2,3- i richloropropane                           | 9.15E-01            | Ξξ           | mg/Kg          | <0.10<br><0.050  | 20.10              | :          | :          | 1           | •          | :           | '   '      | : :        |
| 1.2.4- ricilolobelizelle                           | 6.70E+01            | 0            | mg/Ka          | <0.050           | <0.050             | :   1      | :   :      | : :         | :   ;      | : :         | :   ;      | : :        |
| 1,2-Dibromo-3-chloropropane                        | 1.94E-01            | Ξ            | mg/Kg          | <0.10            | <0.10              | :          | 1          | ŧ           | 1          | :           | :          | ;          |
| 1,2-Dibromoethane (EDB)                            | 5.74E-01            | (1)          | mg/Kg          | <0.050           | <0.050             |            | ;          | :           | ;          | 1           | 1          | :          |
| 1,2-Dichlorobenzene                                | 3.01E+03            | <u>(</u>     | mg/Kg          | <0.050           | <0.050             |            | :          | 1           | ;          | :           |            | ;          |
| 1,2-Dichloroethane (EDC)                           | 7.74E+00            |              | mg/Kg          | <0.050           | <0.050             | ;          | 1          | :           | :          | 1           | :          | :          |
| 1,2-Ulchloropropane                                | 4 70E±01            | 2            | mg/kg          | 20.020           | 0.030              | :          | •          | :           | :          | :   :       | :   ;      | :   :      |
| 1,3,3-11iilletiiyibelizelle<br>1,3-Dichlorabanzana | 1 1                 |              | ma/Ka          | <0.050           | <0.050             | <b>.</b>   |            | :           | : 1        | ;           | !          | ;          |
| 1.3-Dichloropropane                                | 1.60E+03            | (2)          | mg/Kg          | <0.050           | <0.050             | :          | :          | :           | ,          | :           | :          | :          |
| 1,4-Dichlorobenzene                                | 3.21E+01            | Ξ            | mg/Kg          | <0.050           | <0.050             | 1          | i          |             | :          | :           | 1          | 1          |
| 1-Methylnaphthalene                                | 2.20E+02            | (3)          | mg/Kg          | <0.20            | <0.20              | :          | 1          | :           | :          | :           | :          | 1          |
| 2,2-Dichloropropane                                | 1                   |              | mg/Kg          | <0.10            | <0.10              | :          | :          |             | :          | :           | •          | -          |
| 2-Butanone (MEK)                                   | 3.96E+04            | Ξ            | mg/Kg          | <0.50            | <0.50              | :          | 1          | :           |            |             |            |            |
| 2-Chlorotoluene                                    | 1.56E+03            | Ξ            | mg/Kg          | <0.050           | <0.050             | 1          | ;          | :           | ;          | •           | :          | :          |
| 2-Hexanone   | 1 10                | 1            | mg/Kg          | <0.50            | 0.50               | :          |            | :           | :          | :           | :          | 1          |
| 2-Methylnaphthalene                                | 3.10E+02            | 2            | mg/Kg          | <0.20            | \$ 0.20<br>\$ 0.50 | 1          |            | :           | :          | :           | ;          | :          |
| 4-Chlorotoluene                                    | 5.50E+U3            |              | mg/Kg          | <0.050           | <0.050             |            | ;          | :           | :          | :           |            | !          |
| 4-Isopropyltoluene                                 |                     | $^{\dagger}$ | mg/Kg          | <0.050           | \$0.050<br>\$0.50  | :   ;      | :   :      | : :         | -          | :   :       | :   :      | :   :      |
| 4-Metnyr-z-pentanone                               | 6 75F+04            | 15           | Bayka<br>Bayka | 0.50<br>75<br>75 | <0.75              | : :        | :   ;      | : :         | :   ;      |             | : :        | i   '      |
| Benzene  | 1.55E+01            | E            | ma/Ka          | <0.050           | <0.050             | 1          | ,          |             |            |             | :          |            |
| 3:150  |                     |              | ,              |                  |                    |            |            |             |            |             |            |            |

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

|   | Residential<br>Soil  | onrce            |               | 40a ('8.0-0)               | (1.5-2.0')       | (25-23.)       | (.5.0-0)       | (1.5-2.0')       | (.5.0-0           | 40a-('8:0-0 <u>)</u> | (1.5-2.0') | (.86-38.)                                  |
|---|----------------------|------------------|---------------|----------------------------|------------------|----------------|----------------|------------------|-------------------|----------------------|------------|--|
|   | Level                | PS               |               | 3-1                        | 3-1 (            | ) r-e:         | ) L-S          | ) L-S            | 2-5               | 2-5                  | 2-5        | 2-S  |
| Analytes                                      |                      |                  | Units         | <b>∀</b> OC 5              | 7 00 v           | 700 v          | 7 00 v         | 7 OC 5           | √00 S             | ∀0C 5                | doc 2      | <b>∀</b> OC 5                              |
| Bromobenzene                                  | 9.40E+01             | (2)              | mg/Kg         | <0.050                     | <0.050           | ' :            |                | 1                | 1                 |                      | ′ :        |  |
| Bromodichloromethane                          | 5.25E+00             | (ı)              | mg/Kg         | <0.050                     | <0.050           | :              | :              | ;                | 1                 | 1                    | 1          | :  |
| Bromoform                                     | 6.10E+02             | ල                | mg/Kg         | <0.050                     | <0.050           | 1              | 1              | 1                | 1                 | 1                    |            | 1  |
| Bromomethane                                  | 2.23E+01             | Ξ                | mg/Kg         | <0.10                      | <0.10            | :              | 1              | ŀ                | :                 | ł                    | :          | 1  |
| Carbon disulfide                              | 1.94E+03             | Ξ                | mg/Kg         | <0.50                      | <0.50            | 1              |                | :                | :                 | 1                    | 1          | •  |
| Carbon tetrachloride                          | 4.38E+00             | <u> </u>         | mg/Kg         | <0.10                      | <0.10<br>2.10    | :              | :              | ;                | ;                 | ;                    | 1          | 1  |
| Chlorobenzene                                 | 5.08E+02             |                  | mg/Kg         | <0.050                     | <0.050<br>40.050 | :              | :              | :                |                   | :                    | :          | 1  |
| Chloroethane                                  |                      | -                | mg/kg         | 01.0<br>0.10               | 0.70             | !              | <u>ا</u> ا     | :                | :                 | :                    | 1          | ;  |
| Chloromethane                                 | 3.72E+00             | E                | mg/Kg         | <0.050<br><0.050<br><0.050 | V0.030           | ;              | 3   1          | •                | : :               | :   ;                | : :        | :   :                                      |
| cis-1 2-DCE                                   | 7.82E+02             | ΞΞ               | mg/Ka         | <0.050                     | <0.050           | : :            | : :            | : :              | : 1               | ; ;                  | : :        | ;   ;                                      |
| cis-1,3-Dichloropropene                       | 2.35E+01             | E                | ma/Kg         | <0.050                     | <0.050           | ;              | :              | 1                |                   | 1                    | 1          | '  |
| Dibromochloromethane                          | 1.13E+01             | Ξ                | mg/Kg         | <0.050                     | <0.050           |                | ;              | :                | 1                 | :                    | 1          | ,  |
| Dibromomethane                                | 7.80E+02             | (2)              | mg/Kg         | <0.10                      | <0.10            | -              | :              |                  | ;                 | :                    | :          | ;  |
| Dichlorodifluoromethane                       | 4.81E+02             | (1)              | mg/Kg         | <0.050                     | <0.050           | -              | :              |                  | :                 |                      | •          | ;  |
| Ethylbenzene                                  | 6.96E+01             | Ξ                | mg/Kg         | <0.050                     | <0.050           |                |                | ı                | 1                 | 1                    | 1          | 1  |
| Hexachlorobutadiene                           | 6.20E+01             | <u>ල</u>         | mg/Kg         | <b>0.10</b>                | <0.10            | -              | -              | !                | :                 | :                    |            | :  |
| Isopropylbenzene                              | 3.21E+03             | $\overline{\Xi}$ | mg/Kg         | <0.050                     | <0.050           | -              | :              | i                | 1                 | ;                    | :          | 1  |
| Methyl tert-butyl ether (MTBE)                | 8.62E+02             | $\bar{\epsilon}$ | mg/Kg         | <0.050                     | <0.050           | <u>-</u>       | :              | i                | :                 | :                    | 1          | :  |
| Methylene chloride                            | 1.99E+02             | $\Xi$            | mg/Kg         | 40.15<br>6                 | \$0.15<br>50.15  | :              | ;              | -                | :                 | -                    | 1          | •  |
| Naphthalene                                   | 4.50E+01             |                  | mg/Kg         | <0.10                      | <0.10            | ;              | :              | ;                | :                 | :                    | :          | :  |
| n-Butylbenzene                                |                      | $\downarrow$     | mg/kg         | 00.00                      | 40.030           | -              | 1              | :                | 1                 | 1                    | :          | <u>ا</u> ا                                 |
| n-Propyibenzene                               | 1                    | 1                | mg/kg         | 00.00                      | 00.00            | •              | 1              | :                | :                 | :                    | :          | 1  |
| Styrene                                       | 8 97E+03             | Ξ                | ma/Ka         | <0.050<br><0.050           | ×0.050<br>×0.050 | : :            | : :            | : :              | : :               | : :                  | : :        | :   :                                      |
| tert-Butylbenzene                             |                      |                  | mg/Kg         | <0.050                     | <0.050           |                | 1              | ;                | 1                 | 1                    | 1          | !  |
| Tetrachloroethene (PCE)                       | 6.99E+00             | <u>(E)</u>       | mg/Kg         | <0.050                     | <0.050           |                |                | ;                |                   | :                    | i          | 1  |
| Toluene                                       | 5.57E+03             | (£)              | mg/Kg         | <0.050                     | <0.050           | -              | 1              | :                | 1                 | 1                    | :          | 1  |
| trans-1,2-DCE                                 | 2.73E+02             | (1)              | mg/Kg         | <0.050                     | <0.050           |                | :              | 1                |                   |                      | 1          | 1  |
| trans-1,3-Dichloropropene                     | 2.35E+01             | (E)              | mg/Kg         | <0.050                     | <0.050           | :              | :              | ;                | ;                 | 1                    | ł          | 1  |
| Trichloroethene (TCE)                         | 4.57E+01             | Ξ                | mg/Kg         | <0.050                     | <0.050           | :              | :              | 1                | 1                 | 1                    | 1          | :  |
| l richlorofluoromethane                       | 2.01E+03             |                  | mg/Kg         | 0.050                      | 00:050           | :              |                | :                | :                 | 1                    | :          | :  |
| Vinyi chioriae                                | 4 00E±02             |                  | mg/ng         | 50.030<br>40               | , v. 030         | 1              | -              | :                | :                 | :                    | •          | !  |
| Volatile Organic Compounds - (FPA Method 8260 | A Method 8260        |                  | a/Ka-dry      | 20.00                      | 200              | •              | -              | •                | :                 | •                    | :          | :  |
| 1,1,1,2-Tetrachloroethane                     | 2.92E+04             | E                | (1) µg/Kg-dry | <0.991                     | <1.12            | <1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | <1.02                                      |
| 1,1,1-Trichloroethane                         |                      | Ξ                | ug/Kg-dry     | <0.991                     | <1.12            | <1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | <1.02                                      |
| 1,1,2,2-Tetrachloroethane                     | 7.97E+03             | Ξ                | µg/Kg-dry     | <0.991                     | <1.12            | <1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | ×1.02                                      |
| 1,1,2-Trichloroethane                         | 1.72E+04             | <u> </u>         | µg/Kg-dry     | <0.991                     | <1.12            | ×1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | \  |
| 1,1-Dichloroethane                            | 6.29E+04             | 豆                | ug/Kg-dry     | <0.991                     | <1.12            | <u>7</u> 2     | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | V 1.02                                     |
| 1,1-Dichloroethene                            | 6.18E+05             | <u> </u>         | pg/Kg-dry     | <0.991                     | ×1.12            | 7.10           | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | 7   2                                      |
| 1,1-Dichloropropene                           | -                    | 1                | ug/Kg-dry     | <0.991<br>60.091           | 71.12            | 21.70          | <0.001         | <0.903           | <0.0390           | <0.902               | <0.92b     | V 1.02                                     |
| 1,2,3-Trichlorobenzene                        | 0.455±02             | 5                | ng/Kg-dry     | <0.991                     | <1.12<br>4.13    | 7 7 7          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | 7 2  |
| 1,2,3-Trichloropropane                        | 9.15E+02<br>1.43E+05 | $\bar{\epsilon}$ | ug/Kg-dry     | <0.991                     | ×1.12<br>×1.12   | √1.10<br>√1.10 | <0.00<br>0.861 | <0.903<br><0.903 | <0.0898<br><0.898 | <0.902               | <0.926     | 2 \ \<br>2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ |
| 1,2,4-Trimethylbenzene                        | 6.70E+04             | (2)              | ug/Kg-dry     | <0.991                     | <1.12            | 4.10           | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | 4 02                                       |
| 1,2-Dibromo-3-chloropropane                   | 1.94E+02             | Ξ                | µg/Кg-dry     | <0.991                     | <1.12            | <1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | <1.02                                      |
| 1,2-Dibromoethane (EDB)                       | 5.74E+02             | $\overline{\Xi}$ | µg/Kg-dry     | <0.991                     | <1.12            | <1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | \ <u>^</u>                                 |
| 1,2-Dichlorobenzene                           | 3.01E+06             | <u>(1)</u>       | µg/Kg-dry     | <0.991                     | <1.12            | <1.10          | <0.861         | <0.903           | <0.898            | <0.902               | <0.926     | <1.02                                      |
|   |                      |                  |               |                            |                  |                |                |                  |                   |                      |            |  |

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

|                                      | Residential<br>Soil  | 901            | 9UG ('8.0-  | 6-2.0")        | <b>5-23.</b> )                         | (.5.0-           | (.0.2-9     | (.5.0-  | 9UQ-('8.0-  | (.0.2-5.                | (.86-3                |
|--------------------------------------|----------------------|----------------|---|----------------|--|------------------|-------------|---|-------------|-------------------------|-----------------------|
|                                      | Screening<br>Level   | nos            | OC 23-1 (0·   | OC 23-1 (1.    | OC 53-1 (5:                            | OC 52-1 (0·      | OC 52-1 (1. | OC 52-5 (0-   | OC 52-2 (0- | OC 52-2 (1.             | OC 52-5 (30           |
| Analytes<br>1.2-Dichloroethane (EDC) | 7.74E+03             | (1) µg/Kg-dry  | <0.991  | <b>▲</b> 1.12  | <b>√</b> 1.10                          | <b>√</b> 0.861   | <0.903      | <b>√</b> 0.898  | <0.902      | <0.926                  | <b>▲</b> 1.02         |
| 1,2-Dichloropropane                  | 1.47E+04             | (1) µg/Kg-dry  | <0.991  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| 1,3,5-Trimethylbenzene               | 4. /UE+U4            | (z) µg/Kg-dry  | <0.991  | <1.12          | 01.70                                  | 0.861<br>0.861   | <0.903      | 0.898<br>0.898<br>0.898<br>0.898  | <0.902      | <0.926<br><0.926        | <1.02<br><1.02        |
| 1.3-Dichloropropane                  | 1.60E+06             | (2) µg/Kg-dry  | <0.991  | <1.12          | 4.10                                   | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| 1,4-Dichlorobenzene                  | 3.21E+04             | +              | <0.991  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| 2,2-Dichloropropane                  | 000                  | _              | <0.991  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| 2-Sutanone                           | 3.30E+0/<br>1.56F+06 | (1) pg/kg-dry  | \$0.50<br>\$0.991   | 4.30           | \$ \frac{1}{2}                         | \$0.861          | <0.903      | 868 O>  | <0.902      | <0.926                  | <1.02                 |
| 2-Hexanone                           |                      | _              | .L  | <4.50          | <4.38                                  | <3.44            | <3.61       | <3.59   | <3.61       | <3.71                   | <4.08                 |
| 4-Chlorotoluene                      | 5.50E+06             | (2) µg/Kg-dry  | <0.991  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| 4-Isopropyitoluene                   | 1                    | $\overline{}$  |   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02<br>1.02<br>1.02 |
| 4-Methyl-2-pentanone                 | 2751.07              | _              | _L  | 4.50           | 4.38                                   | 43.44            | <3.61       | <3.59<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50 | 43.61       | 2.5.5                   | 4.00                  |
| Acetone                              | 6.75E+U/<br>1 55E+04 | (1) µg/Kg-dry  | 42.4<br><0.991  | 20.7<br><1.12  | 16.2                                   | 1/b<br><0.861    | 33.9        | <0.59   | <3.01       | <0.57<br>0.926<br>0.926 | 4.21<br><1.02         |
| Bromobenzene                         | 9.40E+04             |                | i_  | <1.12          | 41.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Bromodichloromethane                 | 5.25E+03             | -              | 1   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Bromoform                            | 6.10E+05             | (3) µg/Kg-dry  | Ш   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Bromomethane                         | 2.23E+04             | _              |   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Carbon disulfide                     | 1.94E+06             | _              | 1   | <4.50          | <4.38                                  | <3.44            | <3.61       | <3.59   | <3.61       | <3.71                   | <4.08                 |
| Carbon tetrachloride                 | 4.38E+03             | (1) µg/Kg-dry  | $_{ m L}$   | <1.12          | 4.10                                   | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Chlorobenzene                        | 5.U8E+U5             | (1) pg/kg-dry  | l_  | 41.12<br>74.43 | 41.10<br>4.10                          | <0.801           | <0.903      | ×0.890  | <0.90Z      | <0.920                  | ×1.02                 |
| Chloroform                           | 5 72E+03             | (1) IIO/Kg-dry | <0.99   | <1.12          | 4.15                                   | <0.001<br><0.861 | <0.903      | <0.050<br><0.050<br><0.050  | <0.902      | <0.920                  | <1.02                 |
| Chloromethane                        | 3.56E+04             |                | 1   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| cis-1,2-DCE                          | 7.82E+05             | -              | 1_1   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| cis-1,3-Dichloropropene              | 2.35E+04             | -              | <0.991  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | 41.02                 |
| Dibromochloromethane                 | 1.13E+04             | $\overline{}$  |   | <1.12          | 4.10                                   | <0.861           | <0.903      | <0.898  | <0.902      | 976.0>                  | Z1.02                 |
| Dichlorodiffuoromethane              | 7.80E+05<br>4.81F+05 | (1) pg/kg-dry  | <0.991  | <1.12          | ×1.10                                  | <0.861           | <0.903      | <0.898<br><0.898<br><0.898  | <0.902      | <0.926                  | <1.02                 |
| Ethylbenzene                         | 6.96E+04             | -              | 1   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Hexachlorobutadiene                  | 6.20E+04             | $\overline{}$  | )   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Isopropylbenzene                     | 3.21E+06             | (1) µg/Kg-dry  | ı   | <1.12          | 4.10                                   | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02<br>4.02         |
| Methyl tert-butyl ether (MTBE)       | 8.62E+U5             | (1) µg/kg-ary  | <0.991<br>8 12  | 21.12          | 413                                    | 40.801<br>8 30   | 25.8        | <ul><li>40.898</li><li>41.80</li></ul>  | <0.90z      | <1.85                   | 20.02                 |
| Naphthalene                          | 4.50E+04             | -              | ľ   | <1.12          | 4.10                                   | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| n-Butylbenzene                       | 1                    | 1              | $\mathbf{L}$  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| n-Propylbenzene                      | 1                    | hg/Kg-dry      | 1   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| sec-Butylbenzene                     | 1                    | _              | 4   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | -1.02<br>-1.02        |
| Styrene                              | 8.97E+06             | (1) µg/Kg-dry  | <0.991  | <1.12          | 4.10                                   | <0.861           | <0.903      | <0.898  | <0.902      | 476.02                  | ×1.02                 |
| Tetrachloroethera (PCE)              | - 6 99E+03           | (1) IId/Kg-dry |   | <1.12          | 4.10                                   | <0.001           | <0.903      | <0.030  | <0.902      | <0.920                  | ×102                  |
| Tolliene                             | 5 57E+06             | 7              | <0.05<br>0.05<br>0.05<br>0.05<br>0.05<br>0.05<br>0.05<br>0.05 | 141            | 4 10                                   | <0.861           | <0.903      | <0.936  | ×0.902      | <0.926                  | <1 02                 |
| trans-1.2-DCE                        | 2.73E+05             | (1) pg/kg-dry  |   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| trans-1,3-Dichloropropene            | 2.35E+04             |                | 1'  | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Trichloroethene (TCE)                | 4.57E+04             |                | 1 1   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Trichlorofluoromethane               | 2.01E+06             |                |   | <1.12          | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | <1.02                 |
| Vinyl chloride                       | 8.65E+02             |                | <0.991  | 4.12           | <1.10                                  | <0.861           | <0.903      | <0.898  | <0.902      | <0.926                  | V V                   |
| Xylenes, Total                       | 1.09E+00             | (1) µg/kg-dry  | _   | < 1.12         | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 1.2              | <0.800      | <0.030  | <0.302      | ~0.32v I                | 40.1%<br>             |
|                                      |                      |                |   |                |  |                  |             |   |             |                         |                       |

Table 9
Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25
Bloomfield Refinery, Bloomfield, New Mexico

**(b)** 

|  | Residential<br>Soil<br>Screening    | onrce      |                | 4UG ('8.0-0) | (1.5-2.r)        | (25-23.)       | (0-0-5')       | (1.5-2.0')     | (0-0-0)        | 4UG-('8.0-0)  | (1.5-2.0')              | (3e-38.)                |
|--|-------------------------------------|------------|----------------|--------------|------------------|----------------|----------------|----------------|----------------|---|-------------------------|-------------------------|
| Analytes                                       | Level                               | S          | Units          | V-62 20-1    | VOC 23-1         | VOC 33-1       | VOC 52-1       | VOC 52-1       | VOC 52-5       | ∀OC 52-5  | VOC 52-5                | VOC 52-5                |
| l so l   | - (EPA Method 8270) mg/kg           | 9          | ma/ka          | 06.07        | 000              | 0000           | 00.07          | 00.07          | 00.0           | 00.07   | 00.07                   | 000                     |
| 1,z,4-1 richlorobenzene<br>1,2-Dichlorobenzene | 3.01E+03                            | ΞΞ         | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | 40.20<br>40.20          |
| 1,3-Dichlorobenzene                            |                                     |            | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 1,4-Dichlorobenzene                            | 3.21E+01                            | (1)        | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 2,4,5-Trichlorophenol                          | 6.11E+03                            | Ξ          | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 2,4,6-Trichlorophenol                          | 6.11E+01                            | <b>E</b>   | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 2,4-Dichlorophenol                             | 1.83E+02                            | E          | mg/Kg          | 0.40         | <0.40            | 0.40           | 0.40<br>20.40  | 0.40<br>20.40  | 0.40           | 0.40<br>20.40   | 0.40                    | 0.40                    |
| 2,4-Dimetnylphenol                             | 1.22E+U3                            | $\Xi$      | mg/Kg          | ~U.3U        | \$0.30<br>\$0.40 | <0.00<br><0.40 | <0.30<br><0.40 | <0.30          | 50.30<br><0.40 | ^U.3U<br><0.40  | 50.95<br><0.40<br><0.40 | 50.30<br><0.40<br><0.40 |
| 2.4-Unitrophenol                               | 1.22E+02                            |            | ma/Ka          | VO.40        | 20.50            | 0.50           | <0.40          | V0.40          | VO. 40         | V0.40   | 0.50                    | 0 20 V                  |
| 2,4-Dinitrotoluerie                            | 6.12E+01                            | ΞΞ         | ma/Ka          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.50          | <0.50   | <0.50                   | <0.50                   |
| 2-Chloronaphthalene                            | 6.26E+03                            | Ξ          | mg/Kg          | <0.25        | <0.25            | <0.25          | <0.25          | <0.25          | <0.25          | <0.25   | <0.25                   | <0.25                   |
| 2-Chlorophenol                                 | 3.91E+02                            | (1)        | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 2-Methylnaphthalene                            | 3.10E+02                            | (2)        | mg/Kg          | <0.25        | <0.25            | <0.25          | <0.25          | <0.25          | <0.25          | <0.25   | <0.25                   | <0.25                   |
| 2-Methylphenol                                 | 3.10E+03                            | (2)        | mg/Kg          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.50          | <0.50   | <0.50                   | <0.50                   |
| 2-Nitroaniline                                 | 1.80E+02                            | (5)        | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 2-Nitrophenol                                  | 1 17                                | -          | mg/Kg          | <0.20        | <0.20            | 07.0>          | <0.20          | <0.20          | <0.20<br>50.20 | <0.20   | 40.20<br>20.20          | 40.20                   |
| 3,3 -Dichlorobenzidine                         | 8./1E+00                            | Ξ Ś        | mg/kg          | \$0.25       | \$0.20           | \$0.20         | \$0.20         | \$7.05         | \$0.25         | \$2.0   | \$0.20                  | \$ 60.63                |
| 3+4-Methylphenoi                               | 3.105702                            | (2)        | BO/Kg          | 07.0         | 20.20            | 02.02          | 07:0>          | 02.02          | 07.07          | 20.20   | 0.20                    | 0000                    |
| 3-Nitroarilline<br>4 6-Dinitro-2-methylphenol  |                                     | $\perp$    | ma/Ka          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.20          | <0.50   | <0.50                   | <0.50                   |
| 4-Bromophenyl phenyl ether                     | 1                                   |            | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 4-Chloro-3-methylphenol                        |                                     |            | mg/Kg          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.50          | <0.50   | <0.50                   | <0.50                   |
| 4-Chloroaniline                                | 2.40E+01                            | (2)        | mg/Kg          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.50          | <0.50   | <0.50                   | <0.50                   |
| 4-Chlorophenyl phenyl ether                    | 1                                   | į          | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| 4-Nitroaniline                                 | 2.40E+02                            | <u> </u>   | mg/Kg          | <0.25        | \$2.0            | <0.25          | <0.25          | <0.25          | <0.25          | <0.25<br>0.25<br>0.20<br>0.20<br>0.20<br>0.20<br>0.20<br>0.20 | <0.25                   | <0.25<br><0.25<br><0.25 |
| 4-Initiopileilol<br>Acenaphthene               | 3 44E+03                            | Ξ          | ma/Ka          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Acenaphthylene                                 | 1                                   |            | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Aniline  | 8.50E+02                            | (3)        | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Anthracene                                     | 1.72E+04                            | Ξ          | mg/Kg          | <0.20        | <0.20<br>5.30    | <0.20          | <0.20          | <0.20<br>\$    | <0.20          | \$ 0.20<br>\$ 50  | <0.20                   | <0.20                   |
| Azobenzene<br>Bonz/a)arthracane                | 4.90E+01                            | <u>ව</u> ද | mg/kg          | 20.20        | \$0.20<br>\$0.20 | <0.20          | <0.20          | <0.20<br><0.20 | 20.20          | 02.02   | \$0.20<br>\$0.20        | \$0.20<br>\$0.20        |
| Benzo(a)avrene                                 | 4.81E-01                            | <u> </u>   | ma/Ka          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Benzo(b)fluoranthene                           | 4.81E+00                            | Ξ          | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Benzo(g,h,i)perylene                           | 1                                   |            | mg/Kg          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.50          | <0.50   | <0.50                   | <0.50                   |
| Benzo(k)fluoranthene                           | 4.81E+01                            | <u> </u>   | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Benzoic acid                                   | 2.40E+U5                            | 7          | mg/Kg          | <0.50        | VC.50            | \c\.           | <0.5U          | <0.50<br>00.00 | VU.50          | 40.50<br>00.50  | VU:3U                   | VC.U>                   |
| Berzyl alcohol                                 | 3.10E+04                            | (7)        | mg/Kg<br>mg/Kg | 07:0>        | 07.0×            | 07.0>          | <0.20          | <0.20          | <0.20          | \$0.20<br>\$0.20  | \$0.20<br>\$0.20        | <0.20<br><0.20          |
| Bis(2-chloroethyl)ether                        | 2.56E+00                            | įΞ         | ma/Ka          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Bis(2-chloroisopropyl)ether                    | 9.15E+01                            | įΞ         | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Bis(2-ethylhexyl)phthalate                     | 2.80E+02                            | (J)        | mg/Kg          | <0.50        | <0.50            | <0.50          | <0.50          | <0.50          | <0.50          | <0.50   | <0.50                   | <0.50                   |
| Butyl benzyl phthalate                         | 2.60E+03                            | <u>(c)</u> | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | \$0.20<br>20.20         |
| Carbazole                                      | v v v v v v v v v v v v v v v v v v | =          | mg/Kg          | <0.20        | \$0.20<br>\$0.20 | 40.20<br>20.20 | <0.20          | <0.20          | <0.20          | 40.20<br>20.20  | <0.20                   | \$0.20<br>\$0.20        |
| Onlysene<br>Dibenzía h)anthracene              | 4.01E+02<br>4.81E-01                | ΞΞ         | ma/Ka          | ×0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
| Dibenzofuran                                   | 1 1 2 1                             | <u>;</u>   | mg/Kg          | <0.20        | <0.20            | <0.20          | <0.20          | <0.20          | <0.20          | <0.20   | <0.20                   | <0.20                   |
|  |                                     | ]          |                |              |                  |                |                |                |                |   |                         | }                       |

Group 3 Soil Analytical Results Summary - AOC 23 and AOC 25 Bloomfield Refinery, Bloomfield, New Mexico Table 9

| Units  |  | Residential<br>Soil<br>Screening<br>Level | Source         |                     | 4UG ('8.0-0) 1- | (1.5-2.0') r- | -1 (52-53') | (.9·0-0) l- | (1.5-2.0') | -2 (0-0·2.)     | AUŒ-('8.0-0) S- | -2 (۱،5-2،0)   | -5 (36-38') |
|--|--|---|----------------|---------------------|-----------------|---------------|-------------|-------------|------------|-----------------|-----------------|----------------|-------------|
| A  | Analytes   |   |                | Units               | ¥0C 53          | POC 53        | ¥0C 53      | VOC SE      | VOC 52     | VOC 52          | ∀OC 52          | <b>∀</b> OC 52 | ∀OC 52      |
| Monthalate   6.11E+05   (1) mg/kg   -0.20      | Diethyl phthalate  | 4.89E+04                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| My printalate  | Dimethyl phthalate   | 6.11E+05                                  | (1)            | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| there there  | Di-n-butyl phthalate   | 6.11E+03                                  | (1)            | mg/Kg               | <0.50           | <0.50         | <0.50       | <0.50       | <0.50      | <0.50           | <0.50           | <0.50          | <0.50       |
| threne 2226E+03 (1) mg/kg <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.0 | Di-n-octyl phthalate   | 1   |                | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| Control Cont   | Fluoranthene   | 2.29E+03                                  | (1)            | mg/Kg               | <0.25           | <0.25         | <0.25       | <0.25       | <0.25      | <0.25           | <0.25           | <0.25          | <0.25       |
| Incoherization   | Fluorene   | 2.29E+03                                  | (1)            | mg/Kg               | <0.50           | <0.50         | <0.50       | <0.50       | <0.50      | <0.50           | <0.50           | <0.50          | <0.50       |
| International conditional co   | Hexachlorobenzene  | 2.45E+00                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| Control Copenitation   | Hexachlorobutadiene  | 6.20E+01                                  | (3)            | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| 1.23-cd)pyrene   | Hexachlorocyclopentadiene  | 3.67E+02                                  | (1)            | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| 12.3-cd)pyrene   | Hexachloroethane   | 6.11E+01                                  | (1)            | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| one         4,18E+03 (1) mg/kg         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50         <0,50   | Indeno(1,2,3-cd)pyrene   | 4.81E+00                                  | Ξ              | mg/Kg               | <0.25           | <0.25         | <0.25       | <0.25       | <0.25      | <0.25           | <0.25           | <0.25          | <0.25       |
| According to the Particular Background Document for Development of provision VII.B. of the July 7, 2007 NMED Order. 2005 To 1500 Co. 200 Co.   | Isophorone   | 4.13E+03                                  | Ξ              | mg/Kg               | <0.50           | <0.50         | <0.50       | <0.50       | <0.50      | <0.50           | <0.50           | <0.50          | <0.50       |
| Color   Colo   | Naphthalene  | 4.50E+01                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| Sequency    | Nitrobenzene   | 4.94E+01                                  | Ξ              | mg/Kg               | <0.50           | <0.50         | <0.50       | <0.50       | <0.50      | <0.50           | <0.50           | <0.50          | <0.50       |
| Social pole mylamine   | N-Nitrosodi-n-propylamine  | 6.90E-01                                  | <u>ල</u>       | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| 1.83E+03   1.97E+01   1.9 mg/kg   0.040   0.020   0.   | N-Nitrosodiphenylamine   | 8.00E+02                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| threne   1.83E+04 (1) mg/Kg  | Pentachlorophenol  | 2.07E+01                                  | Ξ              | mg/Kg               | <0.40           | <0.40         | <0.40       | <0.40       | <0.40      | <0.40           | <0.40           | <0.40          | <0.40       |
| 1.83E+04   (1) mg/kg   | Phenanthrene   | 1.83E+03                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| 1.72E+03   (1)   mg/Kg   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.20   <0.   | Phenol   | 1.83E+04                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| 7.80E+01   (2)   mg/kg   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.50   <0.   | Pyrene   | 1.72E+03                                  | Ξ              | mg/Kg               | <0.20           | <0.20         | <0.20       | <0.20       | <0.20      | <0.20           | <0.20           | <0.20          | <0.20       |
| - (EPA Method 8015B) mg/kg   | Pyridine   | 7.80E+01                                  | <u>(</u> 2     |                     | <0.50           | <0.50         | <0.50       | <0.50       | <0.50      | <0.50           | <0.50           | <0.50          | <0.50       |
| <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10         <10 <td>Total Petroleum Hydrocarbons - (E</td> <td>PA Method 80</td> <td>158)</td> <td>-1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>   | Total Petroleum Hydrocarbons - (E                                      | PA Method 80                              | 158)           | -1                  |                 |               |             |             |            |                 |                 |                |             |
| <5.0   | Diesel Range Organics (DRO)  | 8.00E+02                                  | Ŧ              | mg/Kg               | ×10             | 9             | 92          | 22          | <10        | 92              | <10             | <10            | <10<br><10  |
| <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50   <50    | Gasoline Range Organics (GRO)  | 8.00E+02                                  | <del>(</del>   | mg/Kg               | <5.0            | <5.0          | <5.0        | <5.0        | <5.0       | <5.0            | <5.0            | <5.0           | <5.0        |
| <ul> <li>- No screening level or analytical result available</li> <li>(1) NMED - Technical Background Document for Development of Soil Screening Levels - Revision 5.0 ( August 2009)</li> <li>(2) EPA - Regional Screening Levels (April 2009)</li> <li>(3) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic</li> <li>(4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground water</li> <li>(5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration and inhalation of ground water</li> </ul>   | Motor Oil Range Organics (MRO)   | 2.50E+03                                  | (2)            | mg/Kg               | <sup>2</sup> 50 | <50           | <50         | 140         | <50        | <sup>2</sup> 20 | <50             | <50            | <50         |
| (2) EPA - Regional Screening Levels (April 2009) (2) EPA - Regional Screening Levels (April 2009) (3) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic (4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground water (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration and inhalation of ground water   | No screening level or analytical res                                   | sult available                            | noley          | ment of             |                 |               |             |             |            |                 |                 |                |             |
| <ul> <li>(2) EPA - Regional Screening Levels (April 2009)</li> <li>(3) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic</li> <li>(4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground water</li> <li>(5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration of ground water</li> </ul>  | Soil Screening Levels - Revision 5.0                                   | ( August 2009)                            |                | 5                   |                 |               |             |             |            |                 |                 |                |             |
| (3) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic (4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground water (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration of ground water  | (2) FPA - Regional Screening Levels                                    | (April 2009)                              |                |                     |                 |               |             |             |            |                 |                 |                |             |
| pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic (4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground water (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration of ground water  | (3) EPA - Regional Screening Levels                                    | (April 2009) mu                           | ıltiplie       | ³d by 10            |                 |               |             |             |            |                 |                 |                |             |
| because the constituent is listed as carcinogenic  (4) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for residential exposure via vapor migration and inhalation of ground water  (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration of ground water  | pursuant to Provision VII.B. of the Ju                                 | ly 7, 2007 NMEI                           | ŏ              | Jer                 |                 |               |             |             |            |                 |                 |                |             |
| (4) NMIED OCt. 2000 1PH Screening Guidelines - Orknown oil for residential exposure via vapor migration and inhalation of ground water (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration of ground water   | because the constituent is listed as c                                 | arcinogenic                               | 1              | 174 11              |                 |               |             |             |            |                 |                 |                |             |
| water<br>(5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for<br>vapor migration and inhalation of ground water   | (4) NMED OC. ZOON I PH SCREENING residential exposure via vapor migral | Guidelines - Un<br>tìon and inhalatic     | iknow<br>on of | n oil tor<br>ground |                 |               |             |             |            |                 |                 |                |             |
| (5) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for vapor migration and inhalation of ground water   | water  |   | ;              | 5                   |                 |               |             |             |            |                 |                 |                |             |
| vapor migration and inhalation of ground water   | (5) NMED Oct. 2006 TPH Screening                                       | Guidelines - Wa                           | aste (         | oil for             |                 |               |             |             |            |                 |                 |                |             |
|  | vapor migration and inhalation of gro                                  | und water                                 |                |                     |                 |               |             |             |            |                 |                 |                |             |

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

| Level Level 2 one  | noN                          |  | _             | _        |                    | _                         |          |   | _                               |                   |                              |                      | _                              |                      |              |                        |                        | _        |                    |           |          | _        |  |
|--|------------------------------|--|---------------|----------|--------------------|---------------------------|----------|---|---------------------------------|-------------------|------------------------------|----------------------|--------------------------------|----------------------|--------------|------------------------|------------------------|----------|--------------------|-----------|----------|----------|--|
| 1   1   1   1   1   1   1   1   1   1  | Analytes                     | No<br>Reside<br>Scree<br>Lev<br>(2-10' |               |          | %AOC 22-1 (0-0.5') | 5/2009<br>5/2009<br>5/4/1 | <u> </u> | (70.0-2.1) S-SS (20.0)<br>(7009 4/15/7) AOC 22-3 (0-0 F-) | 009 4/15/2(AOC 22-3 (1.5'-2.0') | AOC 22-4 (0-0.5') | 00.S.2.1) A-SS DOA (1.5-2.0) | 472/2009<br>472/2009 | 423/2009<br>AOC 22-5 1.5-2.0') | 23/AOC 22-6 (0-0.5') |              | 13/2009 A2-12 (0-0.5") | AOC 22-12 (0-0.5') DUP | 141      | NZO09 413 (32-35') |           |          | 4        | \(\frac{13}{2}\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |
| 1.1.1  | /kg)                         | 01   661E-01                           | 6.61E-01      | ıL       | <25                | <25                       | li       |   | 5 0                             |                   |                              | *                    |                                | <2.5                 | <del> </del> |                        | <2.5                   |          | 2.5 <2             |           | -        | $\vdash$ | 2.5  |
|  | 1316                         | -02 1.31E-01                           | 1.31E-02      |          | t                  | +                         | ╁        | ╁   | ╁                               | ╀                 | ╀                            | <2.5                 | ×13                            | <2.5                 | ╀            | +                      | +                      | +        | ╀                  | $\vdash$  | ⊢        | ╀        | 2.5  |
|  | 3.01                         | +02 3.01E+02                           | 3.01E+02      |          | +                  | ╀                         | ╁        | ╁   | +                               | ╄                 | H                            | 210                  | 180                            | 230                  | ╁            | +                      | +                      | -        | -                  | $\vdash$  | $\vdash$ | ├        | 37   |
|  | 5.77                         | +01 5.77E+01                           | 5.77E+01      | 1_       | t                  | +                         | ╁        | +   | ┼-                              | ╀-                | -                            | 0.16                 | <0.75                          | 0.17                 | -            | $\vdash$               | ┝                      | -        | ├                  | ┝         | ⊢        | ┝        | .15  |
| Miles                 Miles                Miles                 Miles                Miles                  Miles                 Miles                  Miles                      Miles                  Miles                      Miles                  Miles                  Miles                  Miles                  Miles                  Miles                  Miles                      Miles                  Miles                  Miles </td <td>1.37E+</td> <td>+00 1.37E+00</td> <td>1.37E+00</td> <td></td> <td><math>\vdash</math></td> <td><math>\vdash</math></td> <td>H</td> <td>-</td> <td></td> <td><math>\vdash</math></td> <td>H</td> <td>&lt;0.10</td> <td>&lt;0.50</td> <td>&lt;0.10</td> <td>Н</td> <td>H</td> <td>Н</td> <td>Н</td> <td>╌</td> <td>Н</td> <td>-</td> <td>-</td> <td>.10</td>  | 1.37E+                       | +00 1.37E+00                           | 1.37E+00      |          | $\vdash$           | $\vdash$                  | H        | -   |                                 | $\vdash$          | H                            | <0.10                | <0.50                          | <0.10                | Н            | H                      | Н                      | Н        | ╌                  | Н         | -        | -        | .10  |
| Application of the property of                               | 4.47E-                       | +05 4.47E+05                           | 9.86E+07      |          |                    | ⊢                         | H        | ├   | H                               | H                 | Н                            | 5.3                  | 5.3                            | 8.8                  | Н            | -                      | Н                      | $\dashv$ | $\dashv$           | $\dashv$  |          |          | .7   |
|  | 4.90E                        | -01 4.90E-01                           | 4.90E-01      |          | Н                  | Н                         | _        | -   |                                 | Н                 |                              | 2.1                  | 2.6                            | 2.6                  | $\dashv$     | -                      | -                      | -        | -                  | $\dashv$  | -        | $\dashv$ | ٤.   |
| 1  | 7.44E                        | +00 7.44E+00                           | 7.44E+00      |          | -                  |                           |          | -   |                                 |                   |                              | <0.5                 | <0.5                           | <0.5                 | $\dashv$     | Н                      | -                      | $\dashv$ | $\dashv$           | $\dashv$  |          | $\dashv$ | 0.5  |
| 2.5.5.2  | 8.00E+                       | +02 8.00E+02                           | !             |          | $\vdash$           | H                         | Н        | Н   | $\vdash$                        | Н                 | Н                            | 4.2                  | 3.8                            | 2.9                  | Н            | Н                      | Н                      | Н        | Н                  | Н         | $\dashv$ | $\vdash$ | 8.   |
| 17.55.00.               17.55.00.               18   | 2.93E                        | -02 2.93E-02                           | 2.93E-02      |          | -                  | -                         | -        | H   | -                               | -                 | $\vdash$                     | <0.033               | <0.033                         | <0.033               | Н            | Н                      | H                      | Н        | Н                  | Н         | -        | Н        | .033   |
| 1986-100 (1) milling of 35 of                              | 4.77E                        | +01 4.77E+01                           | 4.77E+01      |          | -                  | -                         | -        | H   |                                 | -                 |                              | 2.5                  | 3.4                            | 3.3                  | _            | _                      | _                      |          |                    | -         |          | Н        | 2  |
|  | 9.65E                        | -01 9.65E-01                           | 9.65E-01      |          | ⊢                  | ┝                         | H        | $\vdash$  | ├-                              | $\vdash$          | $\vdash$                     | <13                  | <13                            | <13                  | -            | -                      | ⊢                      | -        | -                  | -         | -        |          | 2.5  |
| 1.1    1.1.   | 1.57E-                       | +00 1.57E+00                           | 1.57E+00      | 1        | -                  | -                         | -        | $\vdash$  | -                               | H                 | H                            | <0.25                | <1.3                           | <0.25                | Н            | Н                      | Н                      | Н        | Н                  | Н         |          | Н        | .25  |
|  | 1.83E+                       | +02 1.83E+02                           | 1.83E+02      |          | -                  | ┝                         | _        | $\vdash$  |                                 | -                 | _                            | 13                   | 14                             | 14                   |              |                        | -                      | Н        | $\dashv$           |           | -        | $\dashv$ | 5  |
| 1796-04 (1) mg/kg  | 6.82E+                       | +02 6.82E+02                           | 6.82E+02      | L        | Н                  | H                         | $\dashv$ | $\vdash$  | -                               | $\dashv$          |                              | 14                   | 16                             | 20                   |              |                        | -                      |          | _                  |           | -        | _        | <u>-</u>   |
| 1985-60 (1) mg/kg  | ganic Compounds - (EPA Methe | od 8260B) mg/kg                        |               |          |                    |                           |          |   |                                 |                   |                              |                      | ł                              |                      |              |                        |                        |          |                    |           |          | ŀ        |  |
| 2.288640 (1) mg/kg   | rachloroethane 1.73E         | -03 1.73E-03                           | 1.73E-03      |          | 1                  | 1                         |          | _   | 1                               | ;                 | <0.50                        | •                    | -                              | 1                    | :            | ;                      | !                      | -        | _                  | -         | 1        | $\dashv$ | .50  |
| 2.566.40 (1) mg/40, 2  | oroethane 2.98E-             | +00 2.98E+00                           | 2.98E+00      | _        | 1                  | 1                         | 1        | -   |                                 |                   | <0.50                        | 1                    | :                              | :                    | ı            | :                      | ı                      |          |                    |           |          | -        | 52   |
| 196  | achloroethane 2.25E          | -04 2.25E-04                           | 2.25E-04      |          | -                  | -                         | _        | -   | 1                               | 1                 | <0.50                        | ;                    | •                              | 1                    | 1            | 1                      | ;                      | •        |                    |           |          | $\dashv$ | .50  |
| 119EG   (1)   mg/ld  | proethane 6.74E              | -04 6.74E-04                           | 6.74E-04      |          |                    |                           | :        | 1   | 1                               |                   | <0.50                        | :                    | -                              | -                    | -            | 1                      |                        | -        |                    |           | +        | ┪        | 22   |
| 119EGN (1) mg/kg   | ethane 6.09E                 | -03 6.09E-03                           | 6.09E-03      |          | :                  | -                         | -        | •   | !                               |                   | <1.0                         | •                    | -                              | •                    | •            | :                      | :                      | 1        |                    |           | -        | -        | 힏  |
| Mindright   Mind | ethene 1.19E                 | -01 1.19E-01                           | 1.19E-01      |          |                    | -                         | -        |   |                                 |                   | <0.50                        | '                    | •                              | :                    | 1            | !                      | 1                      | 1        |                    | _         | -        | -        | 55   |
|  | propene                      | 1                                      |               | mg/Kg    | 1                  | ,                         | ;        |   | 1                               | -                 | <1.0                         | ,                    | 1                              | :                    | 1            | 1                      | 1                      | :        |                    |           |          | +        | 0 6  |
|  |                              | _                                      | $\rightarrow$ | _        | 1                  | -                         | -        | ' <br>  | <u>'</u>                        |                   | <1.0                         | •                    | •                              | 1                    | +            | <u> </u>               | -                      |          |                    |           |          | +        | 2 9  |
| Name   | -                            |  |               |          | 1                  | 1                         | 1        | 1   | <u>'</u>                        | -                 | <1.0                         | •                    | -                              | 1                    | :            | '                      | 1                      | -        | 1                  |           | +        | $\dashv$ | 9  |
| 2.97E-0.0         2.97E-0.0         1.97E-0.0         2.97E-0.0         2.97E-0.0 <t< td=""><td></td><td></td><td><math>\rightarrow</math></td><td></td><td>1</td><td>1</td><td>:</td><td>1</td><td>-</td><td> </td><td>&lt;0.50</td><td>,</td><td>•</td><td>1</td><td>-</td><td>1</td><td>1</td><td>1</td><td><math>\frac{1}{1}</math></td><td>1</td><td>+</td><td>+</td><td>05</td></t<>   |                              |  | $\rightarrow$ |          | 1                  | 1                         | :        | 1   | -                               |                   | <0.50                        | ,                    | •                              | 1                    | -            | 1                      | 1                      | 1        | $\frac{1}{1}$      | 1         | +        | +        | 05   |
| 2.000-0.0   2.000-0.0   0.00 |                              | $\dashv$                               | $\neg$        |          | •                  | -                         | -        | 1   | :                               |                   | 270                          | -                    |                                | 1                    | ;            | -                      | 1                      | -        | :                  | - 2       | $\dashv$ | +        | 2  |
| 1.38E-04   1.58E-04   1.58E-05   1.0 mg/kg   | _                            | _                                      | -+            | _4       | '                  | 1                         | -        | -   |                                 | -                 | V.0                          | '                    | •                              | ;                    | :            | 1                      | 1                      | ;        |                    | <u> </u>  | +        | +        | 9  |
| 3.615-6.01   3.615-6.01   (1) mg/kg   1.   |                              | Ш                                      | -             |          | :                  | 1                         | -        | 1   | 1                               | -                 | <0.50                        | ;                    | :                              | ;                    | ı            | ;                      | 1                      | -        |                    |           | 1        | $\dashv$ | S  |
| 3.56E-04         3.66E-04  |                              |  |               |          | -                  | 1                         | ;        |   |                                 | _                 | <0.50                        | '                    | -                              | -                    | 1            | 1                      | ;                      | 1        |                    |           | -        | +        | 22   |
| 111E-03   111E-03   10 mg/kg   |                              |  |               |          | •                  | -                         | !        |   |                                 |                   | <0.50                        | '                    | <u> </u>                       | •                    |              |                        | -                      |          |                    | _         | _        | -        | က  |
| 2.00E-01         CODE-02         <   | $\vdash$                     | _                                      | _             |          | 1                  | -                         | 1        |   |                                 |                   | <0.50                        |                      | 1                              | :                    | 1            |                        |                        |          | 4                  |           | -        | $\dashv$ | .50  |
| 1.00         1.00 <th< td=""><td>_</td><td>L</td><td>-</td><td></td><td>1</td><td>-</td><td>:</td><td>-</td><td>•</td><td></td><td>86</td><td>1</td><td>:</td><td>1</td><td>:</td><td>;</td><td>;</td><td></td><td>:</td><td>-</td><td>-</td><td></td><td>Σ.</td></th<>  | _                            | L                                      | -             |          | 1                  | -                         | :        | -   | •                               |                   | 86                           | 1                    | :                              | 1                    | :            | ;                      | ;                      |          | :                  | -         | -        |          | Σ.   |
| 2 70E-01         2 70E-01         2 70E-01         2 70E-01         2 70E-01         2 70E-01         3 70E-01         3 70E-01         3 70E-01         3 70E-01         4 70E-01  | ┢                            | -                                      | -             | ᆫ        | :                  | :                         | -        | •   |                                 | -                 | <0.50                        | -                    | -                              | 1                    | -            | 1                      | •                      |          |                    |           |          |          | .50  |
| 35FE-03   35FE-04   10 mg/kg   | t                            | L                                      | -             | L        |                    | 1                         | ,        | 1   | 1                               | :                 | <0.50                        | ;                    | -                              | ı                    |              |                        | :                      |          |                    |           |          | _        | .50  |
| 1.50E-01   1.50E-01  |                              | L                                      | !             | Ļ.       |                    |                           | ;        |   | :                               | 1                 | <0.50                        | 1                    | 1                              | ı                    |              | i                      |                        |          |                    |           |          | -        | .50  |
| 177E-00   127E-10   100Mg/s   1.   | T                            | Ļ                                      | +-            | Ļ.,      |                    |                           | :        |   |                                 |                   | 30                           | 1                    |                                | :                    | :            | 1                      | :                      |          |                    |           | _        | $\vdash$ | -  |
| 1.27E+00   1.27E+00  |                              | L                                      | +-            | <u> </u> |                    |                           |          |   |                                 | -                 | <1.0                         | :                    | 1                              | 1                    | ;            | :                      | ;                      |          |                    |           | _        | _        | 1.0  |
| 6.24E-01   6.24E-01  |                              | -                                      | +             | ↓_       |                    |                           |          |   |                                 | _                 | <5.0                         | ,                    | ,                              |                      |              | ,                      | -                      |          |                    |           | _        | _        | 2.0  |
| 1.00    |                              | $\downarrow$                           | +-            | ↓.       |                    |                           |          |   | _                               | -                 | <0.50                        |                      |                                | -                    | ,            | ,                      | :                      |          |                    | _         |          |          | S  |
| 100E-01   100E |                              | +                                      | +-            | 4_       |                    | +                         |          |   |                                 | -                 | <5.0                         |                      |                                |                      | -            | -                      |                        | -        | -                  | -         | +        | ├        | ٥  |
| Substitution   Subs |                              | 4                                      | +             | 4        |                    |                           |          | <br> -  |                                 | $\frac{1}{1}$     | 3                            |                      |                                |                      |              | <br> -<br> -           |                        | -        |                    |           | ╁        | ╀        |  |
| 2.80E+00         3.80E+00  |                              | 4                                      | +             | 4        | :                  | •                         |          | +   |                                 | +                 | 25 0                         | 1                    |                                | +                    | +            | +                      | +                      | 1        |                    | $\dagger$ | +        | +        |  |
| """ State-tool         """ Sta   |                              | _                                      | -             | _        | :                  | 1                         | ;        |   |                                 |                   | \$0.50                       | :                    | •                              | :                    | :            | :                      | •                      | +        | 1                  | +         | +        | +        | 3  |
| 3.84E+00  | luene                        | 1                                      | -<br>I        | mg/Kg    | -                  |                           | 1        | 1   | •                               | -                 | 5.5                          | 1                    | •                              | •                    | •            |                        |                        |          |                    | _         | -        | $\dashv$ | <u>~</u>   |
| 3.84E+00         3.84E+00         3.84E+00         3.84E+00         3.84E+00         3.84E+00         3.84E+00         3.84E+00         3.84E+00         4.56  |                              | L                                      | -             | mg/Kg    |                    | 1                         | ,        | :   | 1                               |                   | <5.0                         | ;                    | -                              | 1                    | 1            | ;                      | !                      |          | -                  |           | _        |          | 0.0  |
| 1.86E-03     1.85E-03     1.3 mg/kg  |                              | Ļ                                      | ┰             | _        | ;                  | -                         |          |   | 1                               | _                 | <7.5                         | ŧ                    | :                              | -                    | 1            | :                      |                        |          |                    |           |          | _        | 7.5  |
| 1,50E-02         1,50E-03         1,50E-03         1,50E-04  |                              | Ļ                                      | +-            | L        |                    |                           |          |   | ;                               | -                 | 0.78                         |                      |                                |                      |              |                        |                        |          |                    |           |          | H        | 2  |
| 1.30E-02   1.30E-03   1.30E-03  |                              | 4                                      | _             | 1        |                    |                           |          |   |                                 | -                 | CO 50                        |                      |                                | †                    | -            |                        |                        |          | -                  | <u> </u>  |          | +        | 5  |
| 2.76E-04       2.76E-02       3.76E-02       3.76E-03       3.76E-03 <td< td=""><td></td><td>4</td><td>_</td><td>_</td><td>1</td><td>!</td><td>-</td><td>· <br/> -</td><td><u>'</u></td><td>+</td><td>0.00</td><td>'</td><td> </td><td>+</td><td>+</td><td>+</td><td> </td><td></td><td><u>'</u></td><td></td><td>+</td><td>+</td><td>3 5</td></td<>  |                              | 4                                      | _             | _        | 1                  | !                         | -        | · <br> -  | <u>'</u>                        | +                 | 0.00                         | '                    |                                | +                    | +            | +                      |                        |          | <u>'</u>           |           | +        | +        | 3 5  |
| 2.30E-02 2.30E-02 1.34E-03 (4) mg/Kg   |                              | 4                                      | _             | _        | :                  | 1                         | 1        |   |                                 | +                 | 0.00<br>0.00                 | '                    | <u>'</u>                       | ;                    | •            | 1                      |                        | +        |                    | :<br>     | 1        | +        | 8  |
| 1.94E-03 1.94E-03 1.94E-03 (1) mg/Kg   |                              | _                                      | $\dashv$      | _        | ı                  | :                         | :        |   |                                 | 1                 | <0.50                        | •                    | -                              | <u>'</u>             | :            | -                      | 1                      | 1        |                    |           | +        | +        | 3  |
| 2.52E-01 2.52E-01 (1) mg/Kg  |                              |  |               |          | •                  | :                         | -        | 1   | !                               |                   | <1.0                         | '                    | •                              | 1                    | 1            | :                      | 1                      | _        | •                  | -         | 1        | -        | <u>.</u>   |
| 7.39E-04 7.39E-04 7.39E-02 5.38E-02 5.38E-02 (1) mg/Kg   |                              | _                                      |               |          |                    | 1                         | -        |   |                                 |                   | <5.0                         | :                    | :                              | -                    | 1            | ;                      | •                      |          | 1                  | •         | _        | -        | 0.0  |
| 5.38E-02 5.38E-02 5.38E-02 (1) mg/Kg   |                              | L                                      | _             | Щ        | :                  | '                         | ,        |   |                                 |                   | <1.0                         | 1                    | -                              | :                    | •            |                        | 1                      |          |                    | _         |          | _        | 0  |
|  |                              | ╄                                      | +             | L        | -                  |                           |          | <br>  | _                               | -                 | <0.50                        | '                    |                                | ;                    | <br>  :      | -                      | :                      | -        |                    |           | _        |          | 50   |

|  | AOC 22-13 (18-20')                                       | 4/8/2009    | <1.0         | 00.50      | <0.50<br><0.50 | <0.50                   | <0.50                | 0.15                                   | 22           | <1.0                | 3.7              | 40.50<br>7.1.17                  | 12           | 7.9            | 6.6             | 7.7              | V0.50                        | <0.50                   | 28       | \$ 0.50<br>5  | \$0.50<br>\$0.50             | <0.50                  | <0.50          | 2                              |                           | :                     | · [ ·  | :                  | :                  |                    | -                      | :                      | :[:                                   |                         | :                   | :                        | : 1   | ı                   |                     | •                   | : :                                | :               |            | :  :                                   | :                    |
|--|--|-------------|--------------|------------|----------------|-------------------------|----------------------|--|--------------|---------------------|------------------|----------------------------------|--------------|----------------|-----------------|------------------|------------------------------|-------------------------|----------|---------------|------------------------------|------------------------|----------------|--------------------------------|---------------------------|-----------------------|--|--------------------|--------------------|--------------------|------------------------|------------------------|---------------------------------------|-------------------------|---------------------|--------------------------|---|---------------------|---------------------|---------------------|------------------------------------|-----------------|------------|--|----------------------|
|  | AOC 22-13 (1.5-2.0')                                     | 4/8/2009    | <2.0         | 0.0        | 0.0            | o.f>                    | <1.0                 | 0.20                                   | 19           | <2.0                | 2.5              | 0.0                              | 32           | 4.4            | 8.5             | 2,               | 0.0                          | 41.0                    | 47       | 7.0           | 0.0                          | <1.0                   | ×1.0           | 067                            | -                         | :                     |  | ı                  | :                  | : :                | :                      | -                      | 1 1                                   |                         | :                   |                          | : :   | :                   |                     | 1                   | : 1                                | ;               | :          | :   :                                  | :                    |
|  | AOC 22-13 (0-0.5')                                       | 4/8/2009    | :            | <u>'</u>   |                | 1                       | -                    | :                                      | 0.28         | 1                   | •                | :                                | 2.6          | 2.8            | :               | 0.094            | <del> </del>                 | 1                       | 0.78     | :             | : :                          | :                      | 1 6            | 63                             | <1.10                     | 4.10                  | 4.10   | <1.10              | ₹<br>7.4           | V V                | <1.10                  | <1.10                  | -1 10                                 | ×1.10                   | ×1.10               | 7.10                     | 2 -   | <1.10               | <1.10               | <u>7</u> 7          | <4.45<br>4.42                      | <1.10           | <4.42      |  | <4.42                |
|  | AOC 22-12 (36-37.75')                                    | 4/13/2009   | :            | -          | : :            | :                       | :                    | : :                                    |              | 1                   | 1                | -                                |              |                | ;               | -                | -                            | ,                       |          | '             | : :                          |                        | :              | !                              | <0.939                    | <0.939                | <0.939   | <0.939             | <0.939             | <0.939             | <0.939                 | <0.939                 | 16.1                                  | <0.939                  | <0.939              | <0.939                   | 5.42  | <0.939              | <0.939              | <0.939              | 4.96                               | <0.939          | <3.76      | <0.939                                 | <3.76                |
|  | ∀OC 35-15 (35-32,)                                       | 4/13/2009   | :            | 1          | : :            | :                       | 1                    | : :                                    |              | 1                   | 1                |                                  |              | ŀ              | 1               | :                | ; ;                          | ;                       | 1        | :             |                              | :                      | 1              | :                              | <0.971                    | <0.971                | <0.971   | <0.971             | <0.971             | <0.971             | <0.971                 | <0.971                 | <0.971                                | <0.971                  | <0.971              | <0.971                   | <0.971  | <0.971              | <0.971              | <0.971              | 4.66                               | <0.971          | <3.88      | <0.971                                 | <3.88                |
|  | AOC 22-12 (1.5-2.0')                                     | 4/13/2009   | 1            | 1          | :              |                         | 1                    | •                                      | : ;          | ,                   | :                | :                                | <u>,</u>     | :              |                 | :                |                              | ;                       | :        | 1             | : :                          |                        | 1              | •                              | <1.03                     | 41.03                 | 4.03   | <1.03              | √<br>7.03          | V V                | <1.03                  | <1.03                  | 2 2                                   | 4.03                    | <1.03               | 7 7 7 8 8                | × 1.03  | <1.03               | <1.03               | 7.03                | ×4.10                              | <1.03           | 4.10       | 4.03                                   | <4.10                |
|  | AUG (20-0) S1-SS 200A                                    | 600         | 1            |            | '   '          | :                       | ,                    | -                                      | ;            |                     | ,                | -                                |              | :              | -               | -                |                              | ,                       | :        | 1             | 1                            | -                      | 1              | -                              | <1.01                     | 2 5                   | v 101  | <1.01              | <u>2</u>           | 2 0                | <1.01                  | ×1.01                  | 5 5                                   | 10.1                    | <1.01               | 20.0                     | 10.1  | ×1.01               | <1.01               | 2 2                 | 404                                | <1.01           | 40.4       | 10.1                                   | ×4.04                |
|  | VOC 22-12 (0-0.5')                                       | 4/13/2009   | 1            |            |                | ,                       | ı                    | ;                                      |              |                     | 1                | :                                | :            | :              | 1               | 1                |                              | :                       | :        | :             |                              |                        | :              | ·                              | <1.11                     | <u>↑</u> ;            | <u>1</u>   | <1.11              | <u> </u>           | \<br>              | <1.11                  | <1.11                  | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 4.17                    | <1.11               | 1.7                      | 4.17  | <1.11               | <1.11               | 7 7                 | <4.45                              | <1.11           | <4.45      | 11.1                                   | <4.45                |
|  | AOC 22-6 (1.5-2.0')                                      | 1/23/2009   |              | -          | : ;            |                         |                      | :                                      |              | -                   | :                | :                                | ;            |                | -               | :                | <u> </u>                     | 1                       | 1        | :             | : :                          |                        | :              | -<br>                          | <0.999                    | 66.0>                 | 666.0>   | <0.999             | 0.999              | 666.0>             | <0.999                 | <0.999                 | ×0.999                                | <0.999                  | <0.999              | <0.999                   | >0.999  | <0.999              | <0.999              | 666.0>              | <3.99                              | <0.999          | <3.99      | \$66.0><br><0.999                      | <3.99                |
|  | ∀OC 22-6 (0-0.5')  | 1/23/2009   | :            | -          | : :            | 1                       | ,                    | , ,                                    |              | ,                   | 1                | 1                                | ,            | :              | •               | -                | ;   ;                        | ;                       | 1        | -             | : :                          | -                      | :              | -<br> -                        | <0.954                    | <0.954                | <0.954   | <0.954             | <0.954             | <0.954<br><0.954   | <0.954                 | <0.954                 | 40.954                                | <0.954                  | <0.954              | <0.954                   | <0.954  | <0.954              | <0.954              | <0.954              | <3.82                              | <0.954          | <3.82      | <0.954                                 | <3.82                |
| and AOC 26   | AOC 22-5 1.5-2.0')                                       | 4/23/2009   | 1            |            | : :            | 1                       | :                    | :                                      | : :          |                     | :                | :                                | ' '          | :              |                 | -                |                              | 1                       | :        | -             | ·  '                         | -                      | :              | -<br> -                        | <0.911                    | <0.911                | <0.911   | <0.911             | 0.911              | \$0.911<br>\$0.911 | <0.911                 | <0.911                 | \$0.911<br>\$0.04                     | <0.911                  | <0.911              | 0.911                    | 0.911   | <0.911              | <0.911              | 0.911               | <3.64                              | <0.911          | <3.64      | <0.911                                 | <3.64                |
| _  | ∀OC 22-5 (0-0.5')  | 4/23/2009   |              | 1          | 1              | :                       | 1                    | , ,                                    | 1            | ,                   | 1                | 1                                |              | 1              | 1               | ,                | 1 1                          | ,                       | ,        | 1             | ,                            | 1                      | 1              | •                              | <0.967                    | <0.967                | <0.967   | <0.967             | <0.967             | <0.967<br><0.967   | <0.967                 | 296.0>                 | <0.967                                | <0.967                  | <0.967              | <0.967                   | ×0.967<br>×0.967                              | <0.967              | <0.967              | <0.967              | <3.87                              | <0.967          | <3.87      | <0.967                                 | <3.87                |
| uct Loadin<br>w Mexico   | AOC 22-4 (1.5-2.0)                                       | 4/15/2009   | <1.0         | 0.50       | V 020          | \$0.50<br>\$0.50        | <0.50                | 0.15                                   | 1            | 4.0<br>-            | 3.6              | 0.50                             | 45           | 14             | 15              | 5.5              | 0.50                         | ¢0.50                   | 14       | <0.50         | 20.50                        | <0.50                  | <0.50          | nes                            | 1                         | 1                     |  | 1                  |                    |                    | 1                      |                        |                                       |                         |                     |                          |   |                     |                     | ,                   |                                    | ,               |            | : 1                                    |                      |
| r0<br>C 22 (Prod<br>omfield, Ne  | ∀OC 22-4 (0-0.5')  | 4/15/2009   | :            | :          | : ,            | 1                       | 1                    | :                                      | ·   '        |                     | -                | ;                                | •            | 1              | :               | :                | ·                            | '                       | :        | :             | : .                          |                        | 1              | :                              | <0.984                    | <0.984                | <0.984   | <0.984             | <0.984             | <0.984<br>0.984    | <0.984                 | <0.984                 | 40.984                                | <0.984                  | <0.984              | <0.984                   | 0.984   | <0.984              | <0.984              | <0.984              | 3.94                               | <0.984          | <3.94      | <0.984<br><0.984                       | <3.94                |
| Table 10<br>al Results Summary - AOC 22 (Product Loadii<br>Bloomfield Refinery, Bloomfield, New Mexico                             | AOC 22-3 (1.5'-2.0')                                     | 4/15/2009   | :            | -          |                |                         | 1                    |  |              |                     |                  | ;                                |              | 1              | :               |                  |                              | :                       | ÷        |               | ;                            |                        | :              | 1                              | <0.951                    | <0.951                | <0.951   | <0.951             | <0.951             | <0.951             | <0.951                 | <0.951                 | 0.951<br>0.951                        | <0.951                  | <0.951              | <0.951                   | <0.951  | <0.951              | <0.951              | <0.951              | 3.80                               | <0.951          | <3.80      | <0.951                                 | <3.80                |
| tesults Sun  | AOC 22-3 (0-0.5')  | 4/15/2009   | 1            | 1          | :   ,          |                         | :                    | 1 1                                    |              |                     |                  | :                                | •            | 1              | -               |                  | 1 1                          | 1                       |          | 1             | :  :                         |                        | 1              | -                              | <0.960                    | 096.0>                | <0.960   | <0.960             | 0960               | 096.0>             | <0.960                 | 096.0>                 | 098.0                                 | <0.960                  | <0.960              | <0.960                   | 096.0   | <0.960              | <0.960              | <0.960              | 43.84<br>84                        | <0.960          | <3.84      | 096.0                                  | <3.84                |
| nalytical R<br>Blo   | AOC 22-2 (1.5-2.0')                                      | 4/15/2009   | :            | :          | : :            |                         | :                    |  | 1            | :                   |                  | 1                                |              | -              |                 | :                | :   :                        | -                       | 1        |               | : :                          |                        | 1              | •                              | <0.952                    | <0.952                | <0.952   | <0.952             | <0.952             | <0.952             | <0.952                 | <0.952                 | <0.952<br><0.052                      | <0.952                  | <0.952              | <0.952                   | <0.952  | <0.952              | <0.952              | <0.952              | <3.81                              | <0.952          | <3.81      | <0.952                                 | <3.81                |
| Table 10<br>Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack)<br>Bloomfield Refinery, Bloomfield, New Mexico | AOC 22-2 (0-0.5')  | 4           |              | -          | : :            | ;                       | 1                    |  |              | 1                   | :                |                                  |              | :              | -               | 1                | :   :                        | :                       | 1        | 1             | : :                          | 1                      | 1              | -                              | <0.957                    | <0.957                | <0.957   | <0.957             | <0.957             | <0.957             | <0.957                 | <0.957                 | <0.95/                                | <0.957                  | <0.957              | <0.957                   | <0.957  | <0.957              | <0.957              | <0.957              | 3.83                               | <0.957          | <3.83      | <0.957<br><0.957                       | <3.83                |
| õ  | AOC 22-1 (1.5-2.0')                                      | 4/15/2009   | ;            | :          | 1   1          | :                       |                      | 1 1                                    |              | -                   | **               | :                                | :            | -              | :               | -                |                              | ;                       | :        | 1             |                              |                        | :              | •                              | <0.944                    | <0.944                | <0.944   | <0.944             | <0.944             | <0.944<br><0.944   | <0.944                 | <0.944                 | <0.944<br><0.044                      | <0.944                  | <0.944              | <0.944                   | <0.944  | <0.944              | <0.944              | <0.944              | <3.78                              | <0.944          | <3.78      | <0.944                                 | <3.78                |
|  | AOC 22-1 (0-0.5')  | 4/15/2009   | 1            | :          | : :            | :                       |                      |  | 1            | 1                   | ••               | 1                                | :            | •              | ľ               | 1                | :   :                        | 1                       | :        | 1             |                              |                        | 1              | •                              | l i                       | _ [                   | 868.0>   | I. I               | <0.898             | <0.898             | <0.898                 | 868.0>                 | ×0.898                                | <0.898                  | <0.898              | <0.898                   | <0.898  | <0.898              | 1 1                 |                     |                                    | 1 1             | <3.59      | - 1                                    | 11                   |
|  | Units  |             | Ц            |            | mg/Kg          | _                       | Ш                    |  | Т.           |                     | Ш                |                                  | ma/Ka        | Ш              | mg/Kg           | 4                | mg/Kg                        | ┦                       | Ш        | _             | mg/Kg                        | 1                      |                | mg/kg                          |                           |                       | ug/Kg-dry  |                    | _                  | ug/Kg-dry          | -                      |                        | _                                     | ug/Kg-dry               | -                   |                          | ug/Kg-dry                                     |                     |                     |                     |                                    |                 | µg/Kg-dry  |  | µg/Kg-dry            |
|  | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs) |             | 广            | -+         |                | 1.35E-03 (1)            | H                    | 9.10E-02 (3)<br>7.23E-01 (1)           | +            | 1                   | -                | +                                | 4.19E-03 (1) | $\vdash$       | 41-1            | - 101            | 1.55E+00 (1)                 | 4.49E-04 (1)            |          | -             | 1.35E-03 (1)<br>5.30F-03 (1) | +-                     | 2.88E-04 (1)   | 1./05-01                       | 1.73E+00                  | 2.98E+03              | 6.74E-01 (1)   | 6.09E+00           | 1.19E+02           | 1 1                | 3.56E-02 (1)           | 1.02E+01 (1)           | 2.40E+01 (3)                          | +                       | ┦                   | 3.65E-01 (1)             |   | +-                  | 2.70E+02 (3)        |                     | +-                                 | 6.24E+02 (1)    |            | +-                                     | : .                  |
|  | Non-<br>Residential Screening<br>Levels<br>(2-10' bgs)   |             | -            | 4.68E-04   | 9.43F-02       | 1.35E-03                | 3.38E-04             | 9.10E-02<br>7.23E-01                   | 1.46E-02     | 2.20E+02            | 9.86E-01         | 2.29E-02                         | 4.19E-03     | -              | + ;             | - 101            | 1.56=+00                     | 4.49E-04                | 1.38E+00 | 3.01E-02      | 1.35E-03<br>5.30F-03         | 9.01E-01               | 2.88E-04       | 1.70E-01                       | 1.73E+00                  | 2.98E+03              | 6.74E-01   | 6.09E+00           | 1.19E+02           | 1 1                | 3.56E-02               | 1.02E+01               | 2.40E+01                              | 1.58E-02                | $\vdash$            | 3.65E-01                 | +   | +                   | 2.70E+02            | +                   |                                    | 6.24E+02        |            | 2.80E+03                               |                      |
|  | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) |             | - !          | 4.68E-04   | 9.43E-02       | 1.35E-03                | 3.38E-04             | 9.10E-02<br>7.23E-01                   | 1.46E-02     | 2.20E+02            | 9.86E-01         | 2.29E-02                         | 4.19E-03     |                | 1               | - 101            | 1.56E+00                     | 4.49E-04                | 1.38E+00 | 3.01E-02      | 1.35E-03<br>5.30E-03         | 9.01E-01               | 2.88E-04       | 1.70E-U1                       | 1.73E+00 1.73E+00         | 2.98E+03              | 6.74E-01   | 6.09E+00           | 1.19E+02           | 1 1                | 3.56E-02               | 1.02E+01               | 2.40E+01                              | 1.58E-02                | 3.13E+02            | 3.65E-01                 | 2.00E+01                                      |                     | 2.70E+02            | 3.57E+00            | 1.27E+03                           | 6.24E+02        | - 2000     | 2.80E +U3<br>                          |                      |
|  | Analytes   | Sample Date | Chloroethane | Chloroform | Cis. 1 2.DCF   | cis-1,3-Dichloropropene | Dibromochloromethane | Dibromomethane Dishlorodiff promethane | Ethylbenzene | Hexachlorobutadiene | Isopropylbenzene | Mothyl tert-butyl ether (M I BE) | Naphthalene  | n-Butylbenzene | n-Propylbenzene | sec-Butylbenzene | Styrene<br>tert-Butylhenzene | Tetrachloroethene (PCE) | Toluene  | trans-1,2-DCE | Trichloroethene (TCE)        | Trichlorofluoromethane | Vinyl chloride | Voletile Organia Compounds (E) | 1,1,1,2-Tetrachloroethane | 1,1,1-Trichloroethane | 1,1,2,Z-1 ettactiloroettialle<br>1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,1-Dichloroethene | 1, 1-Dichioropene  | 1,2,3-Trichloropropane | 1,2,4-Trichlorobenzene | 1,2,4-1 rimethylbenzene               | 1,2-Dibromoethane (EDB) | 1,2-Dichlorobenzene | 1,2-Dichloroethane (EDC) | 1,2-Dichiolopiopane<br>1,3-5-Trimethylbenzene | 1,3-Dichlorobenzene | 1,3-Dichloropropane | 1,4-Dichlorobenzene | 2,z-bidiiotopioparie<br>2-Butanone | 2-Chlorotoluene | 2-Hexanone | 4-Chiorotoliuene<br>4-Isopropyltoluene | 4-Methyl-2-pentanone |

AOC 22-13 (18-20') (N.S-8.1) E1-SS 200/ AOC 22-13 (0-0.5') | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | AOC 22-12 (36-37.75') (32-35') AOC 22-12 (32-35') (1.6.2-3.1) ST-SS DOA (1.6-2.0") |₩ AOC 22-12 (0-0.5') DUP \$\\\ \text{\cappa}\\ \text{\ca AOC 22-12 (0-0.5') \$\\\ \text{\chi} \\ \ AOC 22-6 (1.5-2.0') 0.954 0.9554 0.95 AOC 22-6 (0-0.5') Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26 Bloomfield Refinery, Bloomfield, New Mexico AOC 22-5 1.5-2.0') (0.967 40.967
 40.967
 40.967
 40.967
 40.967
 40.967
 40.967
 40.967
 40.967 A A A 255 VOC 55-2 (0-0.5') AOC 22-4 (1.5-2.0) <0.984</li><0.984</li><0.984</li><0.984</li> <0.984</li><0.984</li><0.984</li><0.984</li>8.26 AOC 22-4 (0-0.5') 4/15/2009 4.3.80 6.951 6.95 0.951 AOC 22-3 (1.5'-2.0') AOC 22-3 (0-0.5') AOC 22-2 (1.5-2.0') AOC 22-2 (0-0.5') AOC 22-1 (1.5-2.0') 0.0898 0. AOC 22-1 (0-0.5') (1) µg/Kg-dy 9/8/89 mg/Kg Source 4.68E-01 (1 4.18E+00 (1 9.43E+01 (1 1.35E+00 (1 9.10E+01 (1 1.90E+01 (1 1.90E+ 4.49E-01 1.38E+03 3.01E+01 1.35E+00 5.30E+00 9.01E+02 2.88E-01 1.76E+02 3.57E-03 7.13E-02 7.13E-02 1.37E-01 9.12E-01 5.25E-02 1.56E-03 2.67E-02 1.35E+01 1.53E-01 9.00E-01 2.00E+00 3.30E-02 Non-Residential Screening Levels (>10' bgs) 02 +03 1.02E-02 3.13E-01 1.70E-0 1.56E+ 3.84E+ 1.85E+ 1.50E+ 2.30E+ 1.94E+ 7.39E+ 5.38E+ Trichloroetherie (1 CL)

Trichloroetherie (1 TCE+02)

Trichloroetherie (1 TCE+03)

Trichloroetherie ( 
 4.49E-01
 4.49E-01

 1.38E+03
 1.38E+03

 3.01E+01
 3.01E+01

 1.35E+00
 1.35E+00

 5.30E+00
 5.30E+00

 9.01E+02
 9.01E+02

 2.88E-01
 2.88E-01

 1.76E+02
 1.76E+02
 Non-Residential Screening Levels (2-10' bgs) 4.68E-01 4.18E+00 9.43E+01 1.35E+00 3.38E-01 9.10E+01 7.23E+02 1.46E+01 2.20E+05 9.86E+02 2.29E+01 1.07E+01 4.19E+00 1560 4.68E-01 4.18E+00 9.43E+01 1.35E+00 3.38E-01 9.10E+01 7.23E+02 1.46E+01 2.20E+03 9.86E+02 2.29E+01 1.07E+01 4.19E+00 Non-Residential Screening Levels (0-2' bgs) 1560 Chlorotorm
Chloromethane
cis-1,2-DCE
cis-1,3-Dichloropropene
Dibromonethane
Dibromonethane
Dichlorodifluoromethane
Ethylbenzene
Hexachlorobutadiene
Isopropylbenzene
Metryl tert-butyl ether (MTBE)
Metrylene chloride Styrene tert-Butylbenzene Tetrachloroethene (PCE) Sample Date
Acetone
Benzene
Bromobenzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chlorobenzene Analytes

Table 10

1300 1300 500 AOC 22-13 (18-20') **8600** 1900 540 (1.5-2.0') PAC 22-0') **4400** 180 1000 ('8.0-0) E1-SS OOA 8 5 8 8 8 AOC 22-12 (36-37.75') \$50.05 AOC 22-12 (32-35') 74 <5.0 AOC 22-12 (1.5-2.0') 87 67 63 4UG ('6.0-0) SY-SS DOA 56 <5.0 62 AOC 22-12 (0-0.5') \$\\\ \text{0.20}{\quad \quad \qquad \quad \quad \quad \quad \qq \quad \q 45.0 64 4OC 22-6 (1.5-2.0') 130 Z Z Z Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico 73 <5.0 320 AOC 22-5 1.5-2.0') 270 270 **VOC 55-2 (0-0.5')** 7700 2200 AOC 22-4 (1.5-2.0) \$5.0 \$50 <0.50 VOC 55-4 (0-0.5') 음양왕 AOC 22-3 (1.5'-2.0') 450 450 450 VOC 55-3 (0-0.5') 130 140 140 4OC 22-2 (1.5-2.0') \$ 50 05 **VOC 55-5 (0-0.5')** 4/15/200 6/20 6/ 23 45.0 86 \$50.50 \$6 AOC 22-1 (1.5-2.0') 25.0 75.0 AOC 22-1 (0-0.5') mg/Kg mg/Kg mg/gm 996 Source 1.09E+01 3.30E+01 4.20E+00 2.30E-02 2.53E-03 1.19E+01 6.70E+00 1.55E+02 2.50E+01 1.90E-02 6.13E-01 1.93E-02 3.70E+00 1.85E-01 4.19E-03 6.86E-03 1.10E-04 1.29E+00 2.94E-02 8.34E+01 6.30E+00 9.70E-03 3.40E-02 3.37E+02 3.37E+02 5.10E-03 3.20E-01 1.09E-01 1.11E+00 1.06E+01 8.36E+01 8.63E+00 Non-Residential Screening 19 ဗ 힏힏 1120 1120 5000 gs) |8| Levels (>10' bgs) 1.90E-( 1.20E-( 1.00E-( Non-Residential Screening Levels (2-10' bgs) 
 Total Petroleum Hydrocarbons - (EPA Method 8015B) mg/kg

 Diesel Range Organics (DRO)
 1120
 1120

 Gasoline Range Organics (GRO)
 1120
 1120

 Motor Oil Range Organics (MRO)
 5000
 5000
 1.55E+02 2.50E+01 2.21E-03 1.90E-02 6.13E-01 1.93E-02 3.70E+00 1.85E-01 4.19E-03 6.86E-03 1.10E-04 1.29E-100 2.94E-02 8.34E+01 6.30E+00 1.12E+02 9.70E-03 1.06E+01 8.36E+01 8.63E+00 3.40E-02 3.37E+02 5.10E-03 3.20E-01 1.09E-01 1.09E+01 3.30E+01 4.20E+00 2.30E-02 2.30E-02 2.56E-03 1.19E+01 6.70E+00 2.05E+01 1.20E-03 1.00E-02 1.90E-01 1.55E+02 2.50E+01 2.21E-03 1.90E-02 6.13E-01 1.93E-02 3.70E+00 4.19E-03 1.10E-04 1.29E+00 2.94E-02 8.34E+01 6.30E+00 1.12E+02 9.70E-03 1.09E+01 3.30E+01 4.20E+00 2.30E-02 2.33E-05 2.56E-03 1.19E+01 6.70E+00 1.06E+01 8.36E+01 8.63E+00 3.26E+01 3.62E-01 3.40E-02 3.37E+02 5.10E-03 3.20E-01 1.09E-01 1.11E+00 Non-Residential Screening Levels (0-2' bgs) 1.00E-02 1.90E-01 2.05E+01 1.20E-03 Sample Date
3+4.Methylphenol
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Bromophenyl phenyl ether
4-Chloroaniline
4-Chloroaniline
4-Chloroaniline
4-Chloroaniline
4-Chloroaniline
4-Chloroaniline
4-Nitrophenol
Acenaphthylene
Acenaphthylene
Acenaphthylene
Aniline
Anthracene
Benz(a)anthracene
Benz(a)anthracene
Benz(a)prene
Benz(a)prene
Benz(a)prene
Benz(a)prene
Benzolopylene
Benzolopylether
Bis(2-chloroethyl)ether
Bis(2-chloroethyl)ether
Bis(2-chloroethyl)ether
Bis(2-chloroethyl)phthalate
Carbazole
Carbazole
Carbazole
Cinysene
Dibenz(a,h)anthracene
Dibenz(a,h)anthralate
Dibenz(a,h)anthralate Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)pyrene
Isophorone
Naphthalene
Nitrobenzene
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
Pentachlorophenol Analytes

Table 10 Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26 Bloomfield Refinery, Bloomfield, New Mexico

| Non-      |   |   |                                    |                              |       |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
|--|---|---|------------------------------------|------------------------------|-------|-----------|-----------|----------|------------|-------------|-------------|-------------|----------|-----------|----------|-----------|-----------|---|---|-------------|----|----------|---|
| Units  |   |   |                                    | Non-<br>sidential<br>reening |       | (.6.0-0)  | (1.5-2.1) | (.5.0-0) | (1.5-2.0') |             |             | <del></del> | (.5.0-0) | 1.5-2.0') | (.5.0-0) | (1.5-2.1) | (0-0-0)   |   |   |             |    |          |   |
| 415/2009 4115/20 | Analytes  |   |                                    |                              |       | ¥OC 55-1  | VOC 25-1  | VOC 55-5 | VOC 22-2   | <del></del> |             |             | VOC 55-2 | ∀OC 55-2  | VOC 55-6 | VOC 55-6  | VOC 55-13 |   |   | <del></del> |    |          |   |
|  | Sample Date   |   |                                    |                              |       | 4/15/2009 | 4/15/2009 |          |            |             | 2009 4/15/2 | -           | 10       | -         | _        |           | _         | _ | - | -           | ₩. | ┼        | ⊢ |
|  | Ethanol   | 1   |                                    | 1                            | mg/Kg |           | :         | ;        | :          |             |             |             |          |           |          |           | ,         |   |   | 1           |    | <u>'</u> |   |
| WRED. Techrical Background Document for Development of Soil Screening  - Weyes.   Pewide State   Pewelopment of Soil Screening  - Weyes.   Pewelopment of Soil Screening  - Weyes   Pewelopment of Soil Screening  - Will and the Committee   Pewelopment of Soil Screening  - Will a Soil Soil Soil Soil Soil Soil Soil Soil  | -* Laboratory inadvertently did no -* No screening level or analytical                                  | not analyze for Cyanide I result available        | for AOC (22-12                     | 2 (36-37.78                  | 5)    |           |           |          |            | Į:          |             |             |          |           |          |           |           |   |   |             |    |          |   |
| FPA - Regional Screening Levels (April 2009)  1) NMED DAF=1 SoilGW (All depths)  2) NMED Constitute (A.10), NMED Soil Constitute (A.10), A.10)  3) An exploration of the July 7, 2007 NMED Order because the constitute is listed as a marcinogenic & Exploration (A.10), A.10)  3) An exploration of the July 7, 2007 NMED Order because the constitute is listed as a marcinogenic & Exploration (A.10), A.10)  3) An exploration of the July 7, 2007 NMED Order because the constitute is listed as a marcinogenic & Exploration (A.10), A.10)  4) Exploration of the July 7, 2007 NMED Order because the constitute is listed in industrial exposure is direct contact.  5) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure is direct contact.  6) All Constitute (A.10) An exploration of the A.10) An exploration of the A.10 | NMED - Technical Background D   | Socument for Developm                             |                                    | ening                        |       |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
| 1) NMED DAF=1 SoilGW (All depths) 2) NMED ConstWork (0-10'), NMED Soil-to-ground water DAF=1 (>10') 3) EPA Profection of Ground Water Risk-based SSL (All depths) 4) EPA - Regional Screening Levels (April 2009 must pile do 10 pursuant to a constituent is itsed a constituent is itsed and of the July 7, 2007 NMED Const bound to the July 7, 2007 NMED Construction of Ground Water Risk-based SSL (All depths) 5) NMED ConstVork Soil (0-10') 6) NMED ConstVork Soil (0-10') 7) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure is direct contact. 8) NMED Coct. 2006 TPH Screening Guidelines - waste oil for industrial exposure in direct contact.   | FPA - Regional Screening Levels   | s (April 2009)                                    |                                    |                              |       |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
| 2) NMED ConstWork (0-10), NMED Soil-to-ground water DAF=1 (>10) 3) EPA Protection of Ground Water Risk-based SSL (All depths) 4) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to a revisit of the July 2, 2007 NMED Order because the constituent is listed as carcinous on 10-6 risk-based SSL. 5) NMED ConstWork Soil (0-10) 6) NMED ConstWork Soil (0-10) 6) NMED Oct. 2006 TPH Screening Guidelines - diesel fuel for industrial exposure ia direct contact 7) And Exposure as a for industrial exposure in the contact of the contact and the contact of the contact and the co | 1) NMED DAF=1 SoilGW (All de  | tpths)  |                                    |                              |       |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
| 4) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed Provision VII.B. of the July 7, 2007 PMED Order because the constituent is listed Provision VII.B. of the July 7, 2007 PMED Order because the constituent is listed Provision VII.B. of the July 7, 2007 PMED Order because the constituent is listed Provision VII.B. of the July 7, 2007 PMED Order Contact Provision VII.B. of the July 7, 2007 PMED Order Contact Provision VII.B. of the July 7, 2007 PMED Order Contact Provision VII.B. of the July 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,  | 2) NMED ConstWork (0-10'), NN 3) EPA Protection of Ground Wa  | MED Soil-to-ground wat afer Risk-based SSL (A     | er DAF=1 (>10<br>Il depths)        | );                           |       |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
| ss carcinogenic & EPA screening level based on 10-6 risk-based SSL  5) NMED ConsWork Soil (0-10')  6) NMED Oct. 2006 TPH Screening Guidelines - diesel fuel for industrial exposure  7) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure  7) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure  7) addirect contact   | 4) EPA - Regional Screening Leveroision VII.B. of the July 7, 200                                       | evels (April 2009) multip<br>17 NMED Order becaus | lied by 10 purs<br>e the constitue | suant to<br>ant is listed    | _     |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
| b) NMED Oct. 2006 TPH Screening Guidelines - diesel fuel for industrial exposure is direct contact 7) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure is direct contact  | is carcinogenic & EPA screening   | g level based on 10-6 riv                         | sk-based SSL                       |                              |       |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
| 7) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure<br>ia direct contact  | <ol> <li>NMED ConsWork Soil (0-10')</li> <li>NMED Oct. 2006 TPH Screen<br/>ia direct contact</li> </ol> | ı<br>ning Guidelines - diesel                     | fuel for industri                  | rial exposuı                 | ē     |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |
|  | 7) NMED Oct. 2006 TPH Screen ia direct contact  | ning Guidelines - waste                           | oil for industria                  | al exposure                  | av.   |           |           |          |            |             |             |             |          |           |          |           |           |   |   |             |    |          |   |

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

|  |                                |  |   |                      |                     |                            |             |          | -        | -         |          |                               |          |              |                     | -        | -                      | -           | -                   | -               |   |                          |                                  |
|--|--------------------------------|--|---|----------------------|---------------------|----------------------------|-------------|----------|----------|-----------|----------|-------------------------------|----------|--------------|---------------------|----------|------------------------|-------------|---------------------|-----------------|---|--------------------------|----------------------------------|
| 1,11,11.   1,11.   1,11.   1,11.   1,11.   1,11.   1,11.   1,11.   1,11.   1,1.      | Analytes<br>Sample Date        | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(2-10' bgs) |                      |                     |                            | 1/5         | /4       | /4       | 4         | .4       | 10-0.5°)<br>AOC 26-1 (0-0.5°) | A20/2009 | 14           | AOC 26-2 (1.5-2.0') | 4        | O/2006 26-3 (1.5-2.0') | 2009 4/20/2 | AOC 26-4 (1.5-2.0') |                 | 4   | 4/20/2009<br>4/20/2009   | 4/20/2009<br>AOC 26-6 (1.5-2.0°) |
| 19   19   19   19   19   19   19   19  | Wetals (mg/kg)                 | 6 645 04   | 6 645 04  | 6 61E 04             | ΙL                  | ! L                        | ΙL          | Ш        | ╎├       | l  -      | 11       | 1 1                           | 5        |              | 1 27                | 1 1      | 7                      | 0           | 1                   | ( )             | Ιi  | 277                      |                                  |
|  | Arsenic                        | 1.31E-02   | 1.31E-02  | 1.31E-02             |                     | <2.5                       | +-          | +        | +-       | +         | +-       | +                             | × 13     | 43           | <12                 | +        | ╁                      | +           | +                   | < 12<br>< 12    | × 13  | <12                      | < 12<br>< 12                     |
|  | Sarium                         | 3.01E+02   | 3.01E+02  | 3.01E+02             |                     | 130                        |             | Н        | Н        | -         | +        | ╁                             | 200      | 190          | 210                 | ╁╌       | -                      | -           | +-                  | ╀               | 170   | 200                      | 180                              |
|  | Seryllium                      | 5.77E+01   | 5.77E+01  | 5.77E+01             | Ц.                  | <0.15                      | $\mid \mid$ |          | $\vdash$ | H         | H        | Н                             | <0.75    | <0.75        | <0.75               | $\vdash$ | $\vdash$               | ⊢┼          | Н                   | Н               | <0.75   | <0.75                    | <0.75                            |
|  | Sadmium                        | 1.3/E+00   | 1.37E+00  | 1.3/E+00             |                     | <0.10<br>8.5               | +           | ┿        |          | +         | +        | +                             | <0.50    | <0.50<br>7.6 | <0.50               | +        | +                      | +           | +                   | +               | <0.50<br>8.4  | <0.50                    | <0.50                            |
| No. 10   N   | Sobalt                         | 4.90E-01   | 4.90E-01  | 4.90E-01             |                     | 2                          |             | +-       | +        | ╀         | ╀        | ╁                             | 6.5      | 6.7          | 9                   | +        | +                      | ┿           | ╁                   | +               | 2.8   | 5.7                      | 5.8                              |
| 1  | yanide                         | 7.44E+00   | 7.44E+00  | 7.44E+00             | 1                   | <0.5                       |             | ╀        | ╀        | ┼-        | $\vdash$ | +                             | ¢0.1     | ¢0.1         | \$0.1               | ╁        | +                      | ╀           | ╁                   | ╀               | <0.5  | <0.5                     | <0.5                             |
| 1,50,50,50,10   1,50,50,50   1,50,50,50,50   1,50,50,50,50   1,50,50,50,50   1,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1,50,50,50   1   | ead                            | 8.00E+02   | 8.00E+02  | 1                    | ш                   | 6.2                        |             | Н        | ┨        | Н         | H        | ╁┤                            | 9        | $\vdash$     | Н                   | Н        | H                      | H           | Н                   | $\vdash$        | 5.3   | 10                       | 5.4                              |
|  | Aercury                        | 2.93E-02   | 2.93E-02  | 2.93E-02             |                     | <0.033                     | $\dagger$   | -+       | +        | $\dashv$  | $\dashv$ | +                             | <0.033   | +            | +                   | +        | +                      | -           | +                   | -+              | <0.032  | <0.033                   | <0.032                           |
|  | lickel<br>Selenium             | 9.7/E+01   | 4.77E+01  | 4.7/E+U1<br>0.65E-01 |                     | 2.2                        | $\dagger$   | +        | +        | +         | +        | +                             | 8.8      | +            | +                   | +        | +                      | +           | +                   | +               | 1.7   | 5,                       | 6.7                              |
|  | ilver                          | 1.57E+00   | 1.57E+00  | 1.57E+00             |                     | <0.25                      | +           | +-       | +        | +         | +-       | +                             | 43       | +            | +                   | +        | +                      | +           | +                   | +               | √<br>2 \<br>3 \<br>3 \<br>3 \<br>3 \<br>3 \<br>4 \<br>3 \<br>5 | 412                      | <12                              |
| Figure 11   marks   1.05   marks   1.05   mark   1.05   marks      | anadium                        | 1.83E+02   | 1.83E+02  | 1.83E+02             | 1_                  | 9.8                        | Н           | +        | Н        | $\vdash$  | $\vdash$ | +                             | 23       | +            | +                   | +        | +                      | +           | ╁                   | ╀               | 21  | 19                       | 23                               |
| 1,50,50,10   1,0 mg/sq   | inc                            | 6.82E+02   | 6.82E+02  | 6.82E+02             | Ш                   | 14                         | Н           | Н        | Н        | Н         | Н        | Н                             | 41       | $\vdash$     | Н                   | Н        | Н                      | H           | Н                   | Н               | 33  | 83                       | 36                               |
| 256E-501 (1) markly of closed sign of close                        | Volatile Organic Compounds - ( | EPA Method 82  | 60B) mg/kg  | 4 705 00             | L                   | 02007                      | 0 3/        |          |          | -         |          |                               |          |              | -                   | $\vdash$ | ╌                      | ⊢           | -                   | ╌               |   | 0.00                     | 0.00                             |
| 2.556-64 (1)         mm/54         original size (1)         original s  | 1.1.z-1etrachiorethane         | 1.73E-03   | 7.73E-U3  | 1.73E-U3             |                     | <0.050<br><0.050<br><0.050 | <5.0        |          | +        |           | ·  ·     | -                             |          | ' '          | +                   | +        |                        | +           | +                   | +               | ;   | <0.050<br><0.050         | <0.050                           |
| 1.05      | 1,2,2-Tetrachloroethane        | 2.25E-04   | 2.25E-04  | 2.25E-04             | 1                   | <0.050                     | <5.0        |          |          |           | 1        | -                             | ,        | 1            | t                   | ┼        | ┼                      | +           | ╀                   | ╀               | 1   | <0.050                   | <0.050                           |
| 198E-83   10   mg/sg   43 0   64 0    | 1,2-Trichloroethane            | 6.74E-04   | 6.74E-04  | 6.74E-04             | 1. 1                | <0.050                     | <5.0        | 1        | '        |           | 1        | -                             | ,        |              |                     | $\vdash$ | $\vdash$               | ╁┼┤         | ┦                   | $\vdash$        | !   | <0.050                   | <0.050                           |
| 1967    1988    1989    2010   | 1-Dichloroethane               | 6.09E-03   | 6.09E-03  | 6.09E-03             |                     | <0.10                      | 410         | :        | <u>'</u> | <u>' </u> | •        | -                             | ,        | -            | +                   |          | -                      | +           | $\dashv$            | +               | :   | <0.10                    | <0.10                            |
| 1.56      | 1-Ulchloropropage              | 1.19E-01   | 1.19E-01  | 1.19E-01             | . 1                 | <0.050<br>40.050           | \$5.0       |          | ·  '     |           | 1        | 1                             |          | •            | +                   | +        | +                      | +           | +                   |                 | •   | <0.050                   | <0.050                           |
| 1.10.1.1.   1.10.1.   1.   | 2,3-Trichlorobenzene           |  |   |                      | ma/Ka               | <0.10                      | 49          | <u> </u> |          |           | 1        |                               | ,        | 1            | T                   | +-       | ╁                      | +           | +                   | -               | ,   | 0 0                      | \$0.10                           |
| 1000-01-01-01-01-01-01-01-01-01-01-01-01   | 2,3-Trichloropropane           | 3.56E-05   | 3.56E-05  | _                    | Ш                   | <0.10                      | <10         |          |          |           |          |                               |          |              |                     | Н        | $\vdash$               | ┦           | $\sqcup$            | $\vdash \vdash$ |   | <0.10                    | <0.10                            |
| 1,000,000   1,000,000   1,000,000   1,000,000   1,00   | 2,4-Trichlorobenzene           | 1.02E-02   | 1.02E-02  | -                    |                     | <0.050                     | <5.0        | •        |          | <u>: </u> | 1 0      | -                             |          | '            | _                   | -        | +                      | +           | +                   | +               | 1   | <0.050                   | <0.050                           |
| 1.58E-674 315E-674 (1) mg/kg 4 0.0569  | 2-Dibromo-3-chloropropane      | 2.97E-06   | 2.40E-02<br>2.97E-06                                      | _                    | _                   | <0.10                      | 410<br>410  |          | 1        |           | 1.05     | -                             |          | • •          | †                   |          | +-                     | +-          | -+-                 |                 | : :   | \$ 0.000<br>\$ 10        | \$0.050<br>\$0.10                |
| 318E-01   318E   | 2-Dibromoethane (EDB)          | 1.58E-05   | 1.58E-05  | 1-1                  | $oldsymbol{\sqcup}$ | <0.050                     | <5.0        |          |          |           | :        | 1                             | ,        |              | П                   | ╁┼       | $\vdash$               | ╂           | ┦┤                  | $\vdash$        |   | <0.050                   | <0.050                           |
| 110    | 2-Dichlorobenzene              | 3.13E-01   | 3.13E-01  | $\overline{}$        | _                   | <0.050                     | 5.0         | +        |          | +         | •        | :                             | -        | +            | $\dagger$           | +        | -                      | +           |                     | +               | 4   | <0.050                   | <0.050                           |
| 2.00E-02  | 2-Dichloropropane              | 3.00E-04   | 3.55E-04<br>1 11E-03                                      |                      |                     | <0.050                     | <5.0        |          | +        |           | -        | -                             |          | :   :        | -                   | +        | +                      | +           | ┵                   | +               | _   | 40.050<br>0.050<br>0.050 | <0.050                           |
| 2.776-21    | 3,5-Trimethylbenzene           | 2.00E-02   | 2.00E-02  | _                    |                     | 4.4                        | 140         | 1        |          |           | 0.26     |                               | ,        |              | $\vdash$            | +        | +                      | +           | ╀                   | +               | L   | <0.050                   | <0.050                           |
| 1,270-10    | 3-Dichlorobenzene              |  | 1   | _                    | Ш                   | <0.050                     | <5.0        |          |          | -         | :        | -                             | J        | :            | H                   |          | ⊢                      | $\vdash$    | $\vdash$            | Н               |   | <0.050                   | <0.050                           |
| 1.50E-01    | 3-Dichlorobenzene              | 3 57E 03   | 2.70E-01  | $\neg$               |                     | <0.050                     | 0.00        |          | +        |           | •        |                               |          | •            | +                   | -        | +                      | +           | -                   | +               | 1   | <0.050                   | <0.050                           |
| The control of the    | Methylnaphthalene              | 1.50E-01   | 1.50E-01  | _                    | _                   | 1.9                        | 45          | -        |          | -         |          |                               |          | •            |                     | +        | +                      | +-          | +                   | +-              | $\perp$   | <0.030                   | <0.20                            |
| 12FF+00   12FF   | 2-Dichloropropane              |  |   | $\vdash$             | <b></b>             | <0.10                      | <10         |          |          |           | '        | 1                             | ,        |              |                     | -        | ╌┤                     | $\vdash$    | Н                   | Н               |   | <0.10                    | <0.10                            |
| Control of Control o   | Butanone (MEK)                 | 1.27E+00   | 1.27E+00  | 27E+00               | _                   | <0.50                      | \$50        | -        | +        | +         | :        | -                             | ;        | +            | +                   | -        | -+                     | $\dashv$    |                     | -+              |   | <0.50                    | <0.50                            |
| 10   10   10   10   10   10   10   10  | Jevanope<br>Jevanope           | 0.24E-UI   | 6.24E-U1  | 24E-UI               |                     | <0.050                     | <5.U        | 1        | +        | +         | 1        |                               | •        | :            | $\dagger$           | +        | +                      | +-          |                     | +               | $\downarrow$  | 00.020<br>50             | <0.050                           |
| Control   Cont   | Vethylnanhthalene              | 9 00E-01   | 9 00E-01  | -                    | _                   | 34.30                      | 12          | -        | +        | +         |          |                               |          |              | $\dagger$           | +        | ╁                      | ╁           | +                   | +               | _   | 8 8                      | 00.00                            |
| Column   C   | Chlorotoluene                  | 2.80E+00   | 2.80E+00  | ╅╌                   |                     | <0.050                     | <5.0        | <u> </u> | -        | -         |          | [:                            |          |              |                     | +        | ╀                      | ╁           | +                   | +               | _   | <0.50                    | <0.050                           |
| 1.85E-04         3.84E+00         3.84E+00         4.050   | sopropyltoluene                |  |   | +—                   |                     | 0.46                       | 9           |          |          | -         |          |                               |          |              | $\dagger$           | +-       | +-                     | ╀           | ╀                   | ╀               |   | <0.050                   | <0.050                           |
| 3.84E+00         4.05G         6.05G         6.05G </td <td>Methyl-2-pentanone</td> <td>-</td> <td>,</td> <td>1</td> <td>mg/Kg</td> <td>&lt;0.50</td> <td>&lt;50</td> <td> </td> <td>_</td> <td></td> <td>,</td> <td>-</td> <td></td> <td> </td> <td>-</td> <td>-</td> <td></td> <td>├-</td> <td>├-</td> <td>├-</td> <td>ŀ</td> <td>&lt;0.50</td> <td>&lt;0.50</td>   | Methyl-2-pentanone             | -  | ,   | 1                    | mg/Kg               | <0.50                      | <50         |          | _        |           | ,        | -                             |          |              | -                   | -        |                        | ├-          | ├-                  | ├-              | ŀ   | <0.50                    | <0.50                            |
| 1.85E-03         4.050 <td>setone</td> <td>3.84E+00</td> <td>3.84E+00</td> <td><math>\vdash</math></td> <td></td> <td>&lt;0.75</td> <td>&lt;75</td> <td>-</td> <td></td> <td></td> <td>•</td> <td>:</td> <td>-</td> <td>1</td> <td></td> <td>-</td> <td><math>\dashv</math></td> <td>Н</td> <td>-</td> <td>Щ</td> <td></td> <td>&lt;0.75</td> <td>&lt;0.75</td>   | setone                         | 3.84E+00   | 3.84E+00  | $\vdash$             |                     | <0.75                      | <75         | -        |          |           | •        | :                             | -        | 1            |                     | -        | $\dashv$               | Н           | -                   | Щ               |   | <0.75                    | <0.75                            |
| 1.50E-02    | enzene                         | 1.85E-03   | 1.85E-03  | $\rightarrow$        | _                   | 990.0                      | 7.7         |          | 1        | 1         | •        | 1                             | -        | -            | _                   | $\dashv$ | $\dashv$               | +           |                     |                 | 1   | <0.050                   | <0.050                           |
| Langle Size 1.0         2.70E-04         2.70E-05         40.050  | omobenzene                     | 1.50E-02   | 1.50E-02  | $\rightarrow$        | $\perp$             | <0.050                     | \$50        | +        | +        | 1         | -        | -                             | •        | :            | $\dagger$           | +        | +                      | +           | +                   | +               | :   | <0.050                   | <0.050                           |
| 2.52E-01  | omoform                        | 2.70E-04   | 2.70E-04  |                      | _                   | ×0.050                     | <5.0        |          |          | +         | +        | ,                             | •        | -            | $\dagger$           | +        | +                      | +           | +                   | +               | •   | 00.050                   | 00.050                           |
| 2.52E-01  | omomethane                     | 1 94F-03   | 2.30E-02<br>1 94E-03                                      |                      |                     | <0.030                     | 410         |          |          | +         | !   !    |                               | <u> </u> | : :          | $\dagger$           | +        | +                      | +           | +                   | +               | : :   | ×0.030                   | V0.030                           |
| 7.39E-04 7.39E-04 7.39E-04 7.39E-04 7.39E-02 7.3 | rbon disulfide                 | 2.52E-01   | 2.52E-01  | +-                   | 1                   | <0.50                      | \$ 200      |          | <u> </u> | -         | -        |                               |          |              | $\dagger$           | +-       | ╀                      | ╀           | +                   | ╀               | ļ :   | <0.50                    | <0.50                            |
| 5.38E-02 5.38E-02 (1) mg/Kg <0.050 <5.0 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 - 0.050 - <0.050   | rbon tetrachloride             | 7.39E-04   | 7.39E-04  | +                    | ┸                   | <0.10                      | <10         |          |          | -         | -        | ı                             | ,        |              | $\vdash$            | ╁        | ⊢                      | -           | ╁                   | ╀               | 1   | <0.10                    | <0.10                            |
|  | lorobenzene                    | 5.38E-02   | 5.38E-02  | -                    | _                   | <0.050                     | <5.0        |          | 1        | 1         |          | -                             | ,        | :            | -                   |          | $\vdash$               | Н           | $\vdash$            | ┝               |   | <0.050                   | <0.050                           |

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

|   | AOC 26-6 (1.5-2.0')                                      | 4/20/2009   | <0.10  | <0.050<br><0.050              | 050                  | <0.050       | <0.050               | <0.10          | <0.050                     | <0.10               | <0.050           | <0.15              | <0.10        | <0.050<br><0.050<br><0.050 | <0.050                                  | <0.050       | <0.050               | <0.030<br><0.030<br><0.050 | <0.050       | <0.050                    | <0.050<br><0.050                             | <0.050         | <0.10          | 40 001                           | <0.991                     | <0.991      | 0.99  | <0.991   | 40.991    | \$0.98<br>\$0.991  | <0.991                 | 40.991                 | \$0.99<br>\$0.994                        | <0.991              | <0.991                   | <0.991  | <0.991              | 0 991               | <0.991              | <3.97        | <0.991          | <0.991                         | <0.991             | <3.97                |
|---|--|-------------|--|-------------------------------|----------------------|--------------|----------------------|----------------|----------------------------|---------------------|------------------|--------------------|--------------|----------------------------|---|--------------|----------------------|----------------------------|--------------|---------------------------|--|----------------|----------------|----------------------------------|----------------------------|-------------|---|----------|-----------|--|------------------------|------------------------|--|---------------------|--------------------------|---|---------------------|---------------------|---------------------|--------------|-----------------|--------------------------------|--------------------|----------------------|
|   | AOC 26-6 (0-0.5')  | 4           | <0.10  | <0.050<br><0.050<br><0.050    | <0.030               | <0.050       | <0.050               | <0.10          | <0.050                     | <0.10               | <0.050           | <0.15              | <0.10        | <0.050<br><0.050<br><0.050 | <0.050                                  | <0.050       | <0.050               | <0.050                     | <0.050       | <0.050                    | <0.050                                       | <0.050         | <0.10          | 008 07                           | <0.899                     | <0.899      | ×0.899  | <0.899   | <0.899    | 40.839<br>40.899   | <0.899                 | ¢0.899                 | \$0.09<br>\$0.899                        | <0.899              | <0.899                   | <0.899  | <0.899              | 0.899               | <0.899              | <3.60        | <0.899          | <0.899<br><0.899               | <0.899             | <3.60                |
|   | AOC 26-5 (1.5-2.0')                                      | 4/20/2009   | 1  | :   1                         |                      | :            | :                    | 1              | :  :                       | <br> -<br>          | 0.22             |                    | 1            | .   .                      |   | :            | ;                    | . .                        |              | :                         | 1   1  | 1              | :              | 14.04                            | <1.01                      | <1.01       | 10.15<br>10.15  | <1.01    | ×1.01     | 4.01   | <1.01                  | 41.01                  | 10.10                                    | <1.01               | ×1.01                    | ×1.01<br>×1.01                                | <1.01               | V 2 03              | <1.01               | <4.05        | <1.01           | <4.05<br><1.01                 | <1.01              | <4.05                |
|   | AOC 26-5 (0-0.5')  | 4/20/2009   | <0.10<br>0.10  | V 050                         | 00.000               | <0.050       | <0.050               | <0.10          | <0.050                     | <0.10               | <0.050           | <0.15              | <0.10        | <0.050                     | <0.050                                  | <0.050       | <0.050               | <0.050                     | <0.050       | <0.050                    | <0.050<br><0.050                             | <0.050         | <0.10          | 80 77                            | ×1.08                      | ×1.08       | 21.08   | <1.08    | ×1.08     | 80.12  | <1.08                  | <1.08                  | 80.10                                    | <1.08               | <1.08                    | × V   | <1.08               | 7.08                | ×1.08               | <4.33        | ×1.08           | <4.33<br><1.08                 | <1.08              | <4.33                |
|   | AOC 26-4 (1.5-2.0')                                      | 4/20/2009   | <0.10  | <0.050                        | 00.00                | <0.050       | <0.050               | <0.10          | <0.050                     | <0.10               | <0.050           | <0.15              | <0.10        | <0.050                     | <0.050                                  | <0.050       | <0.050               | <0.050                     | <0.050       | <0.050                    | <0.050                                       | <0.050         | <0.10          | 74.02                            | <1.02                      | <1.02       | ×1.02   | <1.02    | <1.02     | ×1.02  | <1.02                  | <1.02                  | ×1.02<br>×1.02                           | <1.02               | <1.02                    | ×1.02<br>×1.02                                | <1.02               | 41.02               | <1.02               | <4.06        | <1.02           | <4.00<br><1.02                 | <1.02              | <4.06                |
|   | AOC 26-4 (0-0.5')  | 41          | - 1  |                               | - 1                  | <0.050       |                      | 1 1            | - 1                        | 1 1                 | <0.050           |                    | <0.10        | <0.050                     | <0.050                                  | <0.050       | <0.050               | <0.050                     | <0.050       | <0.050                    | <0.050                                       | <0.050         | <0.10          | /0.047                           | <0.917                     | <0.917      | <0.917  | <0.917   | <0.917    | <0.917   | <0.917                 | <0.917                 | <0.917                                   | <0.917              | <0.917                   | <0.917  | <0.917              | <0.917              | <0.917              | <3.67        | <0.917          | <0.917                         | <0.917             | <3.67                |
|   | 4UG (1.5-2.0') DUP                                       | 4/20/2009   | \$ 0.10<br>\$ 55<br>\$ 55<br>\$ 55<br>\$ 55<br>\$ 55<br>\$ 55<br>\$ 55<br>\$ 5 | \$0.050<br>\$0.050<br>\$0.050 | 0.020                | <0.050       | <0.050               | <0.10          | <0.050<br><0.050<br><0.050 | <0.10               | <0.050           | <0.15              | <0.10        | 020 020                    | <0.050                                  | <0.050       | \$ 0.050<br>\$ 0.050 | VO.030                     | <0.050       | <0.050                    | <0.050                                       | <0.050         | <0.10          | C90 0/                           | <0.962                     | <0.962      | <0.962  | <0.962   | <0.962    | <0.962   | <0.962                 | <0.962                 | <0.962<br><0.962                         | <0.962              | <0.962                   | <0.962  | <0.962              | <0.962              | <0.962              | <3.85        | <0.962          | <0.962                         | <0.962             | <3.85                |
|   |  | 4           | \$0.10<br>\$0.50<br>\$0.50   | 0.050                         | V0.050               | <0.050       | <0.050               | <0.10          | <0.050<br><0.050<br><0.050 | <0.10               | <0.050           | <0.15              | <0.10        | <0.050<br><0.050<br><0.050 | <0.050                                  | <0.050       | <0.050<br>0.050      | <0.050<br><0.050<br><0.050 | <0.050       | <0.050                    | <0.050                                       | <0.050         | <0.10          | 7                                | 4.01                       | ×1.01       | 21.01   | <1.01    | 7.01      | -101<br>-101<br>-101   | <1.01                  | ×1.01                  | 2 0                                      | <1.01               | <1.01                    | 10.12   | <1.01               | 2 2                 | 2 5                 | <4.05        | 41.01           | <4.05<br><1.01                 | <1.01              | <4.05                |
|   | AOC 26-3 (0-0.5')  | 4/20/2009   | <0.10  | <0.050                        | 00.05                | <0.050       | <0.050               | <0.10          | <0.050<br><0.050<br><0.050 | <0.10               | <0.050           | <0.15              | <0.10        | <0.050                     | <0.050                                  | <0.050       | <0.050               | <0.050                     | <0.050       | <0.050                    | <0.050<br><0.050                             | <0.050         | <0.10          | 70.052                           | <0.952                     | <0.952      | <0.952  | <0.952   | <0.952    | <0.952   | <0.952                 | <0.952                 | <0.952                                   | <0.952              | <0.952                   | <0.952  | <0.952              | <0.952              | <0.952              | <3.81        | <0.952          | <0.952                         | <0.952             | <3.81                |
|   |  | 4/20/2009   | 1  |                               | :   :                |              |                      | 1              | : :                        | 1                   | :   :            |                    | 1            | '                          | :                                       |              | 1                    | . .                        |              | 1                         | 1 1  |                | :              | 70.064                           | <0.964                     | <0.964      | <0.964<br><0.964  | <0.964   | <0.964    | <0.964<br><0.964   | <0.964                 | <0.964                 | <0.964<br><0.964                         | <0.964              | <0.964                   | <0.964<br><0.964                              | <0.964              | <0.964              | <0.964              | <3.85        | <0.964          | <0.964                         | <0.964             | <3.85                |
|   |  | 4/20/2009   | •  | •                             | :   :                |              |                      | 1              | : :                        |                     | 1   1            |                    | 1            |                            |   | :            | •                    | :   ;                      | -            | 1                         | :   :  | '              | ľ              | 800 07                           | <0.908                     | <0.908      | 806.0×  | <0.908   | <0.908    | 806.0><br>0.908<br>0.908   | <0.908                 | <0.908                 | ×0.908<br>×0.908                         | <0.908              | <0.908                   | \$06.0<br>\$0.908                             | <0.908              | 40.908<br>V         | <0.908              | <3.63        | \$0.908<br>\$25 | <0.908                         | <0.908             | <3.63                |
|   | AOC 26-1 (1.5-2.0')                                      | 4/20/2009   | 1  |                               | : ;                  |              |                      |                | : :                        | 1                   | ;                |                    | 1            | :                          |   | ,            | :                    | . .                        | -            | 1                         |  | :              |                | 000                              | <0.999                     | <0.999      | 666.0>  | <0.999   | <0.999    | 666.0>   | <0.999                 | <0.999                 | 666.0>                                   | <0.999              | <0.999                   | 40.999<br>40.999                              | <0.999              | <0.999              | <0.999              | <4.00        | <0.999          | <0.999                         | <0.999             | ×4.00                |
|   |  | 4/20/2009   |  | ; ;                           |                      |              | -                    |                | :                          |                     | 1                | :                  | ;            |                            |   | 1            | -                    | ;                          | -            | :                         | :   ,  |                | :              | /4 43                            | <1.13                      | <1.13       | <ul><li>13</li><li>13</li><li>14</li><li>15</li><li>15</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16</li><li>16&lt;</li></ul> | <1.13    | <1.13     | ^1.13<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\ | <1.13                  | <1.13                  | 4 13 13 13 13 13 13 13 13 13 13 13 13 13 | <1.13               | <1.13                    | 4 13 5 13 13 13 13 13 13 13 13 13 13 13 13 13 | <1.13               | 7.13                | <1.13               | <4.53        | ×1.13           | <4.53<br><1.13                 | <1.13              | <4.53                |
|   | VOC 35-12 (34-36.)                                       | 4           | :  | : :                           | :   :                |              | ŀ                    |                | :   :                      |                     | -                |                    | 1            |                            |   | 1            |                      | 1                          |              | 1                         |  |                | 1              | 7                                | 41.01                      | <1.01       | \$ \$10.1<br>\$ 10.1  | <1.01    | <1.01     | V V  | <1.01                  | - 3                    | 0.0                                      | <1.01               | <1.01                    | 10.10   | <1.01               | 7.01                | V V                 | <4.03        | <1.01           | 4.03                           |                    | <4.03                |
| } | ŀ  | 4/15/2009   |  |                               | ;   ;                | 1 1          | :                    |                | 1                          |                     | 1                |                    | 1            |                            |   | 1            | •                    | !                          |              | :                         | <u>,                                    </u> | !              | 1              | 370.07                           | <0.976                     | <0.976      | 9/6.0>  | <0.976   | 926.0>    | <0.976   | <0.976                 | <0.976                 | 40.976<br><0.976                         | <0.976              | <0.976                   | 9/6.0>  | <0.976              | <0.976              | <0.976              | <3.90        | <0.976          | <0.976                         | <0.976             | <3.90                |
|   |  | 4/15/2009   | :  |                               | '                    |              | ,                    | ,              |                            |                     | 1                | 1 1                |              | , ,                        |   | ,            | ;                    | ,                          | 1            | 1                         | 1 1  |                | ,              | 070                              | <0.918                     | <0.918      | <0.918<br><0.918  | <0.918   | <0.918    | <0.918   | <0.918                 | <0.918                 | <0.918                                   | <0.918              | <0.918                   | <0.918  | <0.918              | <0.918              | <0.918              | <3.67        | <0.918          | <3.67                          | <0.918             | <3.67                |
|   | ('0.S-2.1) &1-SS DOA                                     |             |  |                               | <u>.</u>             | . .          |                      |                | ; ;                        | -                   | 1                |                    | -            |                            |   | !            | 1                    |                            | -            | -                         |  | ,              |                | 5                                | 41.00                      | × 1.00      | 2 0   | <1.00    | <1.00     | 2 V  | <1.00                  | <1.00                  | 2 2                                      | <1.00               | ×1.00                    | V V   | <1.00               | 7 7                 | V V                 | <b>4</b> .01 | ×1.00           | 24.01<br>1.00                  | ×1.00              | <4.01                |
|   | <del></del>  | 4/15/2009   | :  |                               | : ;                  |              | <u> </u> .           |                | : :                        |                     |                  |                    | 1            | : !                        |   | :            | :                    | :   :                      | 1            |                           | <u> </u>                                     | !              | 1              | 10000                            | <0.924                     | <0.924      | <0.924  | <0.924   | <0.924    | <0.924   | <0.924                 | <0.924                 | <0.924                                   | <0.924              | <0.924                   | <0.924  | <0.924              | <0.924              | <0.924              | <3.70        | <0.924          | <3.70                          | <0.924             | <3.70                |
|   |  | 4           | 000  | \$ \$0.0<br>\$5.0             | 2 2                  | <5.0         | <5.0                 | <10            | 420                        | <10                 | 12               | <15                | 49           | £1 %                       | 10                                      | <5.0         | \$ 20                | 0.0                        | <5.0         | <5.0                      | \$50<br>\$50                                 | <5.0           | 760            |                                  | .  ,                       |             | !!  |          |           |  | <b>!</b>               | '                      | <u> </u>                                 |                     |                          |   | :                   | '                   | : :                 | !            | -               | : :                            |                    |                      |
|   | VOC 55-13 (35-34.5')                                     | 4/8/2009    | \$ 0.10<br>\$ 0.50   | 00.050<br>050<br>050<br>050   | 40.050<br>050<br>050 | <0.050       | <0.050               | <0.10          | <0.050                     | <0.10               | 0.55             | <0.15              | 2.5          | 2.3                        | 0.67                                    | <0.050       | <0.050               | 1.6                        | <0.050       | <0.050                    | <0.050<br><0.050<br><0.050                   | <0.050         | 44             |                                  | 1 1                        |             |   |          |           | 1  |                        |                        |  | -                   |                          | 1 1   |                     | 1                   | 1 1                 | :            | -               | 1 1                            |                    |                      |
|   | Source<br>Units  |             |  | mg/Kg                         |                      | _            | 丄                    | $\sqcup$       | mg/Kg                      |                     |                  |                    | ) mg/Kg      | mg/Kg                      | ma/Ka                                   | ₩            | _1                   | Ц.                         | 1            | ) mg/Kg                   |  | 1_             | ш              | Jan 1977                         | (1) pg/kg-dry              | ) µg/Kg-dry | ) µg/Kg-dry   |          | µg/Kg-dry |  | ) µg/Kg-dry            |                        | ) µg/Kg-dry                              |                     | ) µg/Kg-dry              | ) µg/Kg-dry                                   | ug/Kg-dry           | ) µg/Kg-dry         |                     |              |                 |                                |                    | µg/Kg-dry            |
|   | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs) |             | _  | _                             | $\overline{}$        |              | _                    | -              | _                          | +                   | 9.86E-01 (1)     | _                  | 4.19E-03 (1) | 1 1                        | 1 1                                     | 1.56E+00 (1) | _                    | -                          | _            | 1.35E-03 (1)              | +  | +-             | 1.76E-01       | 1 725+00                         | 2.98E+03                   | 2.25E-01    | 6.74E-01 (1)<br>6.09F+00 (1)  | 1.19E+02 | 1         | 3.56F-02 (1)   | +-                     | $\vdash$               | 2.9/E-03 (1)<br>1.58E-02 (1)             | +                   | 3.65E-01 (1)             | _   | -                   | 2.70E+02 (3)        | +                   | 1.27E+03 (1) | -+              | 2.80E+03 (3)                   | +                  |                      |
|   | Non-<br>Residential F<br>Screening Levels (2-10' bgs)    |             | +  | +                             | +                    | +            | ╁                    | H              | +                          | ╁                   | 9.86E-01         | +                  |              | 1 1                        |   | 1.56E+00     | ;                    | +                          | +            | 1.35E-03                  | +  | +-             | 1.76E-01       | 1B) µg/Kg-dry                    | 2.98E+03                   | 2.25E-01    | 6.74E-01  | 1.19E+02 | 1         | 3.56E-02   | $\vdash$               | H                      | $\top$                                   | +                   | 3.65E-01                 | ╁   | +                   | 2.70E+02            | ╁                   | 1.27E+03     | 6.24E+02        | 2 80F+03                       | 1                  |                      |
| - | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) |             | - L  | 4.68E-04                      | 4.18E-03             | 1.35E-03     | 3.38E-04             | 9.10E-02       | 7.23E-01                   | 2.20E+02            | 9.86E-01         | 1.07E-02           | 4.19E-03     |                            | :   '                                   | 1.56E+00     | 4                    | 4.49E-04                   | ┵            | 1.35E-03                  | 4  | 4-             | 1.76E-01       | 2A Method 826                    | 2.98E+03 2.98E+03          | 2.25E-01    | 6.74E-01  | 1.19E+02 | -         | 3 56E-02   | ╀                      | H                      | _  | $\bot$              | 3.65E-01                 | 4   | $\sqcup$            | 2.70E+02            | 3.5/E+00            | 1.27E+03     | 6.24E+02        | 2 80F+03                       | 200                | -                    |
|   | Analytes   | Sample Date | Chloroethane   | Chloroform                    | Chloromethane        | cis-1, Z-UCE | Dibromochloromethane | Dibromomethane | Dichlorodifluoromethane    | Hexachlorobutadiene | Isopropylbenzene | Methylene chloride | Naphthalene  | n-Butylbenzene             | II-r Iopyibelizelle<br>sec-But/thenzene | Styrene      | tert-Butylbenzene    | Tellione                   | rans-1,2-DCE | trans-1,3-Dichloropropene | I richloroethene (ICE)                       | Vinyl chloride | Kylenes, Total | Volatile Organic Compounds - (EP | 1,1,1,2-1 etrachioroethane | ane         | 1   |          |           | 1,2,3-Trichlorobenzene   | 1,2,4-Trichlorobenzene | 1,2,4-Trimethylbenzene | 1,2-Dibromo-3-chloropropane              | 1,2-Dichlorobenzene | 1,2-Dichloroethane (EDC) | 1,2-Dichloropropane                           | 1,3-Dichlorobenzene | 1,3-Dichloropropane | 1,4-Dichloropropane | 2-Butanone   | 2-Chlorotoluene | 2-Hexanone<br>4-Chlorotolijene | 1-Isopropyltoluene | 4-Methyl-2-pentanone |

AOC 26-6 (1.5-2.0') AOC 26-6 (0-0.5') AOC 26-5 (1.5-2.0') 60.20</l AOC 26-5 (0-0.5') AOC 26-4 (1.5-2.0') AOC 26-4 (0-0.5') AOC 26-3 (1.5-2.0') DUP 60.20 60 AOC 26-3 (1.5-2.0') AOC 26-3 (0-0.5') AOC 26-2 (1.5-2.0') Table 10 Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26 Bloomfield Refinery, Bloomfield, New Mexico 60.20 60 AOC 26-2 (0.0.5') 47.002009 4.100 \$\\\ \phi \\ \ AOC 26-1 (1.5-2.0') AOC 26-1 (0-0.5') \$20 \text{\$\frac{1}{2}\text{\$\frac{1}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}\text{\$\frac{1}\text{\$\frac{1}\text{\$\frac{1}\text{\$\frac{1}\text{\$\frac{1}\text{\$\fra VOC 55-12 (34-36.) \$\\ \text{\cong} \\ \text{\con AOC 22-15 (30-32') (6.20 AOC 22-15 (1.5-2.0') DUP 6.20 AOC 22-15 (1.5-2.0') 715/2008 9.84 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.027 AOC 22-15 (1.0-1.5') |&|&|&|&|&|& ('ee-7E) Er-SS OOA 8 Ø 40C 22-13 (32-34.5') (1) µg/Kg-dry mg/Kg mg/Kg mg/Kg Units Source | පට්ප්ට්ට්ට්ට්ට්ම්මම 
 3.57E-03
 3.57E-03
 3.57E-03
 3.57E-03
 3.57E-03
 (7.13E+00
 7.13E+00
 7.13E-02
 7.13E-02
 7.13E-02
 7.13E-02
 7.13E-01
 7.13 Non-Residential Screening Levels (>10' bgs) 4.49E 1.38E 1.35E 5.30E 9.01E 2.88E 1.76E 4.68E 9.43E 1.35E 9.10E 7.23E 1.90E 9.86E 2.29E 4.19E 
 Semi Volatile Organics - (EPA Method 8270) mg/kg

 1,2,4-Trichlorobenzene
 1.02E-02

 1,2-Dichlorobenzene
 3.13E-01

 1,3-Dichlorobenzene
 3.57E-03

 1,4-Dichlorobenzene
 3.57E-03

 2,4,5-Trichlorophenol
 7.13E-00

 2,4-Dichlorophenol
 7.13E-02

 2,4-Dichlorophenol
 1.37E-01

 2,4-Dintrophenol
 1.37E-01

 2,4-Dintrophenol
 5.25E-02

 2,4-Dinitrophenol
 5.25E-02

 2,4-Dinitrophenol
 5.25E-02

 2,4-Dinitrophenol
 5.25E-02

 2,4-Dinitrophenol
 1.56E-03

 2,5-Dinitrophenol
 1.56E-03

 2,5-Dinitrophenol
 1.55E-01

 2,5-Dinitrophenol
 2.67E-02

 2,5-Dinitrophenol
 2.67E-02

 2,5-Dinitrophenol
 2.67E-02

 2,5-Dinitrophenol
 2.67E-02

 2,5-Dinitrophenol
 1.35E-01

 2,5-Dinitrophenol
 1.35E-01
 Non-Residential Screening Levels (2-10' bgs) 
 4.49E-01
 4.49E-01

 1.38E+03
 1.38E+03

 3.01E+01
 3.01E+01

 1.35E+00
 1.35E+00

 5.30E+00
 5.30E+00

 9.01E+02
 9.01E+02

 2.88E-01
 2.88E-01

 1.76E+02
 1.76E+02
 4.68E-01 4.18E+00 9.43E+01 1.35E+00 3.38E-01 9.10E+01 7.23E+02 1.46E+01 2.20E+05 9.86E+02 2.29E+01 1.07E+01 4.19E+00 3.84E+03 1.85E+00 1.50E+01 2.76E-01 2.30E+01 1.94E+00 2.52E+02 7.39E-01 5.38E+01 1560 1.70E-02 4.68E-01 4.18E+00 9.43E+01 1.35E+00 3.38E-01 9.10E+01 7.23E+02 1.46E+01 2.20E+05 9.86E+02 2.29E+01 1.07E+01 4.19E+00 3.84E+03 1.85E+00 1.50E+01 2.76E-01 2.30E+01 1.94E+00 2.52E+02 7.39E-01 5.38E+01 Non-Residential Screening Levels (0-2' bgs) 1.70E-02 1560 Sample Date
Acetone
Benzene
Bromobenzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chlorotethane
Chlorotethane
Cis-1,2-DCE
cis-1,3-Dichloropropene
Dibromomethane
Cis-1,3-Dichloropropene
Dibromomethane
Eitylbenzene
Distromochloromethane
Eitylbenzene
Hexachlorobutadiene
Isopropylbenzene
Isopropylbenzene
Methyl tert-butyl ether (MTBE)
Methylene chloride
Naphthalene trans-1,2-DCE trans-1,3-Dichloropropene Trichloroethene (TCE) Trichlorofluoromethane Styrene tert-Butylbenzene Tetrachioroethene (PCE) Toluene Analytes 2-Nitrophenol 3,3'-Dichlorobenzidine 2-Methylnaphthalene 2-Methylphenol n-Propylbenzene sec-Butylbenzene n-Butylbenzene Vinyl chloride Xylenes, Total

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

|   | AOC 26-6 (1.5-2.0°)  | 4/20/2009   | <0.20            | <0.20          | ¢0.50                      | <0.20  | 200             | \$0.20<br>\$0.20            | <0.25          | <0.20         | <0.20        | 40.20<br>20.20   | <0.20            | <0.20                  | <0.20             | \$ 0.20<br>\$    | 07.00                   | <0.20                | <0.50        | <0.20          | <0.20  | <0.20<br><0.20<br><0.20     | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20<br><0.20     | <0.50                | <0.20   | <0.23                   | <0.20             | <0.20               | 0.20  | <0.25                  | <0.50      | <0.20                          | 20.00                     | <0.20                  | <0.40    | <0.20<br>50.30  | 0.20          | <0.50        |  | 450<br>450                | <50<br><50                 |
|---|--|-------------|------------------|----------------|----------------------------|--|-----------------|-----------------------------|----------------|---------------|--------------|--|------------------|------------------------|-------------------|------------------|-------------------------|----------------------|--------------|----------------|--|-----------------------------|------------------------|------------------------|-------------------------|-----------------------|---|--------------------|----------------------|---|-------------------------|-------------------|---------------------|---|------------------------|------------|--------------------------------|---------------------------|------------------------|----------|---|---------------|--------------|--|---------------------------|----------------------------|
|   | VOC Se-6 (0-0.5')  | 4/20/2009   |                  | <0.20          |                            | <0.20  | - [             | 1                           | Į.             | 1 1           |              |  |                  | 1                      | 1 1               |                  |                         | 1                    | 1            | ΙI             |  | - 1                         | 1                      |                        | \$0.20<br>\$0.20        |                       | 11  | - 1                | 1 1                  |   | 1                       |                   |                     |   | 1                      | <0.50      | <0.20                          | \$0.50<br>\$0.50          | <0.20                  | <0.40    | 40.20   | 02.00         | <0.50        | 140  | 250                       | \$50<br>\$50               |
|   | AOC 26-5 (1.5-2.0')  | 4/20/2009   | <0.20            | <0.20          | <0.50                      | <0.20  | 200             | \$0.20                      | <0.25          | <0.20         | <0.20        | 40.20  | <0.20            | <0.20                  | <0.20             | \$ 0.20<br>5 5   | 07.0                    | \$0.20<br>\$0.20     | <0.50        | <0.20          | <0.20  | 0.20                        | <0.50                  | <0.20                  | <0.20<br><0.20<br><0.20 | <0.20                 | <0.20<br>5.50<br>5.50<br>5.50<br>5.50<br>5.50<br>5.50<br>5.50 | \$0.20<br>\$0.20   | <0.50                | <0.20<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25 | \$ 0.50                 | <0.20             | <0.20               | 0.20  | <0.25                  | <0.50      | \$0.20<br>20<br>20<br>20<br>20 | \$0.50<br>\$0.50          | <0.20                  | <0.40    | \$ 0.20<br>\$ 50.20   | 07.00         | <0.50        | 7  | \$50<br>\$50              | 550                        |
|   | VOC 56-5 (0-0.5')  | 4/20/2009   | <0.20            | <0.20          | <0.50                      | <0.20  | 00.00           | \$0.20<br>\$0.20            |                | 1 1           |              | - 1  | 1                |                        | - 1               | - 1              | - 1                     |                      | ı            | ll             |  |                             |                        |                        | \$0.20<br>\$0.20        |                       | 11  |                    | П                    |   |                         | П                 |                     |   | Т                      | <0.50      | <0.20                          | 0.50                      | <0.20                  | <0.40    | \$ 0.20<br>\$ 50.30   | 02.00         | <0.50        | 7  | 250                       | 3,50                       |
|   | AOC 26-4 (1.5-2.0')  | 4/20/2009   | <0.20            | <0.20          | <0.50                      | \$ 0.20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | 0.50            | 020                         | 1              | 1 1           | 1            | - 1  | 1                | 1 1                    | 1                 | 1                | 1                       | 1                    | 1            | 1              | - 1  | ì                           | 1                      |                        | 40.20<br>40.20          | 1                     | 1   |                    | 1 1                  | - 1   | 1                       | 1 1               | - 1                 | - 1   | 1                      | 1 1        | - 1                            | - 1                       | 1                      | 1        | - 1   | - 1           | 1 1          | 1  | 01×                       | \$ 250                     |
|   | VOC Se-4 (0-0.5')  | 4/20/2009   | <0.20            | <0.20          | <0.50                      | <0.20  | 0.50            | \$0.50<br>\$0.20            | <0.25          | <0.20         | <0.20        | <0.20  | <0.20            | <0.20                  | <0.20             | <0.20<br>\$      | \$0.20<br>\$0.50        | <0.20                | <0.50        | <0.20          | <0.20  | <0.20                       | <0.50                  | <0.20                  | <0.20<br><0.20<br><0.20 | <0.20                 | <0.20   | <0.20              | <0.50                | <0.20   | <0.23                   | <0.20             | <0.20               | <0.20   | <0.25                  | <0.50      | \$ 50.20                       | <0.30<br><0.20            | <0.20                  | <0.40    | <0.20   | <0.20         | <0.50        | 7  | ×10<br>×20                | \$ 20                      |
|   | AOC 26-3 (1.5-2.0') DUP                                      | 4/20/2009   | <0.20            | <0.20          | <0.50                      | <0.20<br>50.20   | 20.50           | \$0.50<br>\$0.50            | <0.25          | <0.20         | <0.20        | <0.20  | <0.20            | <0.20                  | <0.20             | 40.20<br>50.20   | 40.20<br>40.20<br>50.50 | <0.20<br><0.20       | <0.50        | <0.20          | <0.20  | <0.20<br><0.20<br><0.20     | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20<br><0.20     | <0.50                | <0.20<br>20.20  | <0.50<br><0.50<br><0.50 | <0.20             | <0.20               | <0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.00<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.20<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00<br><0.00 | <0.25                  | <0.50      | <0.20                          | <0.50<br><0.20<br><0.20   | <0.20                  | <0.40    | <0.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20<br>20.20 | 07.00         | <0.50        | 4  | ×10<br>×5.0               | 67                         |
|   | AOC 26-3 (1.5-2.0')  | 4/20/2009   | <0.20            | <0.20          | <0.50                      | <0.20  | 20.50           | \$0.20<br>\$0.20            | <0.25          | <0.20         | <0.20        | <0.20  | <0.20            | <0.20                  | <0.20             | <0.20            | \$0.20<br>\$0.50        | <0.20                | <0.50        | <0.20          | <0.20<br>20.20   | <0.20<br><0.20<br><0.20     | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20<br><0.20     | <0.50                | <0.20<br>20.20<br>30.20   | <0.50                   | <0.20             | <0.20               | \$ 0.20<br>\$ 0.20  | <0.25                  | <0.50      | \$ 0.20<br>\$                  | <0.50<br><0.20<br><0.20   | <0.20                  | <0.40    | <0.20   | 02.02         | <0.50        | 7  | 2 V 10                    | 56                         |
|   |  | σ           | !!               | ' 1            | - 1                        | - 1  | - 1             | - 1                         | ĺ              | łI            | l            | - 1  | 1                | 1 1                    | 1                 | - 1              | - 1                     | 1                    |              | !!             | - 1  | <0.20                       |                        |                        |                         | 1                     | <0.20   |                    | 1                    |   |                         | 1 1               | - 1                 |   | 1                      | 1          |                                | - 1                       | ı                      | 1        |   | - 1           | <0.50        |  | <5.0                      | 02                         |
|   | AOC 26-2 (1.5-2.0')  | 4/20/2009   | <0.20            | <0.20          | <0.50                      | <0.20  | 00.00           | <0.20                       | <0.25          | <0.20         | <0.20        | <0.20  | <0.20            | <0.20                  | <0.20             | <0.20            | <0.20<br><0.50<br><0.50 | <0.20                | <0.50        | <0.20          | <0.20  | <0.20                       | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20              | <0.50                | <0.20   | <0.50                   | <0.20             | <0.20               | <0.20   | <0.25                  | <0.50      | <0.20                          | <0.20                     | <0.20                  | <0.40    | <0.20   | 07.0<br><0.20 | <0.50        | 7  | <10<br><5.0               | \$20<br>\$20               |
|   |  | 4           |                  |                | _L                         |  | ┸               |                             | _              | Ш             |              |  |                  |                        |                   | $\perp$          | _                       | L                    | L            |                |  | _L                          |                        |                        | <0.20                   | 1_                    | Ш.  |                    | LL                   | _   | Т.                      |                   |                     | L   | L.                     | Ш          | $_{L}$                         |                           |                        |          | _ [   | L             | Ш            |  | <50                       | )<br>(50                   |
|   | (1.5-2.0')   | 4/20/2009   | <0.20            | <0.20          | <0.50<br>50                | <0.20<br>20.20   | 20.50           | \$0.20<br>\$0.20            | <0.25          | <0.20         | <0.20        | 050<br>V   | \$0.50<br>\$0.50 | <0.20                  | <0.20             | \$0.20<br>\$0.20 | V 050                   | \$0.20<br>\$0.20     | <0.50        | <0.20          | \$ 0.20<br>\$  | 0.20                        | <0.50                  | <0.20                  | <0.20<br><0.20<br><0.20 | <0.20                 | <0.20   | \$0.20<br>\$0.20   | <0.50                | <0.20   | \$0.50                  | <0.20             | <0.20               | 40.20<br>20.20  | <0.25                  | <0.50      | <0.20                          | <0.20                     | <0.20                  | <0.40    | <0.20   | 07.0>         | <0.50        | 7  | \$ \$ 0<br>\$ 0           | -\$20<br>-\$20             |
|   |  | 4           | <0.20            | <0.20          | <0.50                      | <0.20  | 0.00            | <0.20                       | <0.25          | <0.20         | <0.20        | <0.20<br>20.20<br>20.20  | <0.20            | <0.20                  | <0.20             | 07.70            | 20.50                   | <0.20                | <0.50        | <0.20          | Q 50   | \$0.20                      | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20              | <0.50                | <0.20<br>20.20  | <0.50                   | <0.20             | <0.20               | \$ 0.20<br>\$ 0.20  | <0.25                  | <0.50      | ¢0.20                          | \$0.30<br>\$0.20          | <0.20                  | <0.40    | \$ 0.20<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 5  | 02.02         | <0.50        | 5  | \$ 10<br>\$ 50            | \$20                       |
|   |  | 4           | <0.20            | <0.20          | \$0.50<br>\$               | \$ 0.20<br>\$ 0.50   | 20.50           | <0.20                       | <0.25          | <0.20         | <0.20        | \$ 50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>5 | \$0.50<br>\$0.20 | <0.20                  | <0.20             | 07.0             | 07.00                   | <0.20                | <0.50        | <0.20          | <0.20  | \$0.20<br>\$0.20            | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | \$0.20<br>\$0.20   | <0.50                | 0.20  | \$0.50<br>\$0.50        | <0.20             | <0.20               | 0.20  | <0.25                  | <0.50      | \$ 0.20<br>5                   | \$0.30<br>\$0.20          | <0.20                  | <0.40    | 40.20<br>20.20  | 07.02         | <0.50        | 7  | 3 5                       | 50<br>50                   |
|   | VOC 55-15 (30-35.)   | 4           |                  | - [            | - 1                        |  |                 | <0.20                       | 1              | ΙĪ            | 1            | 40.20<br>40.20   |                  | ı                      |                   | 0.20             | <0.20                   | 40.20<br>40.20       | <0.50        | <0.20          | <0.20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | <0.20                       | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20              | <0.50                | <0.20   | <0.50                   | <0.20             | <0.20               | <0.20<br><0.20<br><0.20   | <0.25                  | <0.50      | <0.20                          | <0.20                     | <0.20                  | <0.40    | <0.20   | 07.02         | <0.50        | 7  | ×10<br>×50                | \$50                       |
|   | AOC 22-15 (1.5-2.0') DUP                                     | 4/15/2009   | <0.20            | <0.20          | <0.50                      | 0.20   | 20.50           | 40.20<br>40.20              | <0.25          | <0.20         | <0.20        | 0.20   | <0.20            | <0.20                  | \$ 0.20<br>9      | 07.0             | ×0.20<br>×0.50          | <0.20                | <0.50        | <0.20          | 0.20<br>9  | <0.20                       | <0.50                  | <0.20                  | <0.20                   | <0.20                 | <0.20   | <0.20              | <0.50                | <0.20<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25 | <0.50                   | <0.20             | <0.20               | <0.20<br><0.20<br><0.20<br><0.20  | <0.25                  | <0.50      | <0.20                          | \$0.50<br>\$0.20          | <0.20                  | <0.40    | <0.20<br>20.20<br>20.20   | 02.00         | <0.50        | 7  | \$ 20                     | \$20                       |
|   | _ <del></del>  | 4           | <0.20            | <0.20          | Q-20<br>9                  | 0.20   | 20.30           | 40.20<br>40.20              | <0.25          | <0.20         | <0.20        | \$0.20<br>\$0.20<br>\$0.20   | <0.20            | <0.20                  | <0.20<br>50.20    | 07.0             | \$0.20                  | <0.20                | <0.50        | <0.20          | \$ 0.50<br>\$  | <0.20                       | <0.50                  | <0.20                  | <0.20<br><0.20          | <0.20                 | <0.20   | <0.20              | <0.50                | \$0.20<br>25.05<br>25.05  | <0.50                   | <0.20             | <0.20               | <0.20   | <0.25                  | <0.50      | <0.20<br>5                     | \$0.30<br>\$0.20          | <0.20                  | <0.40    | 40.20   | 07.02         | <0.50        | 5  | \$ 7 C                    | · 20                       |
|   |  | 4/15/2009   | √<br>1.0         | ×1.0           | 57.5                       | 0.12<br>2.5  | 3.5             | 0.15                        | ×1.3           | <1.0          | 0.<br>V      | 0.12   | 41.0             | <1.0                   | 0.5               | V 7              | 2.5                     | 410                  | <2.5         | <1.0           | 2.0<br>2.0   | 0.0                         | <2.5                   | 0.<br>V-               | 0.10                    | v-1.0                 | <10   | 4.0                | <2.5                 | 0, c  | <2.5                    | <1.0              | V .                 | 0.10  | ν<br>Σ. Α.             | <2.5       | 41.0                           | 4.0                       | <1.0                   | <2.0     | V V   | 0 0           | <2.5         | 9  | 250                       | 7                          |
|   | AOC 22-13 (37-39')   | 4/8/2009    | !                | :              | :                          | •  | :   ;           |                             | '              | ,             | -            | 1 1  | :                |                        |                   | •                | :  '                    |                      |              | :              | :  |                             |                        |                        |                         |                       | ı   | : :                |                      | 1   |                         |                   | ;                   | :   :   |                        | :          | !                              | : :                       | 1                      | '        | 1   | <u>,  </u>    | 1            | 7800   | 5500                      | <1000                      |
|   | AOC 22-13 (32-34.5')   | 4/8/2009    | <0.20            | <0.20          | 0.50                       | 07.0   | 0.30            | <0.20<br><0.20              | <0.25          | <0.20         | <0.20        | 0.20   | <0.20            | <0.20                  | 9.50              | 07.0             | 0.20                    | \$0.20               | <0.50        | <0.20          | 0.20   | \$0.20<br>\$0.20<br>\$0.20  | <0.50                  | <0.20<br>0.20<br>0.20  | <0.20                   | <0.20                 | <0.20   | \$ 70.50<br>\$0.50 | <0.50                | <0.20<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25<br>25 | <0.50                   | <0.20             | <0.20               | <0.20<br><0.20<br><0.20   | <0.25                  | <0.50      | <b>1.8</b>                     | \$0.50<br>\$0.20          | <0.20                  | <0.40    | 0.41  | 02.00         | <0.50        | 1300   | 250                       | \$500<br>\$500             |
|   | Units  |             | _1               | mg/Kg          | mg/Kg                      | mg/Kg  | mg/Kg           | 1                           | L              | Н             | _            |  | <del> </del>     | Ш                      | _L                |                  | ma/Ko                   | 1-                   | Ш            | $\perp$        | _  | mg/Kg                       | $\perp$                | _                      | mg/Kg<br>ma/Ka          | 4_                    | mg/Kg   | -                  | $\sqcup$             | mg/Kg   | ↓_                      | mg/Kg             |                     | mg/Kg   | 1                      | ┦          | _                              | mg/Ka                     | ┺                      | 4        | +   | 4             | mg/Kg        | L  | Mg/Kg                     |                            |
|   | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs)     | ſ           | 1.90E-01 (3)     | 1              | 1                          | +  | 1 20E-03 (4)    | +                           | 1.00E-02 (4)   | $\vdash$      | 2.05E+01 (1) | 3.40F-02 (4)   | +-               | ⊢                      | 3.20E-01 (1)      | -                | +-                      | 1.09E+01 (1)         | Н            | -              | -  | 2.56E-03 (1)                | +                      | 6.70E+00 (4)           | 3.26E+01 (1)            | 3.62E-01 (1)          | -   | 8.36E+01 (1)       | <del></del>          | 1 55E+02 (1)  | +                       |                   | -+                  | 1 93E-01 (1)  | +-                     | 1          | _                              | 1.10E-04 (4)              | 1                      |          | 8.34E+01 (1)  |               | 9.70E-03 (3) | _  | 1120 (6)                  | Τ                          |
|   | Non-<br>Residential R<br>Screening S<br>Levels (2-10' bgs) ( |             | 1.90E-01         | 1              | -                          | 1  | 1 20E-03        | ,                           | 1.00E-02       |               | 2.05E+01     | 2  | 12               | _                      | 3.20E-01          | _                | ╁                       | ╁                    | Н            | +              | $\top$   | 2.33E-05<br>2.56E-03        | +                      | 十                      | ╁                       | 3.62E-01              | +   | 8.36E+01           | H                    | +   | 十                       | H                 | +                   | ╁   | ╁                      | Н          | ┰                              | ┿                         | 1                      | $\dashv$ | +   | ┿             | ╁┤           | -  | 1120                      | 5000                       |
| - | Non-<br>Residential F<br>Screening<br>Levels<br>(0-2' bgs) ( |             | 1.90E-01         | 1              |                            |  | 1 20E-03        | 201                         | 1.00E-02       | H             | 2.05E+01     | $\downarrow$   | 3.37E+02         | $\left  \cdot \right $ | 4                 | 1.09E-01         | +                       | ╀                    | Ш            | 4              | 4  | 2.56E-03                    |                        | 6.70E+00               | +                       | 3.62E-01              | $\perp$   | 8.36E+01           | $\sqcup$             | 1 55E+02  | ┼                       | $\sqcup$          | 4                   | 6.13E-01  | ╄-                     | $\sqcup$   | 4.19E-03                       | +                         | 1.29E+00               | 4        | 8.34E+01  | -             | 9.70E-03     | PA Method 80:  | 1120                      | 5000                       |
|   | Analytes   | Sample Date | 3+4-Methylphenol | 3-Nitroaniline | 4,6-Dinitro-2-methylphenol | omophenyi phenyi ether   | 4-Chloroaniline | 4-Chlorophenyl phenyl ether | 4-Nitroaniline | 4-Nitrophenol | Acenaphthene | Acenaphinylene   | Anthracene       | Azobenzene             | Benz(a)anthracene | Benzo(a)pyrene   | Benzo(a h iberylene     | Benzo(k)fluoranthene | Benzoic acid | Benzyi alcohol | Bis(2-chloroethoxy)methane   | Bis(2-chloroisoproovl)ether | 2-ethylhexyl)phthalate | Butyl benzyl phthalate | Chrysene                | Dibenz(a,h)anthracene | Dibenzofuran  | Dimethyl phthalate | Di-n-butyl phthalate | Ur-n-octyl phthalate  | Fluorene                | Hexachlorobenzene | Hexachlorobutadiene | Hexachloroethane  | Indeno(1,2,3-cd)pyrene | Isophorone | Naphthalene                    | N-Nitrosodi-n-propylamine | N-Nitrosodiphenylamine | enol     | Phenantinene  |               | Pyridine     | Total Petroleum Hydrocarbons - (EPA Method 8015B) mg/kg<br>Diesel Ranne Organics (DRO) 1120 1120 | line Range Organics (GRO) | r Oil Range Organics (MRO) |

Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26 Bloomfield Refinery, Bloomfield, New Mexico Table 10

| AOC 26-6 (1.5-2.0')                                       | 4/20/2009     | <1.0    |
|---|---------------|---------|
| ∀OC 5e-e (0-0·2,)   | 4/20/2009     | <1.0    |
| AOC 26-5 (1.5-2.0')                                       | 1/20/2009     | <1.0    |
| ∀OC 56-5 (0-0.5')   | /20/2009      | <1.0    |
| AOC 26-4 (1.5-2.0')                                       | /20/2009 4    | :       |
| ∂OC Se¬t (0-0.5')   | /20/2009 4    | :       |
| AOC 26-3 (1.5-2.0') DUP                                   | 20/2009 4     |         |
| AOC 26-3 (1.5-2.0')                                       | 20/2009 4/    | ,       |
| AOC 26-3 (0-0.5')   | 20/2009 4/    |         |
| AOC 26-2 (1.5-2.0°)                                       | 20/2009 4/    | <1.0    |
| ∀OC 5e-2 (0.0.5°)   | 0/2009 4/2    | <1.0    |
| AOC 26-1 (1.5-2.0')                                       | 0/2009 4/2    | <1.0    |
| AOC 26-1 (0-0.5')   | 4/20/2009 4/2 | 1.0     |
| AOC 22-15 (34-36')  | 5/2009 4/2    | ·       |
| VOC 55-12 (30-35.)  | /15/2009 4/1  |         |
| AOC 22-15 (1.5-2.0°) DUP                                  | /15/2009 4/15 |         |
| AOC 22-15 (1.5-2.0°)                                      | /2009 4/15    | -       |
| AOC 22-15 (1.0-1.5')                                      | 2009 4/15     | -       |
| ,   | 2009 4/15/20  | _       |
|   | 009 4/8/20    |         |
| გ<br>₩OC 25-13 (35-34.5')                                 | 4/8/2009      | Kg      |
| Source<br>D<br>Sign                                       |               | /gm     |
|   |               |         |
| Science (*)   |               | 1       |
| Non-<br>Residential<br>Screening<br>Levels<br>(2-10' bgs) |               | 1       |
| Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs)  |               |         |
| ử ળ ÷   |               |         |
| Analytes  | Date          |         |
|   | Sample Date   | Ethanol |

Table 10 Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26 Bloomfield Refinery, Bloomfield, New Mexico

|  |  |   |  | -                 |          |   |                     |                   |                      |                     |                   |                   |                     |                   |
|--|--|---|--|-------------------|----------|---|---------------------|-------------------|----------------------|---------------------|-------------------|-------------------|---------------------|-------------------|
| Analytes   | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(2-10' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs) | Source            | Units    | AOC 26-7 (0-0.5')                                 | AOC 26-7 (1.5-2.0') | AOC 26-8 (0-1.0') | AUG (0.1.0) 8-85 COA | AOC 26-8 (1.5-2.0') | VOC 56-8 (32-36') | VOC Se-9 (0-0.5') | AOC 26-9 (1.5-2.0') | VOC 56-9 (36-38') |
| Sample Date  |  |   |  |                   |          | 600   | 600                 | 600               | 600                  | 600                 | 8                 | 600               | 60                  | 4/20/2009         |
| Metals (mg/kg)   | , 0 1, 0 0   |   |  | L                 |          |   |                     |                   |                      |                     |                   |                   | 1 1                 |                   |
| Antimony   | 6.61E-01   | 6.61E-01  | -  | E (               | mg/Kg    | <del>\\</del> \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ | ×13                 | ×13               | <12                  | 2.5                 | <b>42.5</b>       | <del>4</del> 3    | <12                 | <2.5              |
| Arsenic  | 1.31E-UZ   | 1.31E-02  | _  | _                 | mg/Kg    | <del>\</del>                                      | 433                 | <13               | <15<br><15           | 42.5                | <b>42.5</b>       | 43                | <12                 | <2.5              |
| Banum  | 3.01E+02   | 3.01E+02  | _  | 4                 | mg/Kg    | 220   | 150                 | 280               | 240                  | 280                 | 230               | 120               | 130                 | 180               |
| Derymuni<br>Codmitte   | 3.77E+UI   | 5.77E+U1  | -  |                   | mg/kg    | c/.0>   | 67.05               | \$ 6.75           | 67.05                | 0.29                | <0.15             | <0.75             | <0.75               | <0.15             |
| Cadmium  | 1.3/E+00   | 1.3/E+00  | -  | _                 | mg/kg    | 40.50<br>00.50                                    | <0.50<br>2.50       | 20.50             | <0.50<br>0.50        | 01.0                | <0.10<br>0.10     | <0.50             | <0.50               | <0.10             |
| Chroman  | 4.4/E+U3   | 4.4/E+U5  | 9.80E+U/   | Z 6               | mg/kg    | 200   | 2.6                 | 4.7               | 1.7                  | 2.4                 | 2.2               | 4 .               | 8.9                 | 3.9               |
| Cyanida  | 7.44E+00   | 7.44E±00  | -  | _L                | mg/Kg    | 4.6   | 5.4<br>7.5          | 200               | 1.0                  | 2.5                 | 5.7               | 7.6               | 3.6                 | 2.3               |
| ) and  | R OUF+02   | R OOF+02  | $\overline{}$  | ┸                 | S Now    | 16.5  | 200                 | 200               | 800                  | 3.0                 | 2.7               | - 70              | 1.7                 | C.O.              |
| Mergiry  | 2.93F-02   | 2 93F-02  |  | 2 5               | ma/Ka    | <0.032  | <0.032              | <0.05             | <0.033               | <0.033              | <0.033            | 40 033            | 0.0                 | <0.032            |
| Nickel   | 4.77E+01   | 4.77E+01  | 4.77E+01   | 1_                | ma/Ka    | 76  | 6.8                 | 3                 | 2.8                  | 4 8                 | 18                | 5.8               | 7 6                 | 1 8               |
| Selenium   | 9.65E-01   | 9.65E-01  | -  | L                 | mg/Kg    | <   | <13                 | <13               | <12                  | <12                 | <12               | <13               | <12                 | <13               |
| Silver   | 1.57E+00   | 1.57E+00  |  | _                 | mg/Kg    | <1.3  | <1.3                | <1.3              | <1.2                 | <0.25               | <0.25             | <1.3              | <1.2                | <0.25             |
| Vanadium   | 1.83E+02   | 1.83E+02  | -  | (1)               | mg/Kg    | 19  | 17                  | <13               | <12                  | 13                  | 10                | 14                | 19                  | 11                |
| Zinc   | 6.82E+02   | 6.82E+02  | -  | (1)               | mg/Kg    | 160   | 30                  | 22                | 20                   | 24                  | 14                | 39                | 32                  | 1                 |
| Volatile Organic Compounds - (El   | PA Method 82   | 60B) mg/kg  | - 1  | L                 | 1        |   |                     |                   | ŀ                    |                     |                   |                   |                     |                   |
| 1,1,1,2-1etrachloroethane  | 1.73E-03   | 1.73E-03  | -+   | <u> </u>          | mg/Kg    | <0.050  | <0.050              |                   | :                    | ;                   | ;                 | -                 | 1                   | <0.50             |
| 1,1,1-1 richloroethane   | 2.98E+00   | 2.98E+00  | _  |                   | mg/Kg    | +   | <0.050              | '                 |                      | :                   | •                 | '                 | •                   | <0.50             |
| 1,1,2,2-1 etrachioroethane   | 2.25E-04   | 2.25E-04  | -  | _                 | mg/kg    | +   | <0.050<br>0.050     | '                 |                      | -                   | :                 | •                 | •                   | <0.50             |
| 1.1.2-11IGHOUGHIGHE 0.74E-04 0.74E-04 1.1-Dichlorosthane 6.00E-03 6.00E-03 | 6.00E.03   | 6.74E-04  | 6.00E-03   | = 1<br>= 1<br>= 1 | ┿        | +   | 40.U3U              | •                 |                      | <u>;</u>            | <u>:</u>          | •                 | :                   | 40.50<br>0.50     |
| 1, 1-Diction Cettiane  | 1 10E 04   | 4 400 04  | +  | ┵                 | +        | +   | 0.00                | •                 | •                    | •                   | :                 | •                 |                     | 0.10              |
| 1. I-Dichloropropage   | 1.195-01   | 1.195-01  | +  | = 1.              | mg/kg    | +   | 20.030              | +                 | -                    | -                   |                   | •                 | -                   | 0.50              |
| 1.2.3-Trichlorobenzene   |  |   | ,  | +                 | ╁        | +   | 010                 | 1                 |                      |                     |                   | :                 | ;                   | 2 0               |
| 1.2.3-Trichloropropane   | 3.56E-05   | 3.56E-05  | +  | Ξ                 | +        | +   | \$0.10              | ,                 | ,                    |                     | ;                 |                   | +-                  | 0.0               |
| 1,2,4-Trichlorobenzene   | 1.02E-02   | 1.02E-02  | +-   | ↓                 | +        | ╀   | <0.050              | 1                 | ,                    |                     |                   |                   | 1:                  | <0.50             |
| 1,2,4-Trimethylbenzene   | 2.40E-02   | 2.40E-02  | -  | Ц                 | Н        | Н   | <0.050              |                   |                      |                     | :                 | 1                 |                     | 71                |
| 1,2-Dibromo-3-chloropropane  | 2.97E-06   | 2.97E-06  | -+   |                   |          | -4  | <0.10               | 1                 | :                    | :                   | ;                 |                   | :                   | <1.0              |
| 1,2-Dibromoethane (EDB)  | 1.58E-05   | 1.58E-05  | 1.58E-05   | Ξ.                | mg/Kg    | +   | <0.050              | -                 |                      | -                   | :                 | :                 | :                   | <b>c</b> 0.50     |
| 1 2-Dichloroethane (FDC)   | 3.13E-01   | 3.13E-01  | +  |                   | +        | +   | 00.00               |                   |                      |                     |                   |                   | :                   | 00.00             |
| 12-Dichloropropane   | 1 11F-03   | 1 11F-03  | +-   | $\perp$           | +-       | +-  | <0.050              | 1                 | ,                    |                     |                   |                   | +                   | 20.00             |
| 1,3,5-Trimethylbenzene   | 2.00E-02   | 2.00E-02  | +-   | ╄                 | ╀        | _   | <0.050              | 1                 | :                    | 1                   |                   |                   |                     | 25                |
| 1,3-Dichlorobenzene  | -  | -   | -  | _                 | Н        | ├-  | <0.050              | -                 | ,                    | :                   |                   | •                 | !                   | <0.50             |
| 1,3-Dichloropropane  | 2.70E-01   | 2.70E-01  | 2.70E-01   | (6)               | $\dashv$ | $\vdash$  | <0.050              | •                 | -                    | -                   | 1                 | •                 |                     | <0.50             |
| 1,4-Dichlorobenzene  | 3.57E-03   | 3.57E-03  | _  | Ц.                | +        | +   | <0.050              | -                 | :                    | :                   | :                 | -                 | 1                   | <0.50             |
| 1-Metriyirlaprimalerie   | 1.305-01   | 1.30E-01  | +  | ₹)                | +        | -   | 20.20               | 1                 | ;                    | +                   | <u>'</u>          | •                 | :                   | X X               |
| 2-Butanone (MEK)   | 127F+00  | 1 27F+00  | -  | 100               | ╁        | +   | <0.50               |                   | †<br>' '             |                     |                   |                   | ;<br> -             | 25.0              |
| 2-Chlorotoluene  | 6.24E-01   | 6.24E-01  | 6.24E-01   | _                 | ╁        | +   | <0.050              | ;                 |                      | :                   | 1                 |                   |                     | <0.50             |
| 2-Hexanone   | 1  | -   | Н  | Ц                 | Н        | Н   | <0.50               |                   | :                    | -                   | ,                 |                   | 1                   | <5.0              |
| 2-Methylnaphthalene  | 9.00E-01   | 9.00E-01  | 9.00E-01   | (6)               | +        | $\vdash$  | <0.20               |                   | -                    | :                   | 1                 | -                 | ,                   | 16                |
| 4-Chlorotoluene  | 2.80E+00   | 2.80E+00  | $\rightarrow$  | 4                 | $\dashv$ | -   | <0.050              | :                 | ;                    | •                   | :                 | 1                 | 1                   | <0.50             |
| 4-Isopropyltoluene   | :  | !   | 1  | +                 | mg/Kg    | $\dashv$  | <0.050              | •                 | :                    | -                   | -                 | •                 | :                   | 1.2               |
| 4-Methyl-z-pentarione  | 3 84E+00   | 3 84E+00  | -  | = =               | +        | +   | <0.50               |                   | :                    | •                   | :   :             | :                 | -                   | \$5.0             |
| Renzene  | 1 85F-03   | 1 85E-03  | +  | $\perp$           | +-       | +   | <0.050              | +                 |                      |                     | . :               | ·<br>             | <u> </u>            | 2                 |
| Bromobenzene   | 1.50E-02   | 1.50E-02  | +-   | $\bot$            | +        | -   | <0.050              |                   | ;                    |                     |                   |                   | ,                   | <0.50<br>>0.50    |
| Bromodichloromethane   | 2.76E-04   | 2.76E-04  | -  | _                 | ╁        | ╄   | <0.050              | :                 |                      | :                   | '                 |                   |                     | <0.50             |
| Bromoform  | 2.30E-02   | 2.30E-02  | $\vdash$   |                   | Н        | Н   | <0.050              |                   |                      |                     |                   | ,                 |                     | <0.50             |
| Bromomethane   | 1.94E-03   | 1.94E-03  | $\rightarrow$  | E :               | +        | -   | <0.10               | -                 | -                    | •                   | :                 | '                 |                     | <1.0              |
| Carbon disultide   | 2.52E-01   | 2.52E-01  |  | 4-                | +        | 4   | <0.50               | -                 | '                    | :                   |                   | :                 | -                   | <5.0              |
| Carbon tetracinoride   | 7.39E-04<br>5.38E-02                                     | 7.39E-04<br>5.38E-02                                      | 7.39E-04   | 3 8               | mg/Kg    | 0 050 OS  | <0.050              | +                 | <u> </u>             | †                   | +                 | <u> </u>          | : ;                 | 0.10              |
|  |  |   | _  |                   | 1        | -   |                     |                   |                      | -                   |                   |                   |                     | 33.5              |

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

|   |  |   | 3  | :                 | , ,           |                   | produities remery, produities, new mexico | <u>}</u> |                       |                     |           |                                  |                  |                   |
|---|--|---|--|-------------------|---------------|-------------------|---|----------|-----------------------|---------------------|-----------|----------------------------------|------------------|-------------------|
| Analytes  | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(2-10' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs) | Source            | Units         | (.6.0-0) T-82 OOA |   |          | 4UG ('0.1-0) 8-85 OOA | AOC 26-8 (1.5-2.0') |           | ('6.0-0) e-8s OOA                |                  | AOC 26-9 (36-38') |
| Sample Date   |  |   |  |                   | 7             | /20/2009 4        | 4/20/2009 4                               | 600      | 4/16/2009             | 4/16/2009           | 4/16/2009 | 4/20/2009                        | 4/20/2009        | 1/20/2009         |
| Chloroethane  | 70 389 V   | - 4 685 04  | A 68E 04   | (1)               | Т             | 40.10<br>70.050   | VO.10                                     | :   ;    | :   ;                 | '                   | •         | ·   ·                            |                  | 0.1.0             |
| Chloromethane   | 4.00E-04   | 4.06E-04<br>4.18F-03                                      | 4 18F-03   | $\bot$            | mo/Ka         |                   | <0.050                                    |          | <b>:</b>   :          | : :                 |           | ;                                | :   '            | <0.50             |
| cis-1.2-DCE   | 9.43E-02   | 9.43E-02  | 9.43E-02   | 1                 | Т             | 1                 | <0.050                                    |          | :                     | 1                   | ı         | '                                |                  | <0.50             |
| cis-1,3-Dichloropropene                                   | 1.35E-03   | 1.35E-03  | 1.35E-03   | ╙                 | $\Gamma$      | <0.050            | <0.050                                    | :        | ,                     | :                   | :         | :                                |                  | <0.50             |
| Dibromochloromethane                                      | 3.38E-04   | 3.38E-04  | 3.38E-04   | Щ                 |               | 1                 | <0.050                                    |          | :                     | 1                   | -         | ;                                |                  | <0.50             |
| Dibromomethane  | 9.10E-02   | 9.10E-02  | 9.10E-02   | _                 | $\dashv$      | +                 | <0.10                                     | •        | 1                     | :                   | •         | -                                | ;                | ×1.0              |
| Dichlorodifluoromethane<br>Ethylborzeno                   | 7.23E-01   | 7.23E-01  | 7.23E-01   |                   | mg/Kg         | +                 | <0.050                                    | : :      |                       | ' '                 | <u>.</u>  |                                  |                  | 22                |
| Hexachlorobutadiene                                       | 2.20E+02   | 2.20E+02  | 1.90E-02   | _                 | +             | +-                | <0.10<br><0.10                            |          | 1                     | ;                   | 1         | 1                                | :                | ×1.0              |
| Isopropylbenzene  | 9.86E-01   | 9.86E-01  | 9.86E-01   | Ш                 | Н             | <0.050            | <0.050                                    |          | ;                     | :                   | 1         | ;                                |                  | 2.6               |
| Methyl tert-butyl ether (MTBE)                            | 2.29E-02   | 2.29E-02  | 2.29E-02   | 4                 | +             | +                 | <0.050                                    | 1        | :                     | -                   | :         | :                                | :                | <0.50<br>7. F     |
| Naphthalana   | 1.07E-02<br>4 19E-03                                     | 1.07E-02<br>4 19E-03                                      | 1.07E-02<br>4 19E-03                                     |                   |               | +                 | 0 10                                      | <u>.</u> |                       | :   ;               | : :       | : :                              | :   '            | ÷                 |
| n-Butylbenzene  | -  | -   | -  | ╄                 | ╀             | ╀                 | <0.050                                    |          |                       |                     |           | <u>'</u>                         |                  | 2                 |
| n-Propylbenzene   | 1  |   | :  | ŭ                 | mg/Kg         | -                 | <0.050                                    | ,        |                       | :                   |           | -                                | -                | 12                |
| sec-Butylbenzene  | -  | 1   | 1  | ш́                | $\dashv$      | <0.050            | <0.050                                    | :        | 1                     | 1                   | :         | 1                                | :                | 2.1               |
| Styrene   | 1.56E+00   | 1.56E+00  | 1.56E+00   | (1)<br>m          | +             | +                 | <0.050                                    | ,        | •                     | ;                   | ;         | •                                | :                | <0.50             |
| tert-Butylbenzene   |  |   | -  | 4                 | mg/Kg         | +                 | <0.050                                    | :        | :                     | :                   | :         | :                                | ;                | 0.50              |
| Tetrachloroethene (PCE)                                   | 4.49E-04   | 1 385+00  | 4.49E-04   |                   | +             | <0.050            | <0.030                                    |          |                       |                     | :         | •                                |                  | 23                |
| trans-1.2-DCE   | 3.01E-02   | 3.01E-02  | 3.01E-02   | ┺                 | ╁             | <0.050            | <0.050                                    |          | :                     | :                   | 1         | ;                                | 1                | <0.50             |
| trans-1,3-Dichloropropene                                 | 1.35E-03   | 1.35E-03  | 1.35E-03   | (1) mg            | Н             | <0.050            | <0.050                                    |          | ,                     | -                   |           | ;                                | -                | <0.50             |
| Trichloroethene (TCE)                                     | 5.30E-03   | 5.30E-03  | 5.30E-03   | $\perp$           | $\dashv$      | <0.050            | <0.050                                    |          | •                     | •                   | 1         | :                                | :                | <0.50             |
| Trichlorofluoromethane                                    | 9.01E-01   | 9.01E-01  | 9.01E-01   | (1)<br>m<br>m     | mg/Kg         | <0.050            | <0.050                                    |          | ; 1                   |                     |           | :   '                            | ;                | 0.50              |
| Xvienes Total   | 1 76F-01   | 1.76F-01  | 1 76F-01   | ┸                 | +             | <0.10             | <0.10                                     |          | <u> </u>              | ,                   | ·   ·     | <u> </u>                         |                  | 130               |
| Volatile Organic Compounds - (EPA Method 8260B) ug/Kg-dry | A Method 82  | 360B) ua/Ka-dn  | 1.   | ╛                 | 6             |                   |   |          |                       |                     |           |                                  |                  |                   |
| 1,1,1,2-Tetrachloroethane                                 | 1.73E+00   | 1.73E+00  |  | (1) µg/Kg-dry     | Ш             | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | 096:0>           | :                 |
| 1,1,1-Trichloroethane                                     | 2.98E+03   | 2.98E+03  | 2.98E+03   | (1) µg/k          |               | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | 096.0>           |                   |
| 1,1,2,2-Tetrachloroethane                                 | 2.25E-01   | 2.25E-01  | 2.25E-01   | (1) µg/K          | _             | <0.919            | 40.984                                    | <0.928   | <0.991                | 5 5                 | <0.912    | 00 00<br>00 00<br>00 00<br>00 00 | <0.950<br><0.950 |                   |
| 1.1-Dichlomethane   | 6.74E-01   | 6.09F+00  | 6.74E-01   | _                 | no/Ka-dry     | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | <0.960           | 1                 |
| 1.1-Dichloroethene  | 1.19E+02   | 1.19E+02  | 1.19E+02   | +                 |               | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | <0.960           |                   |
| 1,1-Dichloropropene                                       |  | -   |  | -                 | Ш             | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | >0.896                           | <0.960           | 1                 |
| 1,2,3-Trichlorobenzene                                    | -  | -   | -  | $\rightarrow$     |               | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | <0.960           | -                 |
| 1,2,3-Trichloropropane                                    | 3.56E-02   | 3.56E-02  | 3.56E-02   | (1)<br>(2)<br>(3) | ug/Kg-dry     | +                 | <0.984                                    | <0.928   | <0.991                | V 1.09              | <0.912    | <0.896<br><0.896                 | 096.0            |                   |
| 1.2.4-Trimethylbenzene                                    | 2.40E+01   | 2.40E+01  | 2.40E+01   |                   | 4             | ╀                 | <0.984                                    | 4.33     | 1.6                   | <1.09               | 3.2       | <0.896                           | 096.0>           | :                 |
| 1,2-Dibromo-3-chloropropane                               | 2.97E-03   | 2.97E-03  | 2.97E-03   | (1) µg/k          | 1 1           | Н                 | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | >0.896                           | 096:0>           | :                 |
| 1,2-Dibromoethane (EDB)                                   | 1.58E-02   | 1.58E-02  | 1.58E-02   | (1) µg/l          | _             | $\dashv$          | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | <0.960           | -                 |
| 1,2-Dichlorobenzene                                       | 3.13E+02   | 3.13E+02  | 3.13E+02   | _                 | _             | +                 | <0.984                                    | <0.928   | <0.991                | 41.09               | <0.912    | 40.896<br>40.896                 | 0.960            | ;                 |
| 1,2-Dichloroethane (EDC)                                  | 3.65E-01   | 3.65E-01  | 3.65E-01   | (1) Jug/K         | ug/Kg-dry     | <0.919            | <0.984<br><0.984                          | <0.928   | <0.99<br><0.991       | V V                 | <0.912    | <0.090<br><0.896                 | 096.0>           | :                 |
| 1.3.5-Trimethylbenzene                                    | 2.00E+01   | 2.00E+01  | 2.00E+01   | _                 |               | +-                | <0.984                                    | <0.928   | <0.991                | 41.09               | <0.912    | <0.896                           | <0.960           | :                 |
| 1,3-Dichlorobenzene                                       | _  | 1   |  |                   | $\Box$        | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | >0.896                           | <0.960           | :                 |
| 1,3-Dichloropropane                                       | 2.70E+02   | 2.70E+02  | 2.70E+02   | (3) µg/k          | $\dashv$      | -                 | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | <0.960           | :                 |
| 1,4-Dichlorobenzene                                       | 3.57E+00   | 3.57E+00  | 3.57E+00   |                   | _             | $\dashv$          | <0.984                                    | <0.928   | <0.991                | 41.09               | <0.912    | <0.896                           | <0.960           | 1                 |
| 2,2-Dichloropropane                                       | 1 275±03   | 4 27E±03  | 1 275 ±03  |                   | -             | +                 | 40.984<br>63.04                           | <3.71    | <3.07                 | 24.38               | 9 58      | <0.030<br><3.58                  | <3.84            | : :               |
| 2-Chlorotoluene   | 6.24E+02   | 6.24E+02  | 6.24E+02   | (3)               | ug/Kg-dry     | <0.919            | <0.984                                    | <0.928   | <0.991                | <1.09               | <0.912    | <0.896                           | <0.960           | ı                 |
| 2-Hexanone  |  | 1   |  |                   | 1 1           | ╀╌┤               | <3.94                                     | <3.71    | <3.97                 | <4.36               | <3.65     | <3.58                            | <3.84            |                   |
| 4-Chlorotoluene   | 2.80E+03   | 2.80E+03  | 2.80E+03   | (S) µg/k          | $\rightarrow$ | <0.919            | <0.984                                    | <0.928   | <0.991                | 41.09               | <0.912    | <0.896                           | 0.960            | 1                 |
| 4-Isopropyltoluene  | 1  | 1   | :  | 1/6/1             | - 1           | -                 | <0.984                                    | <0.928   | <0.991                | 41.09               | <0.912    | <0.896                           | <0.95U           | -                 |
| 4-Methyl-2-pentanone                                      |  | -   | •  | l hgv             | - 1           | -                 | <.3.84<br>                                | 53.71    | 53.87                 | 54.30               | <3.00     | \$3.30 T                         | 15.04            | '                 |

Table 10 Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26 Bloomfield Refinery, Bloomfield, New Mexico

| Professional Resolution   Professional Security   Pr  |   |  |   |  |                              |           |                            |                    |                       |                         |                         |  |                     |                   |
|---|---|--|---|--|------------------------------|-----------|----------------------------|--------------------|-----------------------|-------------------------|-------------------------|--|---------------------|-------------------|
| 3.94E-03   3.94E-03   3.94E-03   0.1946-37   0.1946-  | Ansirtos                                | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(2-10' bgs) | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs) |                              | (0-0.5')  | (0,5-3,1) 7-85 20 <i>0</i> | /OC 56-8 (0-1.0')  | 4UG (0-1.0') B-8S 2OV | /OC 5e-8 (1·2-5·0.)     | /OC 5e-8 (35-3e.)       | /OC 56-9 (0-0.5')  | /OC 56-9 (1.5-2.0') | /OC 5e-3 (3e-38.) |
| 1,56E-00   1,56E-00   1,56E-01   | Sample Date                             |  |   |  | SIIID                        | 4/20/2009 | 3/2009                     | 3/2009             | 4/16/2009             | 7                       |                         | 4/20/2   | 4/20/2009           |                   |
| 186E-00   188E-00   188E-00   188E-00   198E-00   198E  | Acetone                                 | 3.84E+03   | 3.84E+03  | 3.84E+03   |                              | 78        | 5.8                        | 3.71               | <3.97                 |                         |                         | 7.7  | 6.71                |                   |
| 150E+01   150E  | Benzene                                 | 1.85E+00   | 1.85E+00  | $\rightarrow$  | (1) µg/Kg-dı                 | <0.919    | <0.984                     | <0.928             | <0.991                | <1.09                   | 0.966                   | <0.896   | <0.960              |                   |
| 2.76E-01  | Bromobenzene                            | 1.50E+01   | 1.50E+01  |  | (3) µg/Кg-dı                 | <0.919    | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | -                 |
| 1.94E-00   | Bromodichloromethane                    | 2.76E-01   | 2.76E-01  | _  | (1) µg/Kg-dı                 |           | <0.984                     | <0.928             | <0.991                | V 1.09                  | <0.912                  | <0.896   | <0.960              | •                 |
| 1.25E-700   1.25E-702   2.5E-702   1.0  | Bromotorm                               | 2.30E+01   | 2.30E+01  | +  | (4) µg/Kg-di                 |           | <0.984                     | <0.928             | <0.991                | V 1.09                  | <0.912                  | <0.896   | <0.960              | :                 |
| Content   | Bromometnane<br>Corbon distributo       | 1.94E+00   | 1.94E+UU  | -  |                              | -         | 40.30                      | <0.928             | <0.991                | 80.12                   | 218.02                  | \$0.030<br>\$2.50  | 00.300<br>00.3000   |                   |
| 6. 38E-01 6.38E-01 (1) 1987kg-17 (-0.918 - 0.084 - 0.028 - 0.0                                      | Carbon fetrachloride                    | 7 39E-01   | 7.32E+02  | ┰  |                              | _         | 20 08A                     | 17.57<br>80.00     | 1990                  | 00.10                   | \$ 60.00                | 20.30<br>808<br>00.00  | 20 OF               | :  <br>!          |
| 1.05E-07   4.68E-01   4.68E-01   10 jafkg-dry -0.1919   -0.0964   -0.928   4.48E-00   4.16E-00   1.0 jafkg-dry -0.1919   -0.094   -0.928   4.48E-00   4.16E-00   1.0 jafkg-dry -0.1919   -0.094   -0.928   -0.92  | Chlorobenzene                           | 5.38F+01   | 5.38E+01  | +-   |                              | ┸         | <0.304                     | <0.928             | <0.991                | 60.12                   | <0.912                  | ×0.896   | 096.0>              | ١,                |
| 4.58E_01   4.58E_01   4.58E_01   1, jagNg_ddy 0.0919 0.0984 0.0928     4.38E_00   4.18E_00   4.18E_00   4.18E_00   1, jagNg_ddy 0.0919 0.0984 0.0928     6.33E_01   3.38E_01   3.38E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     6.33E_01   3.38E_01   3.38E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     6.33E_01   3.38E_01   3.38E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_02   7.23E_02   7.23E_02   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_02   7.23E_02   7.23E_02   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_02   7.23E_02   7.23E_02   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_02   2.20E_03   2.20E_03   1.90E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_02   2.20E_03   2.20E_03   1.90E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   2.20E_03   1.20E_03   1.90E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   2.20E_03   1.30E_03   1.90E_01   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   2.20E_03   1.90E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   2.20E_03   1.90E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   2.20E_03   1.90E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   1.32E_03   1.32E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   1.32E_03   1.32E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   1.32E_03   1.32E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   1.32E_03   1.32E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   1.32E_03   1.32E_03   1.90E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   2.20E_03   1.32E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   3.57E_03   3.57E_03   0, jagNg_ddy 0.0919 0.0984 0.0928     7.32E_03   3.57E_03   3.57E_03   0, jagNg_ddy 0.0919 0.0984 0.0984     7.32E_03   3.57E_03   1.32E_03   0, jagNg_ddy 0.0998   | Chloroethane                            | -  | -   | +  |                              | ╀         | <0.984                     | <0.928             | <0.991                | 00<br>V                 | <0.912                  | <0.896   | <0.960              |                   |
| 4.18E+00  | Chloroform                              | 4.68E-01   | 4.68E-01  | +  | (1) µg/Kg-dr                 | 1         | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              |                   |
| 138E-01   348E-01   348E-01   10 µg/kg-dy   0.0919   0.0944   0.0928   0.  | Chloromethane                           | 4.18E+00   | 4.18E+00  | -  | (1) µg/Kg-dr                 | 1         | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              |                   |
| 133E-10   133E  | cis-1,2-DCE                             | 9.43E+01   | 9.43E+01  | 9.43E+01   | (1) µg/Kg-dı                 | 1 1       | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | 1                 |
| 138E-01   3.38E-01   3.38E-01   0) µg/kg-dry   0.919   0.994   0.928  | cis-1,3-Dichloropropene                 | 1.35E+00   | 1.35E+00  | _  | (1) µg/Kg-di                 | - 1       | <0.984                     | <0.928             | <0.991                | ×1.09                   | <0.912                  | <0.896   | <0.960              | •                 |
| A   | Dibromochloromethane                    | 3.38E-01   | 3.38E-01  | _  |                              | _         | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | :                 |
| 1,23E-02   1,23E-04   1,39E-04   1,19E/Rg-dry   0.919   0.994   0.928   0.92  | Dishlorodial incompations               | 9.10E+01   | 9.10E+01  | _  | (3) µg/kg dr                 | _         | 40.984<br>70.084           | \$76.02<br>\$0.020 | V0.99                 | S 2                     | 50.912<br>70.012        | 060.0  | 20.900              | :                 |
| 2.20E+06   2.20E+05   1.90E+01   0   191Kg-dry   0.519   0.0584   0.0288   | Ethylbanzana                            | 1.46F±01   | 1.23E+02  | _  | (1) pg/kg-dr                 |           | <0.904<br><0.084           | <0.920             | <0.33                 | 8 2                     | <0.012                  | <0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0.030<br><0 | 0000                | ٠   ،             |
| 10   10   10   10   10   10   10   10   | Hexachlorobutadiene                     | 2.20E+05   | 2.20E+05  | _  | (4) ug/Ka-di                 |           | <0.984                     | <0.928             | <0.991                | 41.09                   | <0.912                  | <0.896   | <0.960              | ;                 |
| (MTBE) 2.29E+01 2.29E+01 (1) LgNG-drý <0.019 <0.984 <0.928<br>4.19E+00 4.10F+01 1.07E+01 (1) LgNG-drý <0.919 <0.984 <0.928<br>  | Isopropylbenzene                        | 9.86E+02   | 9.86E+02  | +  | (1) µg/Kg-dr                 | 1         | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | '                 |
| 107E+01   | Methyl tert-butyl ether (MTBE)          | 2.29E+01   | 2.29E+01  | -  | (1) µg/Kg-dı                 | 11        | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | >0.896   | 096.0>              | •                 |
| ## 19E+00 # 19E+00 (1) IgNG-dry 0.919 0.0384 1.82   | Methylene chloride                      | 1.07E+01   | 1.07E+01  | _  |                              | _         | 6.38                       | 8.24               | 10.5                  | 9.76                    | 8.38                    | 5.73   | 6.57                | -                 |
| Fig. 2016   Fig.  | Naphthalene<br>n Birkibenzene           | 4.19E+00   | 4.19E+00  | _  |                              | $\bot$    | <0.984<br><0.984           | 1.82               | <0.991                | 20.03                   | 2.34                    | <0.890<br><0.890<br><0.896   | 096.0               | .                 |
| 1560  | n-Propylbenzene                         | -  |   |  | ng/Kg-dr                     | 1         | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | ,                 |
| 1560   1560   156E+03   (1) µg/Kg-dry   (0.919   0.0984   0.0228  | sec-Butylbenzene                        | :  | 1   |  | ug/Kg-dr                     | 1 !       | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | >0.896   | <0.960              |                   |
| E   | Styrene                                 | 1560   | 1560  | 1.56E+03   | (1) µg/Kg-dr                 |           | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | •                 |
| 138E+01   1,43E+01   1,43E+01   1,  | tert-Butylbenzene                       |  | 1 101 04  | +  |                              | 4         | <0.984                     | <0.928             | <0.991                | 4.09                    | <0.912                  | 968.0  | 096.0>              | :                 |
| ene 1.35E+00 1.35E+00 (1) µg/Kg-dry <0.919 <0.984 <0.928   1.35E+00 1.35E+00 (1) µg/Kg-dry <0.919 <0.984 <0.928   2.01E+02 2.01E+02 9.01E+02 (1) µg/Kg-dry <0.919 <0.984 <0.928   9.01E+02 9.01E+02 9.01E+02 (1) µg/Kg-dry <0.919 <0.984 <0.928   1.76E+02 1.76E+02 1.76E+02 (1) µg/Kg-dry <0.919 <0.984 <0.928   2.88E-01 2.88E-01 2.88E-01 (1) µg/Kg-dry <0.919 <0.984 <0.928   2.88E-01 2.88E-01 1.76E+02 1.76E+02 (1) µg/Kg-dry <0.919 <0.984 <0.928   3.13E-01 3.13E-01 3.13E-01 (1) µg/Kg-dry <0.919 <0.020 <0.20   3.13E-01 3.13E-01 3.13E-01 (1) µg/Kg-dry <0.020 <0.20 <0.20   7.13E+00 7.13E+00 7.13E+00 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 3.13E-01 3.13E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 3.13E-01 3.13E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-02 7.13E-02 7.13E-02 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.37E-01 1.37E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.35E-01 1.35E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.35E-01 1.35E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-02 7.13E-02 7.13E-02 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.35E-01 1.35E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.35E-01 1.35E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-02 5.25E-02 5.25E-02 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.35E-01 1.35E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.13E-01 1.35E-01 1.35E-01 (1) µg/Kg <0.20 <0.20 <0.20   7.30E-02 0 0.00E-00 0 0.00E-00 (0) µg/Kg <0.20 <0.20 <0.20   7.30E-02 0 0.00E-00 0 0.00E-00 (3) µg/Kg <0.20 <0.20 <0.20   7.00E+00 0 0.00E-00 (3) µg/Kg <0.20 <0.20 <0.20   7.00E+00 0 0.00E+00 (3) µg/Kg <0.20 <0.20 <0.20   7.00E-00 0 0.00E+00 (3) µg/Kg <0.20 <0.20 <0.20   7.00E+00 0 0.00E+00 (1) µg/Kg <0.20 <0.20 <0.20 <0.20   7.00E+00                                       | Toluene                                 | 1.38E+03   | 1.38E+03  |  | (1) pg/kg-dr<br>(1) ug/Kg-dr |           | <0.984<br>0.984            | 3.92               | 3.55                  | × 1.09                  | <0.912                  | <0.896   | <0.960              | ٠                 |
| ene 1.35E+00 1.35E+00 (1) µg/Kg-dry <0.919 <0.984 <0.928<br>5.30E+00 5.30E+00 5.30E+00 (1) µg/Kg-dry <0.919 <0.984 <0.928<br>2.80E-01 2.80E-01 2.80E-01 (1) µg/Kg-dry <0.919 <0.984 <0.928<br>2.80E-01 1.70E+02 1.70E+02 (1) µg/Kg-dry <0.919 <0.984 <0.928<br>3.13E-01 1.70E+02 1.70E+02 (1) µg/Kg-dry <0.919 <0.984 <0.928<br>3.13E-01 3.13E-01 1.70E+02 (1) µg/Kg-dry <0.919 <0.084 <0.928<br>2.80E-01 3.13E-01 3.13E-01 (1) µg/Kg-dry <0.919 <0.020 <0.20<br>3.57E-03 3.57E-03 1.70E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>7.13E-02 7.13E-02 7.13E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>7.13E-01 3.57E-03 1.70E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>3.57E-01 3.57E-01 1.70E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>5.25E-02 7.13E-01 1.70E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-02 5.25E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>1.56E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-02 2.57E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>1.56E-01 1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.00E+00 2.00E+00 2.00E+00 (3) µg/Kg <0.20 <0.20 <0.20<br>3.30E-02 3.30E-02 3.30E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>2.00E+00 2.00E+00 2.00E+00 (3) µg/Kg <0.20 <0.20 <0.20<br>3.30E-02 3.30E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>3.30E-02 1.70E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>3.30E-02 1.70E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>3.30E-02 3.30E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>3.30E-02 1.70E-02 (1) µg/K | trans-1,2-DCE                           | 3.01E+01   | 3.01E+01  | -  | (1) µg/Kg-dr                 | $\sqcup$  | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | >0.896   | <0.960              |                   |
| 85.0E+00 5.30E+00 (1) µg/Kg-dry <0.919 <0.984 <0.928<br>9.01E+02 9.01E+02 (1) µg/Kg-dry <0.919 <0.918 <0.928 <0.928<br>1.76E+02 1.76E+02 (1) µg/Kg-dry <0.919 <0.919 <0.928 <0.928<br>1.02E-02 1.76E+02 (1) µg/Kg-dry <0.919 <0.924 <0.928<br>1.02E-02 1.02E-02 1.76E+02 (1) µg/Kg-dry <0.919 <0.924 <0.928<br>1.02E-02 1.02E-02 1.02E-02 (1) µg/Kg-dry <0.210 <0.20 <0.20<br>1.02E-03 1.31E-01 3.13E-01 (1) µg/Kg-dry <0.20 <0.20 <0.20<br>2.57E-03 3.57E-03 3.57E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>7.13E+00 7.13E+00 7.13E+00 (1) µg/Kg <0.20 <0.20 <0.20<br>7.13E-01 1.37E-01 1.37E-01 (1) µg/Kg <0.20 <0.20 <0.20<br>7.13E-02 7.13E-02 7.13E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>9.12E-01 9.12E-01 (1) µg/Kg <0.20 <0.20 <0.20<br>1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-02 5.25E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-02 1.55E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-02 1.55E-02 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.25 <0.25<br>2.57E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-02 1.53E-01 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.25 <0.25 <0.25<br>2.57E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 1.56E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 2.57E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 2.57E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 2.57E-03 1.56E-03 (1) µg/Kg <0.25 <0.25 <0.25<br>2.57E-03 2.57E-03 1.56E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 2.57E-03 1.55E-03 (1) µg/Kg <0.25 <0.25 <0.25<br>2.57E-03 2.57E-03 1.55E-03 (1) µg/Kg <0.20 <0.20 <0.20<br>2.57E-03 2.57E-03 1.55E-03 (1) µg/Kg <0.20 <0.20 <0.20 <0.20<br>2.57E-03 2.57E-03 2.57E-03 (1) µg/Kg <0.20 <0.20 <0.2  | trans-1,3-Dichloropropene               | 1.35E+00   | 1.35E+00  | $\rightarrow$  | (1) µg/Kg-dı                 |           | <0.984                     | <0.928             | <0.991                | <1.09                   | <0.912                  | <0.896   | <0.960              | 1                 |
| SS - (EPA Method 8270) mg/kg  1.76E+02  | Trichlorethene (TCE)                    | 5.30E+00   | 5.30E+00  |  | (1) µg/Kg-dr                 |           | <0.984                     | <0.928             | <0.991                | 7.09                    | <0.912                  | 40.896<br>0.896  | <0.960              | :                 |
| SS- (EPA Method 8270) mg/kg         1.76E+02         1.76E+03         2.76E-03         2.77E-03         2.76E-03         2.77E-03         2.  | Vinyl chloride                          | 2.01E+02   | 2.88E-01  |  | (1) ua/Ka-dr                 | - 1       | <0.304                     | <0.928             | <0.99                 | 00.10                   | <0.912                  | <0.890   | 096.0>              | ٠                 |
| Se - (EPA Method 8270) mg/kg           5. (EPA Method 8270) mg/kg         1.02E-02         1.02E-03         1.02   | Xylenes, Total                          | 1.76E+02   | 1.76E+02  |  | (1) µg/Kg-dr                 |           | <0.984                     | <0.928             | <0.991                | <1.09                   | 2.54                    | <0.896   | <0.960              | :                 |
| 1.02E-02  | Semi Volatile Organics - (EPA Me        | thod 8270) m   | g/kg  |  |                              | l l       |                            |                    |                       |                         |                         |  |                     |                   |
| 3.13E-01 3.13E-01 (1) mg/kg <0.20 <0.20 <0.20  3.57E-03 3.57E-03 (1) mg/kg <0.20 <0.20 <0.20  7.13E+00 7.13E+00 7.13E+00 (1) mg/kg <0.20 <0.20 <0.20  7.13E-02 7.13E-02 7.13E-02 (1) mg/kg <0.20 <0.20 <0.20  7.13E-01 1.37E-01 1.37E-01 (1) mg/kg <0.20 <0.20 <0.20  9.12E-01 9.12E-01 (1) mg/kg <0.40 <0.40 <0.40  9.12E-01 9.12E-01 (1) mg/kg <0.30 <0.30  1.56E-02 5.25E-02 5.25E-02 (1) mg/kg <0.40 <0.40 <0.40  1.56E-03 1.56E-03 1.56E-03 (1) mg/kg <0.50 <0.50 <0.50  2.67E-02 2.67E-02 2.67E-02 (1) mg/kg <0.50 <0.50 <0.50  1.35E+01 1.35E+01 1.35E+01 (1) mg/kg <0.25 <0.25 <0.25  1.35E-01 1.55E-01 (2) mg/kg <0.20 <0.20 <0.20  9.00E-01 9.00E-01 9.00E-01 (3) mg/kg <0.25 <0.25 <0.25  2.00E+00 2.00E+00 2.00E+00 (3) mg/kg <0.20 <0.20 <0.20  3.30E-02 3.30E-02 (3) mg/kg <0.25 <0.25 <0.25  | 1,2,4-Trichlorobenzene                  | 1.02E-02   | 1.02E-02  | _  |                              | $\dashv$  | <0.20                      | <0.20              | <0.20                 | <0.20                   | <0.20                   | <0.20  | <0.20               | <0.20             |
| 3.57E-03 3.57E-03 (1) mg/Kg <0.20 <0.20 <0.20 7.13E+00 7.13E+00 (1) mg/Kg <0.20 <0.20 <0.20 7.13E+00 7.13E+00 (1) mg/Kg <0.20 <0.20 <0.20 7.13E-02 7.13E-02 7.13E-02 (1) mg/Kg <0.20 <0.20 <0.20 1.37E-01 1.37E-01 1.37E-01 (1) mg/Kg <0.40 <0.40 <0.40 9.12E-01 9.12E-01 9.12E-01 (1) mg/Kg <0.30 <0.30 <0.30 5.25E-02 5.25E-02 5.25E-02 (1) mg/Kg <0.40 <0.40 <0.40 1.56E-03 1.56E-03 1.56E-03 (1) mg/Kg <0.50 <0.50 <0.50 1.35E+01 1.35E+01 (1) mg/Kg <0.50 <0.50 <0.50 1.35E+01 1.35E+01 (1) mg/Kg <0.25 <0.25 <0.25 1.35E-01 1.35E+01 (1) mg/Kg <0.20 <0.50 <0.50 1.35E+01 1.35E+01 (1) mg/Kg <0.25 <0.25 <0.25 1.35E-01 1.53E-01 (1) mg/Kg <0.20 <0.20 <0.20 9.00E-01 9.00E-01 (1) mg/Kg <0.20 <0.20 <0.20 2.00E+00 2.00E+00 (2.00E+00 (3) mg/Kg <0.25 <0.25 <0.25 1.70E-02 1.70E-02 (1) mg/Kg <0.20 <0.20 <0.20 1.70E-02 (1) mg/Kg <0.20 <0.20 <0.20 <0.20 1.70E-03 (1) mg/Kg <0.20 <0.20 <0.20 <0.20 1.70E-03 (1) mg/Kg <0.20 <0.20 <0.20 <0.20 1.70E-03 (1) mg/Kg <0.20 <0.20 <0.20 <0.20 1.70E-02 (1) mg/Kg <0.20 <0.20 <0.20 <0.20 1.70E-02 (1) mg/Kg <0.25 <0.25 <0.25 <0.25  | 1,2-Dichlorobenzene                     | 3.13E-01   | 3.13E-01  | $\neg$   | 丄                            | +         | \$ 0.20<br>\$ 0.20         | <0.20              | <0.20                 | <0.20                   | <0.20                   | <0.20  | <0.20               | 40.20<br>40.20    |
| 7.13E+00   | 1,3-Dichlorobenzene                     | 3.57F-03   | 3.57F-03  | -  | _                            | +         | \$0.20<br>\$0.20           | 0.20               | \$0.20<br>\$0.20      | 0.20                    | 02.02                   | 0.20   | \$0.20<br>\$0.20    | \$0.20<br>\$0.20  |
| 7.13E-02         7.13E-02         7.13E-02         7.13E-02         7.13E-02         7.13E-01         1.37E-01   | 2.4.5-Trichlorophenol                   | 7.13E+00   | 7.13E+00  | +-   | 1-                           | ╀         | <0.20                      | <0.20              | <0.20                 | <0.20                   | <0.20<br><0.20          | <0.20<br><0.20   | <0.20               | <0.20             |
| 1.37E-01         1.37E-01         1.37E-01         (1) mg/kg         <0.40         <0.40         <0.40           9.12E-01         9.12E-01         9.12E-01         9.12E-01         9.12E-01         (1) mg/kg         <0.30   | 2,4,6-Trichlorophenol                   | 7.13E-02   | 7.13E-02  | +-   | L_                           | ├-        | <0.20                      | <0.20              | <0.20                 | <0.20                   | <0.20                   | <0.20  | <0.20               | <0.20             |
| 9.12E-01         9.12E-01         9.12E-01         (1) mg/Kg         <0.30  | 2,4-Dichlorophenol                      | 1.37E-01   | 1.37E-01  |  | Ш                            | $\vdash$  | <0.40                      | <0.40              | <0.40                 | <0.40                   | <0.40                   | <0.40  | <0.40               | <0.40             |
| 5.25E-02         5.25E-02         (1)         mg/Kg         <0.40   | 2,4-Dimethylphenol                      | 9.12E-01   | 9.12E-01  | $\rightarrow$  | _                            | +         | <0.30                      | <0.30              | <0.30                 | <0.30                   | <0.30                   | <0.30  | <0.30               | <0.30             |
| 1.56E-03  | 2,4-Dinitrophenol                       | 5.25E-02   | 5.25E-02  | $\rightarrow$  |                              | +         | <0.40                      | <0.40              | <0.40                 | <0.40                   | <0.40                   | \$ 0.40<br>5.50  | <0.40<br>5.75       | 0.40<br>0.40      |
| 2.67E-02         2.67E-02         2.67E-02         (1)         mg/kg         <0.50         <0.50         <0.50           1.35E+01         1.35E+01         (1)         mg/kg         <0.25  | 2,4-Unitrotoluene                       | 1.56E-U3   | 1.56E-U3  | -  | 4                            | +         | CU.30                      | <0.50<br>50.50     | <0.50                 | CU.50                   | V0.30                   | V0.30  | V.30                | 40.32<br>50.32    |
| 1.53E-01   1.53E-01   1.53E-01   (1) mg/kg  | 2,6-Unitrotoluerie                      | 1 255+01   | 4.5/E-02  |  |                              | +         | <0.30<br><0.35             | <0.30<br><0.35     | <0.30<br><0.35        | <0.50<br><0.50<br><0.55 | <0.50<br><0.50<br><0.50 | \$0.50<br>\$0.50   | <0.50               | <0.50<br><0.25    |
| 9.00E-01         9.00E-02   | 2-Chlorophenol                          | 1.53E-01   | 1.53E-01  | +-   | _                            | ┼-        | <0.20                      | <0.20              | <0.20                 | <0.20                   | <0.20                   | <0.20  | <0.20               | <0.20<br><0.20    |
| 2.00E+00   | 2-Methylnaphthalene                     | 9.00E-01   | 9.00E-01  | +  | <u>_</u>                     | ⊬         | <0.25                      | <0.25              | <0.25                 | <0.25                   | <0.25                   | <0.25  | <0.25               | 9                 |
| 3.30E-02 3.30E-02 3.30E-02 (3) mg/Kg <0.20 <0.20 <0.20  | 2-Methylphenol                          | 2.00E+00   | 2.00E+00  | 1  | Ш                            | Н         | <0.50                      | <0.50              | <0.50                 | <0.50                   | <0.50                   | <0.50  | <0.50               | <0.50             |
| 1.70E-02 1.70E-02 1.70E-02 (1) mg/Kg <0.25 <0.25 <0.25  | 2-Nitroaniline                          | 3.30E-02   | 3.30E-02  |  | _                            | +         | <0.20                      | <0.20              | <0.20                 | <0.20                   | <0.20                   | <0.20  | <0.20               | <0.20             |
| 1.70E-02 1.7                                      | 2-Nitrophenol                           | 1 705 00   | 1 70E 00  |  |                              | +         | <0.20                      | <0.20              | <0.20                 | <0.20                   | <0.20                   | <0.20  | <0.20               | 0.20              |
|   | שיים שיים שיים שיים שיים שיים שיים שיים | 1.705-04   | 1./0⊏-02  | 7  |                              | $\dashv$  | VU.4.                      | 77.0               | V0.2.0                | V.2.0                   | V.4.0                   | \V.62  | 70.60               | 70.4C             |

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

|        | VOC 56-9 (36-38')  | 4/20/2009   | 0.20                    | <0.50                      | <0.20                      | <0.50                   | <0.50                       | <0.25          | <0.20         | <0.20        | 0.00                      | <0.20      | <0.20      | 0.20              | 20.20                | <0.50                | <0.20                | <0.50         | \$ 0.20<br>\$ 0.20 | <0.20                   | <0.20                       | <0.50                      | 0.20                   | 02.02                      | <0.20                 | <0.20          | 02.00             | <0.50                | <0.20                | <0.25        | <0.20                          | <0.20               | <0.20                     | <0.20                   | <0.50      | 2.8         | <0.50         | \$ 0.20<br>\$             | 0.40  | 0.56         | \$ 0.20<br>\$ | <0.50      |   | 840                         | \$20                          |
|--------|--|-------------|-------------------------|----------------------------|----------------------------|-------------------------|-----------------------------|----------------|---------------|--------------|---------------------------|------------|------------|-------------------|----------------------|----------------------|----------------------|---------------|--------------------|-------------------------|-----------------------------|----------------------------|------------------------|----------------------------|-----------------------|----------------|-------------------|----------------------|----------------------|--------------|--------------------------------|---------------------|---------------------------|-------------------------|------------|-------------|---------------|---------------------------|---|--------------|---------------|------------|---|-----------------------------|-------------------------------|
|        | AOC 26-9 (1.6-2.0')                                      | 4/20/2009   | _                       | Т                          | 1 1                        |                         | \$0.50                      |                | $\Gamma$      |              | \$0.20                    | <0.20      | <0.20      | 0.20              | 0.20                 | <0.50                | <0.20                | <0.50         | 0.20               | <0.20                   | <0.20                       | <0.50                      | 0.20                   | \$0.20                     | <0.20                 | <0.20          | 07.00             | <0.50                | <0.20                | <0.25        | <0.20                          | <0.20               | <0.20                     | 0.20                    | <0.50      | <0.20       | <0.50         | <0.20                     | <0.20<br><0.40                              | <0.20        | <0.20         | <0.50      |   | ×10                         | 2.0<br>\$50                   |
|        | VOC 56-9 (0-0.5')  | 4/20/2009   | - 1                     | 1                          | 1 1                        | - 1                     | <0.50                       | 1              | 1             | - 1          | - 1                       | 1 1        | 1          | - 1               | 1                    | 1                    | 1 1                  | - 1           | - 1                | 1                       | 1 1                         | ì ì                        | - 1                    | 1                          | 1                     | 1 1            | 1                 | 1 '                  | 1 1                  | ì            | 1                              | 1 1                 | 1 1                       | - 1                     |            | 1 1         |               | - 1                       |   | 1 !          |               | <0.50      | 1 1   | 120                         | 160                           |
|        | VOC 56-8 (32-36')  | 4/16/2009   | \$0.20                  | <0.50                      | <0.20                      | <0.50                   | \$0.50<br>\$0.20            | <0.25          | <0.20         | <0.20        | \$0.20                    | <0.20      | <0.20      | 07.0              | \$0.20<br>\$0.20     | <0.50                | <0.20                | <0.50         | <0.20              | <0.20                   | <0.20                       | <0.50                      | <0.20                  | \$0.20                     | <0.20                 | <0.20          | 07.00             | <0.50                | <0.20                | <0.25        | <0.20                          | <0.20               | <0.20                     | <0.20<br><0.25          | <0.50      | <0.20       | <0.50         | <0.20                     | <0.20                                       | <0.20        | <0.20         | <0.50      |   | V 410                       | 2.5                           |
|        | AOC 26-8 (1.5-2.0')                                      | ଦ୍ର         | - 1                     | 1                          | 1 1                        | - 1                     | <0.50<br><0.20<br><0.20     | 1              | 1 1           |              |                           | 1 1        | <0.20      |                   |                      | 1                    | ll                   | - 1           | - 1                | 1                       | 1 1                         | 1                          |                        | - 1                        | 1                     | <0.20          |                   |                      | H                    | - 1          |                                |                     | ł I                       | - 1                     | 1          | 1 1         |               |                           | 1   | 1 1          |               | <0.50      | 1 1   | 01×                         | 2.0                           |
| qı     | Ua ('0.1-0) 8-8≤ 2OA 8                                   | 4/16/2009   | \$0.20                  | <0.50                      | <0.20                      | <0.50                   | <0.50                       | <0.25          | <0.20         | <0.20        | <0.20                     | <0.20      | <0.20      | <0.20             | \$0.20<br>\$0.20     | <0.50                | <0.20                | <0.50         | <0.20              | <0.20                   | <0.20                       | <0.50                      | <0.20                  | \$0.20<br>\$0.20           | <0.20                 | <0.20          | 07:0><br><0.20    | <0.50                | <0.20                | <0.25        | <0.20<br><0.20                 | <0.20               | <0.20                     | <0.20                   | <0.50      | <0.20       | <0.50         | <0.20                     | <0.20                                       | <0.20        | <0.20         | <0.50      |   | ×10                         | 2 6                           |
|        | - I-   | 4           | <0.20                   | <0.50                      | <0.20                      | <0.50                   | <0.50                       | <0.25          | <0.20         | <0.20        | <0.20                     | <0.20      | <0.20      | 07.0              | \$0.20               | <0.50                | <0.20                | <0.50         | V 0.20             | <0.20                   | <0.20                       | <0.50                      | \$0.20<br>\$0.20       | \$0.20<br>\$0.20           | <0.20                 | <0.20          | 07.00             | <0.50                | <0.20                | <0.25        | <0.20                          | <0.20               | <0.20                     | <0.20<br><0.20<br><0.25 | <0.50      | <0.20       | <0.50         | <0.20                     | <0.20                                       | <0.20        | <0.20         | <0.50      |   | - 5                         | 25.0<br>45.6                  |
|        | AOC 26-7 (1.5-2.0')                                      | 4/20/2009   | <0.20<br><0.20<br><0.20 | <0.50                      | <0.20                      | <0.50                   | 0.50<br>0.50<br>0.50        | <0.25          | <0.20         | <0.20        | \$0.20<br>\$0.20          | <0.20      | <0.20      | 0.20              | 02.00                | <0.50                | <0.20                | <0.50         | 0.20<br>9.30       | <0.20<br><0.20          | <0.20                       | <0.50                      | 0.20<br>7              | \$0.20                     | <0.20                 | <0.20          | 02.02             | <0.50                | <0.20                | <0.25        | <0.20                          | <0.20               | <0.20                     | <0.20<br><0.20<br><0.25 | <0.50      | <0.20       | <0.50         | <0.20                     | <0.20<br><0.40<br><0.40                     | <0.20        | <0.20         | <0.50      |   | 0 5                         | 2.07                          |
|        | AOC 26-7 (0-0.5')  | 4/20/2009   | <0.20                   | <0.50                      | <0.20                      | <0.50                   | \$ 0.50                     | <0.25          | <0.20         | <0.20        | 07.0<br><0.20             | <0.20      | <0.20      | 40.20<br>20.20    | \$0.20<br>\$0.20     | <0.50                | <0.20                | <0.50         | 40.20<br>20.20     | <0.20                   | <0.20                       | <0.50                      | <0.20                  | \$0.20<br>\$0.20<br>\$0.20 | <0.20                 | <0.20          | 02.05             | <0.50                | <0.20                | <0.25        | <0.20                          | <0.20               | <0.20                     | <0.20                   | <0.50      | <0.20       | <0.50         | <0.20                     | <0.20                                       | <0.20        | <0.20         | <0.50      |   | × 10                        | 2.0                           |
|        | Units  |             | mg/Kg                   | mg/Kg                      | mg/Kg                      | mg/Kg                   | mg/Kg<br>mg/Kg              | mg/Kg          | mg/Kg         | mg/Kg        | mg/Kg                     | mg/Kg      | mg/Kg      | mg/Kg             | ma/Kn                | ma/Ka                | mg/Kg                | mg/Kg         | mg/Kg              | ma/Ka                   | mg/Kg                       | mg/Kg                      | mg/Kg                  | mg/Kg                      | mg/Kg                 | mg/Kg          | mg/Kg             | mg/Kg                | mg/Kg                | mg/Kg        | ma/Ka                          | mg/Kg               | mg/Kg                     | mg/Kg                   | mg/Kg      | mg/Kg       | mg/Kg         | mg/Kg                     | ma/Ka                                       | mg/Kg        | mg/Kg         | mg/Kg      | JL  | mg/Kg                       | _ [                           |
|        | Source   | - (c)       | <u> </u>                | L                          |                            |                         | <b>4</b>                    | 4              |               | 9            |                           | -          | Ð          |                   | -                    | +                    | 1 1                  | $\rightarrow$ | ┯                  | າ∈                      | -                           | ╌                          | ₹<br>•                 | Ξ                          | Ξ                     | <del>   </del> | $\Xi$ $\epsilon$  | +                    | ╌╂                   | <b>€</b>     | +                              | ╁                   | <del></del>               |                         | +-         | +           | Н             | -+-                       | 3   | -            | -             | <u>ි</u> ල | 1 h   | <u></u>                     |                               |
| a<br>S | Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs) | 100         | 1.90E-U1                |                            | 1                          | 1 00                    | 1.20E-03                    | 1.00E-02       |               | 2.05E+01     | 3.40F-02                  | 3.37E+02   | 5.10E-03   | 3.20E-01          | 1.09E-01             | 3 1                  | 1.09E+01             | 3.30E+01      | 4.20E+00           | 2.33E-05                | 2.56E-03                    | 1.19E+01                   | 6.70E+00               | 3.26E+01                   | 3.62E-01              | - 100          | 1.05E+01          | 8.63E+00             | :                    | 1.55E+02     | 2.21E-03                       | 1.90E-02            | 6.13E-01                  | 3 ZOE+00                | 1.85E-01   | 4.19E-03    | 6.86E-03      | 1.10E-04                  | 2 94F-02                                    | 8.34E+01     | 6.30E+00      | 9.70E-03   |   | 1120                        | 1120                          |
| 2      | Residential Screening Levels (2-10' bgs)                 | 100         | 1.90E-01                | į t                        |                            |                         | 1.20E-03                    | 1.00E-02       | 1             | 2.05E+01     | 3.40F-02                  | 3.37E+02   | 5.10E-03   | 3.20E-01          | 1 115+00             | 1.1.1                | 1.09E+01             | 3.30E+01      | 4.20E+00           | 2.33E-05                | 2.56E-03                    | 1.19E+01                   | 6.70E+00               | 3.26F±01                   | 3.62E-01              | 1              | 1.06E+01          | 8.63E+00             | ,                    | 1.55E+02     | 2.21E-03                       | 1.90E-02            | 6.13E-01                  | 1.93E-02                | 1.85E-01   | 4.19E-03    | 6.86E-03      | 1.10E-04                  | 2 94F-02                                    | 8.34E+01     | 6.30E+00      | 9.70E-03   | 1015B) mg/kg  | 1120                        | 1120                          |
| S N    | Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs) | 100 1       | 1.90E-01                | 1                          | :                          | - 200                   | 1.20E-03                    | 1.00E-02       | 1             | 2.05E+01     | 3 40F-02                  | 3.37E+02   | 5.10E-03   | 3.20E-01          | 1.09E-01             | - 1                  | 1.09E+01             | 3.30E+01      | 4.20E+00           | 2.33E-05                | 2.56E-03                    | 1.19E+01                   | 6.70E+00               | 3.26E+01                   | 3.62E-01              | 1 10           | 1.06E+01          | 8.63E+00             | 1                    | 1.55E+02     | 2.21E-03                       | 1.90E-02            | 6.13E-01                  | 3 70E+00                | 1.85E-01   | 4.19E-03    | 6.86E-03      | 1.10E-04                  | 2 94F-02                                    | 8.34E+01     | 6.30E+00      | 9.70E-03   | (EPA Method 8   | 1120                        | 0711                          |
|        | Analytes   | Sample Date | 3-Nitroaniline          | 4.6-Dinitro-2-methylphenol | 4-Bromophenyl phenyl ether | 4-Chloro-3-methylphenol | 4-Chlorophenyl phenyl ether | 4-Nitroaniline | 4-Nitrophenol | Acenaphthene | Acenaphtnyiene<br>Aniline | Anthracene | Azobenzene | Benz(a)anthracene | Benzo(h)fluoranthene | Benzo(q,h,i)perylene | Benzo(k)fluoranthene | Benzoic acid  | Benzyl alcohol     | Bis(2-chloroethyl)ether | Bis(2-chloroisopropyl)ether | Bis(2-ethylhexyl)phthalate | Butyl benzyl phthalate | Carbazole                  | Dibenz(a,h)anthracene | Dibenzofuran   | Diethyl phthalate | Di-n-butyl phthalate | Di-n-octyl phthalate | Fluoranthene | Fluoriene<br>Hexachlorobenzene | Hexachlorobutadiene | Hexachlorocyclopentadiene | Hexachloroethane        | Isophorone | Naphthalene | Nitrobenizene | N-Nitrosodi-n-propylamine | N-Introsogiphenyiamine<br>Pentachloronbenol | Phenanthrene | Phenol        | Pyridine   | Total Petroleum Hydrocarbons - (EPA Method 8015B) mg/kg | Diesel Range Organics (DRO) | Motor Oil Page Organics (GRU) |

Table 10
Group 3 Soil Analytical Results Summary - AOC 22 (Product Loading Rack) and AOC 26
Bloomfield Refinery, Bloomfield, New Mexico

|   | 600                                     |         |   |
|---|---|---------|---|
| ∀OC 5e-9 (3e-38.)   | 4/20/2(                                 | 1       |   |
| (1.5-2.0) (1.5-2.0)                                       | 4/16/2009 4/20/2009 4/20/2009 4/20/2009 | <1.0    |   |
| VOC 5e-9 (0-0⁻£,)   | 4/20/2009                               | <1.0    |   |
| VOC 5e-8 (35-3e.)   | 4/16/2009                               | <1.0    |   |
| AOC 26-8 (1.5-2.0')                                       | 4/16/2009                               | <1.0    |   |
| AUC 26-8 (0-1.0') DUP                                     | 4/16/2009 4/16/2009 4/16/2009           | <1.0    |   |
| AOC 26-8 (0-1-0')   | 4/16/2009                               | <1.0    |   |
| ('0.S-3.1) T-3S DOA                                       | 4/20/2009 4/20/2009                     |         |   |
| ('ē.0-0) 7-62 ⊃OA   | 4/20/2009                               | <1.0    |   |
| Units   |   | mg/Kg   |   |
| Source  |   |         | ed sed sed sed sed sed sed sed sed sed s  |
| Non-<br>Residential<br>Screening<br>Levels<br>(>10' bgs)  |   |         | (22-12 (36-37.75) iii Screening I (>10') pursuant to rstituent is listed SSL dustrial exposure  |
| Non-<br>Residential<br>Screening<br>Levels<br>(2-10' bgs) |   |         | anide for AOC ((selopment of Soi divater DAF=1 SL (All depths) nuttiplied by 10 ecause the com 0-6 risk-based ulesel fuel for inwaste oil for indivaste oil |
| Non-<br>Residential<br>Screening<br>Levels<br>(0-2' bgs)  |   |         | analyze for Cyanalyze for Cyanalyze for Cyanaly (a)  April 2009)  1s)  D Soil-to-grour  r Risk-based S  Is (April 2009)  NMED Order b  vel based on a  g Guidelines - u  g Guidelines - u   |
| Analytes  | Sample Date                             | Ethanol | * Laboratory inadvertently did not analyze for Cyanide for AOC (22-12 (36-37.75)) No screening level or analytical result available NMED - Technical Background Document for Development of Soil Screening Levels - Revision 5.0 ( August 2009) EPA - Regional Screening Levels (April 2009) (1) NMED DAF=1 (>10) (2) NMED DAF=1 SoilGW (All depths) (3) EPA Protection of Ground Water Risk-based SSL (All depths) (4) EPA - Regional Screening Levels (April 2009) multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic & EPA screening level based on 10-6 risk-based SSL (5) NMED ConsWork Soil (0-10') (6) NMED Oct. 2006 TPH Screening Guidelines - diesel fuel for industrial exposure via direct contact (7) NMED Oct. 2006 TPH Screening Guidelines - waste oil for industrial exposure  |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

|                                |   |  |           |                   |                    | 1             |                    |  |                   |                    |                       |                    |                       |                    |                                       |                    |                           |
|--------------------------------|---|--|-----------|-------------------|--------------------|---------------|--------------------|--|-------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------|---------------------------------------|--------------------|---------------------------|
| Analytes                       | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential<br>Screening<br>Levels 2-10' | Source    | (0-0.5') Y-SS DOC | AOC 22-7 (1.5-2.0) |               | AOC 22-8 (1.5-2.0) | AUG (0.5-2.1) 8-SS DOC 22-8 (1.5-2.0) DOC 22-9 (0-0.5) | AOC 22-9 (0-0.5)  | AOC 22-10 (0-0.5') | AOC 22-70 (1.5'-2.0') | AOC 22-11 (0-0.5') | AOC 22-11 (1.5'-2.0') | AOC 22-14 (0-0.5') | (1.5-2.0') A1-SS DOG 22-44 (1.5-2.0') | AOC 22-16 (0-0.5') | Z<br>AOC 22-16 (1.5-2.0') |
| Sample Date<br>Metals (mg/kg)  |   |  |           | 13/2003           | _                  | 4/13/2009 4/1 |                    | Ť  | 1                 | 1                  | <u> </u>              | 4/14/2003          | 4/14/2003             | վ ¦                | _                                     | r) }               | 00750                     |
| Antimony                       | 1.24E+02  | 1.24E+02   | (1) mg/Kg | <2.5              | <2.5               | H             | Н                  | <2.5 <2  | $\vdash$          | Н                  | $\vdash$              | <2.5               | <2.5                  | <2.5               | <2.5                                  | <2.5               | <2.5                      |
| Arsenic                        | 1.77E+01  | -  | _         | <2.5              | <2.5               | <2.5          | <2.5               | +  | +                 | +                  | +                     | <2.5               | <2.5                  | <2.5               | <2.5                                  | <2.5               | <2.5                      |
| Barium                         | 4.35E+03  | $\rightarrow$                                    | _         | 130               | +                  | +             | +                  | +  | +                 | +                  | +                     | 130                | 1/0                   | 160                | 091                                   | 230                | 35                        |
| Beryllium                      | 1.44E+02  | 1.44E+02 (                                       |           | 0.27              | 0.39               | 0.34          | +                  | 0.3 0.37   | 37 0.38           | < 0.75             | 0.33                  | 0.28               | 0.33                  | 0.34               | 0.35                                  | 0.35               | 0.32                      |
| Cadmium                        | 3.09E+02  | $\boldsymbol{+}$                                 | (1) mg/Kg | \$0.10<br>0.10    | +                  | +             | 41                 | +  | +                 | +                  | +                     | 3 6.2              | 27.0                  | 13.5               | 13.10                                 | 16.10              | 32.5                      |
| Chromium                       | 4.47E+05  | -  |           | 4.6               | +                  | +             | +                  | +  | +                 | +                  | +                     | 26                 | 23                    | = ~                | 33                                    | 32                 | 2 8 C                     |
| Cobail                         | 5.00E+02<br>6.10E+03                            | 6 19F±03   | (3) mg/Kg | 2.0<br>0.5        | 50.5<br>0.5        | \$0.5         | 3.1                | 0.5  | +                 | ╀                  | +                     | <0.5               | <0.5<br>0.5           | ×0.5               | <0.5                                  | -0.5<br>-0.5       | <0.5<br><0.5              |
| Uyanud<br>Lead                 | 8 00F+02  | +-   | 1         | 3.5               | 4.4                | +             | -                  | +  | ╀                 | ┼                  | ╀                     | 3.4                | 4                     | 4.5                | 4.5                                   | 4.4                | 3.6                       |
| Merciny                        | 4 99E+01  | +-   | (2) ma/Ka | <0.033            | +                  | ╁             | +                  | <0.033 <0.0  | ╀                 | ╁                  | $\vdash$              | <0.033             | <0.033                | <0.033             | <0.033                                | <0.033             | 0.042                     |
| Nickel                         | 6.19E+03  | +  | 上         | 4                 | 5.7                | 5             | 3.8                | ╢  | +-                | -                  | -                     | 4.1                | 5.1                   | 4.8                | 5.1                                   | 5.1                | 5.2                       |
| Selenium                       | 1.55E+03  | 1.55E+03 (                                       | ╙         | <13               | ╁                  | +             | -                  | $\vdash$   | -                 | -                  | $\vdash$              | <13                | <13                   | <13                | <12                                   | <13                | <13                       |
| Silver                         | 1.55E+03  | <del> </del>                                     | ╙         | <0.25             | ├                  | $\vdash$      | $\vdash$           | -  | -                 | L                  | <u> </u>              | <0.25              | <0.25                 | <0.25              | <0.25                                 | <0.25              | <0.25                     |
| Vanadium                       | 1.55E+03  |  | Ш         | 11                |                    | 12            |                    |  | Н                 | Н                  | $\dashv$              | 11                 | 13                    | 12                 | 13                                    | 14                 | 13                        |
| Zinc                           | _   |  | (1) mg/Kg | 21                | 25                 | 25            | 23                 | 24   24  | {                 | $\dashv$           | $\dashv$              | 33                 | 35                    | 24                 | 27                                    | 34                 | 75                        |
| unds - (EPA Method 8260B)      | Ē   | │ <b>├</b>                                       | Ļ         |                   |                    |               |                    | -  | -                 |                    |                       |                    |                       |                    | -                                     | -                  |                           |
| 1,1,1,2-Tetrachioroethane      | 1.61E+02  | 2.78E+03 (                                       | (2) mg/Kg | :                 | :                  | 1             | :                  |  | -                 | 1                  | <u>.</u>  <br> -      | -                  | :                     | :                  | :                                     | ;                  | :                         |
| 1,1,1-Trichloroethane          | 6.43E+04  |  | 4         | :                 | -                  | -<br> -       | :                  | -  | ; <br> <br>       | :                  | ;                     | 1                  | -                     | •                  | :                                     | ;                  | :                         |
| 1,1,2,2- l etrachloroethane    | 4.33E+01  | -+-  | $\perp$   | :                 | :                  | :             | •                  | <u>'</u>   | <u>'</u>          | 1                  | -                     | •                  | :   ;                 | : :                | :   ;                                 | •   •              | 1                         |
| 1,1,2-Inchloroethane           | 9.43E+01  |  | (2) mg/Kg | :                 | <u> </u>           | !             | :                  | :  | !                 | : :                | :   :<br> -           | :   :              | :  :                  | :   :              | :   :                                 | +                  | :   :                     |
| 1, 1-Dichloroethere            | 3.30E+02  | 1 835+03   | ┸         |                   | : :                | : :           | : :                | <br> -<br>   |                   | +                  |                       | 1                  |                       | 1                  | :                                     |                    |                           |
| 1.1-Dichloropropene            |   | +-   | ma/Ka     | ;                 | <u> </u>           | :             |                    |  | 1                 | L                  | :                     | ;                  | <br> <br>             | :                  | 1                                     | :                  | 1                         |
| 1.2.3-Trichlorobenzene         | :   | ,  | mg/Kg     | ,                 | :                  | <br> -        |                    | -  |                   |                    | -                     | :                  | :!                    | -                  | :                                     | •                  | ì                         |
| 1,2,3-Trichloropropane         | 4.54E+00  | 3.10E+01 (                                       | (2) mg/Kg | -                 |                    |               |                    |  | -                 |                    | :                     | :                  | ı                     | 1                  | :                                     | •                  | :                         |
| 1,2,4-Trichlorobenzene         | 4.27E+02  | H  | Ш         | 1                 | -                  | -             |                    | •  | -                 |                    | 1                     | :                  | :                     | :                  |                                       |                    | :                         |
| 1,2,4-Trimethylbenzene         | 2.80E+02  | $\vdash$   | (3) mg/Kg | 1                 | 1                  | -             | :                  | :  | <u> </u>          |                    | -                     | 1                  | 1                     | ;                  | ;                                     | 1                  | ;                         |
| 1,2-Dibromo-3-chloropropane    | 1.09E+00  | _  | _         | -                 | 1                  | :             | 1                  | -  | ;                 |                    | ;                     | ;                  | •                     | :                  | :                                     | :                  | 1                         |
| 1,2-Dibromoethane (EDB)        | 3.14E+00  | -+   | (2) mg/Kg | -                 | :                  | :             | :                  | -  | ;  <br>;          |                    | :                     | :                  | :                     | :                  | :                                     | -                  | :                         |
| 1,2-Dichlorobenzene            | 9.71E+03  | 9.71E+03 (                                       | $\perp$   | :                 | :   :              | <u> </u>      | -                  |  | :  '<br> -<br>  . | : :<br> -          | :<br> -               | : :                | :   .                 | :  ;               |                                       | :   :              | ·   ·                     |
| 1,2-Dichlorongnane             | 8 17F+01  | +-   | (2) mg/Kg | : 1               | :   ;              | 1 1           | 1                  | '  | '                 |                    | <br> -                |                    | :                     | :                  | :                                     |                    | ŀ                         |
| 1.3.5-Trimethylhenzene         | 2 00E+02  | +-   | <u> </u>  | :                 | 1                  | :             | -                  | '  | 1                 |                    | ;                     | 1                  | :                     | ;                  | -                                     | <br> -             | 1                         |
| 1,3-Dichlorobenzene            | :   |  | L         | :                 | :                  |               |                    |  |                   |                    | ;                     | -                  | 1                     | :                  | :                                     | :                  | :                         |
| 1,3-Dichloropropane            | 2.00E+04  | Н  | Ш         | -                 | -                  | -             | 1                  | :  | ;<br> <br> -      | _                  | -                     | :                  | :                     | ;                  | •                                     | 1                  | 1                         |
| 1,4-Dichlorobenzene            | 1.80E+02  | 3.78E+03 (                                       | (2) mg/Kg | :                 | :                  | :             | :                  | 1  | +                 |                    | -                     | :                  | 1                     | :                  | :                                     | 1                  | :                         |
| 1-Methylnaphthalene            | 9.90E+02  | -  | _         | :                 | 1                  | -             | -                  | <u> </u>   | +                 | +                  | <u> </u>              | :                  | +                     | <u> </u>           | :                                     | 1                  | :                         |
| 2,2-Dichloropropane            | 1 485405  | +  |           | :                 | :                  | : :           |                    | :<br> -<br> -  | :   :             | !   !              | ;                     | : :                | : :                   | ;                  |                                       | +                  | : :                       |
| z-butanorie<br>2-Chlorofoluene | 6 19F+03  | 6.19F+03   | (1) mg/Kg | : :               | : :                | : :           |                    |  | '                 | :                  | ·                     |                    | :                     |                    |                                       |                    |                           |
| 2-Hexanone                     | 7   | +  | _         | :                 | :                  | ;             | ;                  |  | <u>'</u><br> -    |                    |                       |                    | :                     |                    | 1                                     |                    | ;                         |
| 2-Methylnaphthalene            | 4.10E+03  |  | $\perp$   | ļ:                |                    | 1             |                    |  | -                 |                    |                       | :                  | 1                     | ,                  | :                                     |                    | 1                         |
| 4-Chlorotoluene                | 7.20E+04  |  | (3) mg/Kg | -                 | 1                  | :             | :                  |  |                   |                    | :                     |                    | :                     | 1                  |                                       | ,                  |                           |
| 4-IsopropyItoluene             | :   |  | <u>L</u>  |                   | -                  |               | -                  | 1  | -                 | :                  | -                     | •                  | :                     | ;                  | :                                     | ;                  | 1                         |
| 4-Methyl-2-pentanone           | -   |  |           | -                 | :                  | :             | •                  | -  | ; <br>            |                    | 1                     | -                  | ı                     | •                  | :                                     | 1                  | 1                         |
| Acetone                        | 2.63E+05  |  | (1) mg/Kg | •                 | :                  | -             |                    | ;  | ;                 | :                  | ;                     | 1                  | :                     | :                  | +                                     | ;                  | :                         |
| Benzene                        | 8.54E+01  | 4.71E+02   |           | ;                 | :                  | :             | •                  | <u> </u>   | <u> </u>          |                    | :                     | :                  | +                     | :                  | 1                                     | +                  | ;                         |
| Bromobenzene                   | 4.10E+02  |  | (3) mg/Kg | :                 | -                  | -             | +                  |  | -                 | +                  | -                     |                    | +                     | †                  | +                                     |                    | •                         |
| Bromodicnioromethane           | Z.9ZE+01  | 3.50E+03 (                                       | (2) mg/Kg | -                 | :                  | -             | :                  | -  | <br> <br> <br>    |                    |                       |                    | -                     | -                  | -                                     | -<br> <br> -       | •                         |

Table 11 Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield, New Mexico

|   |                                  |                                  |               | ì  |               | Discussion remark - Bloomieta, wew mexico | Allered, Mc       |                                  |             |              |                            |            |                  |               |                            |               |            |
|---|----------------------------------|----------------------------------|---------------|--|---------------|---|-------------------|----------------------------------|-------------|--------------|----------------------------|------------|------------------|---------------|----------------------------|---------------|------------|
|   | Non-<br>Residential<br>Screening | Non-<br>Residential<br>Screening | ource         | (.6.0-0)                                 | (0.5-8.1)     | (0.0.5)                                   | (0.2-3.1) 8       | 9Ua (0.S-2.1) 8                  | (10.5-2.1)  | (.5.0-0) 01  | (1.5'-2.0')                | 1 (0-0.5°) | ('0.5-'3.1) 1    | (.6-0-5)      | (1.5-2.1)                  | (.5.0-0) 9    | (1.5-2.0°) |
| Analytes  | Levels 0-2'                      | Levels 2-10'                     | Units         | 7-SS ⊃OA                                 | 7-22 ⊃O∀      | VOC 22-8                                  |                   | VOC 55-6                         | <del></del> | VOC 22-1     | VOC 22-1                   | VOC 22-1   | 4OC 22-1         | VOC 22-1      | VOC 22-1                   | VOC 22-1      | VOC 22-1   |
| Sample Date                                     |                                  |                                  | ∐ L           | 4/13/2009 4/                             | 물             | 3/2009 4/1                                | 009 4/1           | 009 4/1                          | 09 4/13/20  | 09 4/14/2009 | 4/1                        | 161        | 4/14/2009 4      | 4/8/2009      | 1/8/2009 4/                | 13/2009 4/    | 13/2009    |
| Bromoform                                       | 2.20E+03                         | _                                | (3) mg/Kg     | i  | 1             |   | <u>'</u>          | -                                | :           | ;            | 1                          | i          | 1                | :             | 1                          |               | ;          |
| Bromomethane                                    | 6.71E+01                         | 71E+01                           |               | 1  | -             | -   | ·<br>             | :                                | 1           | 1            | :                          | •          | :                | ;             | :                          | -             | ;          |
| Carbon disulfide                                | 5.89E+03                         | 7                                | _             | -  | -             | -   |                   | -                                | 1           | ;            | -                          | :          | 1                | -             | -<br> <br>                 | 1             | :          |
| Carbon tetrachloride                            | 2.43E+01                         | 寸                                | _             | 11                                       | 1             |   | !                 | -                                | 1           | !            | ;                          | •          | :                | 1             | :                          | ,             | 1          |
| Chlorobenzene                                   | 1.58E+03                         | 1.58E+03 (                       | (1) mg/Kg     | 1  | 1             |   | -                 | -                                | :           | 1            | 1                          | •          | •                | -             | 1                          | 1             | -          |
| Chloroethane                                    | - !                              | -+                               | 4             | -  | -             |   |                   |                                  | -           | 1            | -                          | :          | 1                | :             | :                          | 1             | :          |
| Chloroform                                      | 3.19E+01                         | 6.71E+02 (                       | (2) mg/Kg     | 1  | 1             | 1   |                   | 1                                | :           | 1            | -                          | :          | :                | 1             | 1                          | ,             | ;          |
| Chloromethane                                   | 1.98E+02                         | -+                               | _             | :  | ;             | ;   |                   | 1                                | 1           | 1            | 1                          | •          | 1                | 1             | :                          |               | !          |
| cis-1,2-DCE                                     | 3.10E+03                         | -+                               | $\perp$       | :  | -<br>-        | 1   |                   |                                  | :           | 1            | 1                          | ;          | 1                | ;             | 1                          | ,             | 1          |
| cis-1,3-Dichloropropene                         | 1.26E+02                         | 5.10E+02 (                       | (2) mg/Kg     | 1  | :             | 1   |                   | 1                                | :           | :            | '                          | :          | :                | 1             | ;                          | 1             | ;          |
| Dibromochloromethane                            | 6.13E+01                         | -+                               | 4             | :  | 1             | •   |                   | +                                | 1           | 1            | -                          | •          | ;                | 1             | -                          | 1             | 1          |
| Dibromomethane                                  | 1.00E+04                         | _                                | $\perp$       | 1  | 1             | 1   |                   | -                                | 1           | !            | -                          | :          | :                | :             | :                          | 1             | :          |
| Dichlorodifluoromethane                         | 1.37E+03                         | 1.37E+03 (                       |               | :  | :             | -   |                   | -                                | 1           | ;            | 1                          | •          | :                | 1             | :                          | 1             | :          |
| Etnylbenzene                                    | 3.83E+02                         | $\top$                           | (Z) mg/Kg     | :  | :             | :)  |                   | +                                | •           | :            | <u>'</u>                   | +          | 1                | <u> </u>      | :                          | ;             | :          |
| Hexachiorobutadiene                             | 2.20E+02                         | +                                | _             | -<br> -<br> -                            | ;             | ;   | -                 |                                  |             | 1            | 1                          | ;          | :                | :             | :                          | +             | ,          |
| Isopropylibenzene                               | 1.03E+04                         |                                  |               | <del> </del>                             | -             | -   | +                 | 1                                | 1           | :            | :                          | :          |                  | :             | :                          | -             | -          |
| Metnyl terr-butyl etner (MTBE)                  | 4.69E+03                         | 0.33E+04 (                       |               | <u> </u>                                 | <u>-</u>      | -   |                   |                                  | 1           | <u> </u>     | :                          | :          | :                | 1             | -                          | :             | :          |
| Wetnylene chloride                              | 1.09E+03                         | +                                | (2) mg/Kg     | :  | :             |   |                   | -                                | :           | :            | :                          | :          | :                | :             | :                          | :             |            |
| Naphthalene                                     | Z.5ZE+0Z                         | 2                                | ┙             | -  | -             | 11  |                   | 1                                | -           | <u> </u>     | 1                          | :          | :                | !             | :                          | :             | •          |
| n-Butylbenzene                                  | -                                | 1                                | mg/Kg         | -  | :             | 1   | 1                 | -                                |             | 11           | :                          | ;          | ;                | :             |                            | -             | :          |
| n-Propylbenzene                                 | ;<br>-                           | 1                                | mg/Kg         | +  | -             | -   | +                 | +                                | 1           | !            | :                          | :          | -                | -             | :                          | -             | :          |
| Sec-butylberizerie<br>Styrene                   | 3 035+04                         | 30300                            | mg/Kg         | :  | : .           | 1   |                   |                                  | •           | :            | :                          | 1          | :                | :             | :                          | -<br> -       |            |
| tert-Butvlbenzene                               | 10.05                            | †                                | _             | 1  | 1             | 1   |                   |                                  | 1           | 1            | :   :                      | :   :      | :   :            | :   :         | <br>                       |               |            |
| Tetrachioroethene (PCE)                         | 3.64E+01                         | 1-                               | 1_            | <del> </del>                             |               |   | 1                 |                                  |             |              |                            |            |                  |               |                            |               |            |
| Toluene   | 2.11E+04                         | 2.11E+04 (                       | (1) mg/Kg     |  | -             | 1   |                   | -                                |             | 1            | 1                          | :          |                  | 1             |                            | -<br> -<br>   |            |
| trans-1,2-DCE                                   | 8.14E+02                         | <del> </del>                     | <u> </u>      |  | :             | 1   | -                 | -                                |             |              | -                          | :          |                  |               |                            | 1             | ,          |
| trans-1,3-Dichloropropene                       | 1.26E+02                         | 1                                | L             | :  | <br>          |   |                   |                                  | 1           | 1            | :                          | ;          | :                | -             |                            |               |            |
| Trichloroethene (TCE)                           | 2.53E+02                         | -                                | (2) mg/Kg     | :  | :             |   |                   |                                  | :           | ;            |                            | :          | 1                | :             |                            |               | 1          |
| Trichlorofluoromethane                          | 5.82E+03                         | _                                | Ш             | -  | -             | -   |                   |                                  | -           |              | -                          |            |                  | 1             | :                          | -             | :          |
| Vinyl chloride                                  | 2.59E+01                         | 2.48E+02 (                       | (2) mg/Kg     | •  | 1             | •   |                   |                                  | 1           |              | 1                          | :          | •                | :             | -                          |               | 1          |
|   | _                                | $\dashv$                         | ) mg/Kg       | -  | :             | 1   |                   | -                                | -           | !            | 1                          | -          | -                | -             | -                          | •             | •          |
| Volatile Organic Compounds - (EPA Method 8260B) | ᆁ                                | F                                |               | 90 47                                    | ŀ             | -   | H                 | ╁                                | ┝           | ŀ            | 9000                       | 70 77      | 0.00             | ┢             | 000                        | ŀ             | 7          |
| 1, 1, 1, 2-1 etrachioroethane                   | 6.426+02                         | 2./8E+Ub (                       | (2) µg/kg-dry | V 1.08                                   | 41.03<br>7.03 | 00.17                                     | V 1.03            | 20.02<br>20.03<br>20.03<br>20.03 | 29 <0.957   | ×0.977       | ×0.890                     | 5 5        | <0.959           | +             | 60.929                     | - T           | 47.17      |
| 1.1.2.2-Tetrachloroethane                       | 4 33F+04                         | -                                | Lig/Kg-dry    | 8 8                                      | +             | +   | ╁                 | +                                | +           | ╀            | 0,030                      | 2 2        | <0.939           | +             | <0.939<br><0.959<br><0.959 | +             | ×1.24      |
| 1,1,2-Trichloroethane                           | 9.43E+04                         | 1-                               | (2) µg/Kg-dry | ×1.08                                    | -             | +   | <1.03 <0.8        | <0.875 <0.92                     | 29 <0.957   | <0.977       | <0.896                     | <1.01      | <0.959           | +             | <0.959                     | ×101          | <1.24      |
| 1,1-Dichloroethane                              | 3.50E+05                         | 1                                | _             | <1.08                                    | ┞             | $\vdash$                                  | $\vdash$          | -                                | ļ           | <u> </u>     | <0.896                     | <1.01      | <0.959           | ╁             | ╂_                         | ┝             | <1.24      |
| 1,1-Dichloroethene                              | 1.83E+06                         | 1.83E+06 (1                      | 1             | <1.08                                    | <1.03         |   | <1.03 <0.8        | Н                                | H           | <0.977       | >0.896                     | <1.01      | <0.959           | H             | <0.959                     | -             | <1.24      |
| 1,1-Dichloropropene                             | 1                                | Н                                | -             | <1.08                                    |               |   | Н                 |                                  | $\sqcup$    |              | <0.896                     | <1.01      | <0.959           | H             | _                          | _             | <1.24      |
| 1,2,3-Trichlorobenzene                          | 1                                |                                  | _             | <1.08                                    | -             | $\dashv$                                  | $\dashv$          | $\dashv$                         |             | $\dashv$     | <0.896                     | <1.01      | <0.959           | $\dashv$      | $\perp$                    |               | <1.24      |
| 1,2,3-Trichloropropane                          | 4.54E+03                         | _                                |               | <1.08                                    | $\dashv$      | $\dashv$                                  |                   |                                  | $\dashv$    | $\dashv$     | <0.896                     | <1.01      | <0.959           | $\dashv$      | $\dashv$                   | $\dashv$      | <1.24      |
| 1,2,4-Trichlorobenzene                          | 4.27E+05                         | 4.27E+05 (1)                     | -             | <1.08                                    | -             | $\dashv$                                  | +                 | $\dashv$                         | -           | -            | <0.896                     | 4.01       | <0.959           | $\dashv$      |                            |               | <1.24      |
| 1,2,4-Trimethylbenzene                          | 2.80E+05                         | $\neg$                           | _             | <1.08                                    | <1.03         | -   | $\dashv$          | $\dashv$                         | 29 <0.957   | <0.977       | <0.896                     | ×1.01      | <0.959           | +             | 4                          | +             | <1.24      |
| 1,2-Dibromo-3-chloropropane                     | 1.09E+03                         | 2.30E+04 (2)                     | _             | <1.08                                    | $\dashv$      | $\dashv$                                  | $\dashv$          |                                  | $\dashv$    | ᆉ            | <0.896                     | <1.01      | <0.959           | $\dashv$      | -+                         | -             | <1.24      |
| 1,2-Uibromoethane (EUB)                         | 3.14E+03                         | -                                | _             | V 7                                      | <1.03         | +   | <1.03 <0.8        | <0.875 <0.92                     | 29 <0.957   | <0.977       | <0.896                     | 20.0       | <0.959           |               | -                          | $\dashv$      | <1.24      |
| 1,2-Dichloroethane (FDC)                        | 9.71E+06                         |                                  |               | \$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | $\perp$       | +   | +                 |                                  | +           | <0.977       | 98.0                       | V V        | <0.959<br><0.050 | ╁             | 4                          | +             | ×1.24      |
| 1.2-Dichloropropane                             | 8.17E+04                         | 1.17E+05 (2                      | ) ug/Kg-dry   | 0. V                                     | +-            | +   | +                 | +                                | -           | <0.977       | 00.000<br>00 000<br>00 000 | ×1.01      | <0.959           | +             | +                          | +-            | 1 24       |
| 1,3,5-Trimethylbenzene                          | 2.00E+05                         | +                                | (3) µg/Kg-dry | 41.08                                    | <1.03         | v<br>00.12                                | <1.03 <0.8        | <0.875 <0.929                    | 29 <0.957   | <0.977       | ×0.896                     | V 101      | <0.959           | <1.23         | <0.959                     | 4.01          | <1.24      |
|   |                                  |                                  | , X X 1,      |  | $\frac{1}{1}$ | 1   | $\left\{ \right.$ | ł                                | 1           |              |                            |            |                  | $\frac{1}{2}$ | -                          | $\frac{1}{1}$ |            |

Table 11 Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield, New Mexico

one.

|  | - CON                                   | Non                                      | 4               | 2,)                          | 2.0)   | 2,)           |                  | aua (o.s       | (9            | ('0.5          | (,9.)          | (.o.s6  | ).5')           | (.0.2            | ).5.)                 | (.0.2-         | ).5')          | 6-2.0')        |
|--|---|--|-----------------|------------------------------|--|---------------|------------------|----------------|---------------|----------------|----------------|---|-----------------|------------------|-----------------------|----------------|----------------|----------------|
|  | Residential<br>Screening<br>Levels 0-2' | Residential<br>Screening<br>Levels 2-10' | Source          | OC 22-7 (0-0.                | ë.t) T-SS DO/  | OC 22-8 (0.0. | OC 22-8 (1.5-    | /OC 52-8 (1.5- | OC 55-9 (0-0. | /OC 22-9 (1.5- | /OC 55-10 (0-c | .t) 01-SS 300   | 0-0) LL-32 (0-0 | /OC 52-11 (1.5   | /OC 55-14 (0-0        | 7OC 52-14 (1.5 | 7OC 55-16 (0-0 | 4OC 22-16 (1.5 |
| Sample Date                                      |   | 1  | 5               |                              | 4/13/2009  | 4/13/2009     | 600              | /13/2009 4/    |               | 6              | 6              | 6   | 600             | 600              | 60                    | 1              | 600            | 4/13/2009      |
| 1.3-Dichlorobenzene                              | 1                                       | -  | µg/Kg-dry       |                              | <1.03  | <1.00         |                  | <0.875         |               |                |                | _   | <1.01           |                  |                       | -              |                | <1.24          |
| 1,3-Dichloropropane                              | 2.00E+07                                | -  | _               | dry <1.08                    | <1.03  | <1.00         | <1.03            | <0.875         |               | $\dashv$       | $\dashv$       | >0.896  |                 | <0.959           | <1.23                 | <0.959         |                | <1.24          |
| 1,4-Dichlorobenzene                              | 1.80E+05                                | 3.78E+06 (                               | (2) µg/Kg-dry   | _                            | <1.03  | v<br>1.00     |                  | <0.875         | - 1           | <0.957         | <0.977         | <0.896  |                 | <0.959           | <1.23                 | <0.959         |                | <1.24          |
| 2,2-Dichloropropane                              | }                                       | : !                                      |                 | dry <1.08                    | <1.03  | ×1.00         |                  | <0.875         |               | +              | <0.977         | <0.896<br>5.56<br>5.76<br>5.76<br>5.76<br>5.76<br>5.76<br>5.76<br>5.7 | <1.01           | <0.959           | <1.23                 | <0.959         | 41.01          | <1.24          |
| 2-Butanone                                       | 1.48E+08                                | 1.48E+08                                 | _               | _                            | <4.13  | <4.01         | +                |                | - 1           | <3.83          | <3.91<br>2.91  | <3.58   | +               | <3.84            | <4.92                 | <3.83          | <4.03          | <4.94<br>2     |
| 2-Chlorotoluene                                  | 6.19E+06                                | 6.19E+06                                 | (1) µg/Kg-dry   | dry <1.08                    | <1.03  | ×1.00         | $\dashv$         |                |               | +              | <0.977         | >0.896  | $\dashv$        | <0.959           | <1.23                 | <0.959         | √<br>1.01      | <1.24          |
| 2-Hexanone                                       | 1                                       | -  | $\rightarrow$   |                              | <4.13  | <4.01         | $\dashv$         |                | <3.71         | $\dashv$       | <3.91          | <3.58   | <4.05           | <3.8 <b>4</b>    | <4.92                 | 3.83           | < <b>4</b> .03 | <4.94          |
| 4-Chlorotoluene                                  | 7.20E+07                                | -  | (3) µg/Kg-dry   | _                            | <1.03  | 41.00         | +                | ヿ              | - 1           | $\dashv$       | <0.977         | <0.896  | +               | <0.959           | <1.23                 | <0.959         | 7.01           | <1.24          |
| 4-Isopropyltoluene                               | •                                       | 1  | µg/Kg-dry       | _                            | <1.03  | ×1.00         | <1.03            | <0.875         |               | $\dashv$       | $\dashv$       | 968.0>  | +               | <0.959           | <1.23                 | <0.959         | √<br>1.01      | <1.24          |
| 4-Methyl-2-pentanone                             | :                                       | 1  | $\rightarrow$   | dry <4.32                    | <4.13  | <4.01         | -                | $\neg$         | <3.71         | <3.83          | ┪              | <3.58   | -               | <3.84            | <4.92                 | <3.83          | <4.03          | 4.94           |
| Acetone  | 2.63E+08                                | 2.63E+08                                 | (1) µg/Kg-dry   |                              | <4.13  | <4.01         | $\dashv$         | <3.50          | <3.71         | -              | $\dashv$       | <3.58   | _               | <3.84            | <4.92                 | <3.83          | <4.03          | <4.94          |
| Benzene  | 8.54E+04                                | 4.71E+05                                 | -               |                              | <1.03  | <1.00         | <1.03            |                | - 1           | -              | <0.977         | >0.896  | <1.01           | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Bromobenzene                                     | 4.10E+05                                | -  |                 |                              | <1.03  | <1.00         | $\dashv$         |                |               | $\dashv$       | $\dashv$       | 968.0>  | -               | <0.959           | <1.23                 | <0.959         | ×1.01          | <1.24          |
| Bromodichloromethane                             | 2.92E+04                                | 3.50E+06                                 | (1)  µg/Kg-dry  | dry   <1.08                  | <1.03  | <1.00         | $\dashv$         |                | - 1           | $\dashv$       | $\dashv$       | <0.896  | $\dashv$        | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Bromoform  | 2.20E+06                                | -  | (3)   µg/Kg-dry |                              | <1.03  | <1.00         | -                | <0.875         |               | <0.957         | $\perp$        | <0.896  | $\dashv$        | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Bromomethane                                     | 6.71E+04                                | 6.71E+04                                 | (1) µg/Kg-dry   |                              | <1.03  | <1.00         |                  |                |               | _              |                | <0.896  | _               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Carbon disulfide                                 | 5.89E+06                                | 5.89E+06                                 | _               |                              | <4.13  | <4.01         | <4.10            |                |               |                | _              | <3.58   | $\vdash$        | <3.84            | <4.92                 | <3.83          | <4.03          | <4.94          |
| Carbon tetrachloride                             | 2.43E+04                                | 1.99E+05                                 | _               | _                            | <1.03  | <1.00         |                  | П              | ı             |                |                | <0.896  | $\vdash$        | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Chlorobenzene                                    | 1.58E+06                                | 1.58E+06                                 | _               | Ļ                            | <1.03  | <1.00         | $\vdash$         |                |               | _              | <0.977         | 968.0>  |                 | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Chloroethane                                     | 1                                       |  | _               | L                            | <1.03  | <1.00         |                  |                |               | $\dashv$       | $\vdash$       | >0.896  | Н               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Chloroform                                       | 3.19E+04                                | 6.71E+05                                 | (2) µg/Kg-dry   |                              | <1.03  | <1.00         | Н                | <0.875         |               | <0.957         | Н              | >0.896  |                 | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Chloromethane                                    | 1.98E+05                                | 1.13E+06                                 |                 |                              | <1.03  | <1.00         | $\dashv$         |                | - 1           | $\dashv$       | <0.977         | <0.896  | <1.01           | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| cis-1,2-DCE                                      | 3.10E+06                                | 3.10E+06                                 |                 |                              | <1.03  | <1.00         |                  |                | - 1           | $\dashv$       | $\dashv$       | >0.896  |                 | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| cis-1,3-Dichloropropene                          | 1.26E+05                                | 5.10E+05                                 | (2)   µg/Kg-dry |                              | <1.03  | <1.00         | <1.03            | $\neg$         |               | _              | <0.977         | <0.896  | ᅥ               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Dibromochloromethane                             | 6.13E+04                                | 1.99E+06                                 | (2) µg/Kg-dry   | _                            | <1.03  | <1.00         | $\dashv$         | $\neg$         | - 1           | -              |                | <0.896  | _               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Dibromomethane                                   | 1.00E+07                                | -  | $\overline{}$   | _                            | <1.03  | <1.00         | $\dashv$         | <0.875         |               | -              |                | <0.896  |                 | <0.959           | <1.23                 | <0.959         | 4.01           | <1.24          |
| Dichlorodifluoromethane                          | 1.37E+06                                | 1.37E+06                                 | $\rightarrow$   |                              | <1.03  | <1.00         | $\dashv$         |                |               | <0.957         | <0.977         | <0.896  | <1.01           | <0.959           | <1.23                 | <0.959         | 4.01           | <1.24          |
| Ethylbenzene                                     | 3.85E+05                                | 6.63E+06                                 | (2) µg/Kg-dry   |                              | <1.03  | <1.00         | +                |                |               | +              | +              | <0.896  | +               | <0.959           | <1.23                 | <0.959         | √<br>1.01      | <1.24          |
| Hexachlorobutadiene                              | 2.20E+05                                | 1  | _               | _                            | <1.03  | ×1.00         | <1.03            | <0.875         | - 1           | $\dashv$       | <0.977         | <0.896  | +               | <0.959           | <1.23                 | <0.959         | V-101          | <1.24          |
| Isopropylbenzene                                 | 1.03E+07                                | 1.03E+07                                 | $\rightarrow$   | 4                            | <1.03  | 41.00         | +                |                |               | <0.95/         | <0.977         | <0.896<br>60.000  | 10.12           | 666.0>           | <1.23                 | <0.959         | V-1.01         | <1.24          |
| Methyl tert-butyl ether (MTBE)                   | 4.69E+06                                | 6.55E+07                                 | _               | 1                            | <1.03  | ×1.00         | +                |                |               | +              | //6.0>         | <0.830<br>0.43  | $\dagger$       | <0.959           | <1.23                 | 626.0>         | <1.01          | <1.24          |
| Methylene chloride                               | 1.09E+06                                | 1.06E+07                                 | (2) µg/Kg-dry   |                              | 12.3   | 3.29          | 9.01             | $\neg \vdash$  |               | +              | 10.6           | 9.42  | +               | 11.4             | <2.40<br>2.20<br>2.20 | 2.02           | 8.85           | 7.26           |
| Naphthalene                                      | 7.52E+U3                                | o  | -               | dry <1.08                    | 7  | 8.5           | +                |                |               | <0.957         | 70.07          | 20.090<br>20.806  | 2.5             | 20.939<br>20.050 | 31.5                  | ×0.939         | 0.07           | 42.124         |
| II-DulyiDerizerie                                | <br> -<br> -                            | 1 !                                      | Jo/Kg-dry       | 1                            | , 12<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | 00.15         | ×1.03            | <0.875         |               | +              | <0.977         | >0.896  | +               | <0.959           | <1.23                 | <0.959         | 4 01           | <1.24          |
| sec-Butylhenzene                                 |   | <br> -                                   | ua/Ka-dry       | Ļ                            | <1.03  | <1.00         | +                | 7              | 1             | ╁              | <0.977         | <0.896  | ╁               | <0.959           | <1.23                 | <0.959         | ×101           | <1.24          |
| Styrene  | 3.03E+07                                | 3.03E+07                                 | (1) ua/Ka-dry   |                              | <1.03  | <1.00         | <1.03            | <0.875         | ı             | ┝              | -              | >0.896  | $\vdash$        | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| tert-Butylbenzene                                |   | $\vdash$                                 | +               | L.,                          | <1.03  | <1.00         | ┢                | ${}^{-}$       |               | $\vdash$       | -              | >0.896  |                 | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Tetrachloroethene (PCE)                          | 3.64E+04                                | 3.38E+05 (                               | (2) µg/Kg-dry   |                              | <1.03  | <1.00         | -                |                |               |                | -              | 968:0>  | -               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Toluene  | 2.11E+07                                | 2.11E+07                                 | _               | <u></u>                      | <1.03  | <1.00         | -                |                | i             | _              | <0.977         | 968:0>  | <1.01           | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| trans-1,2-DCE                                    | 8.14E+05                                | 8.14E+05                                 |                 | L                            | <1.03  | <1.00         | _                | <0.875         |               |                | <0.977         | <0.896  |                 | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| trans-1,3-Dichloropropene                        | 1.26E+05                                | 5.10E+05                                 | (2) µg/Kg-dry   | dry <1.08                    | <1.03  | <1.00         | -                |                |               | <0.957         | <0.977         | <0.896  | $\exists$       | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Trichloroethene (TCE)                            | 2.53E+05                                | 4.60E+06                                 |                 |                              | <1.03  | <1.00         |                  |                |               |                | <0.977         | <0.896  |                 | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Trichlorofluoromethane                           | 5.82E+06                                | 5.82E+06                                 |                 |                              | <1.03  | <1.00         | <1.03            | <0.875         | - 1           | <0.957         | <0.977         | >0.896  | -               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Vinyl chloride                                   | 2.59E+04                                | 2.48E+05                                 |                 |                              | <1.03  | <1.00         | <1.03            | $\neg$         | - 1           | -              | <0.977         | <0.896  | -               | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Xylenes, Total                                   | 3.13E+06                                | 3.13E+06                                 | (1)   µg/Kg-dry | -dry <1.08                   | <1.03  | <1.00         | <1.03            | <0.875         |               | <0.957         | <0.977         | <0.896  | 4.01            | <0.959           | <1.23                 | <0.959         | <1.01          | <1.24          |
| Semi Volatile Organics - (EPA Method 8270) mg/kg | 1                                       | 00 120                                   | L               | -                            | -  | 90 9          |                  |                | 00.00         | 00.00          | 00.00          | 0,7   | 0 7             | 7                |                       | 7              | 90,00          | ç              |
| 1,2,4-I richioropenzene                          | 4.27E+02                                | 4.2/E+02                                 |                 | +                            | +  | 20.20         | 20.20            | 20.20          | 02.02         | 02.0>          | 02.02          | 400   | V V             | 4.0              | 0 0                   | 2 0            | 02.02          | 02.0           |
| 1,z-Dichlorobenzene                              | 3.7 11.00                               | 9.7 15.705                               | ma/Ka           | 0.20<br>0.20<br>0.20<br>0.20 | \$0.20<br>\$0.20   | 02.02         | \$0.20<br>\$0.20 | <0.20          | <0.20         | <0.20          | <0.20          | 41.0  | V 20.15         | 4.0              | 0.10                  | 0.1×           | <0.20          | 02.05          |
| יייין ווטוסיטיווטווטיס-לין                       | -                                       | -  | ָה<br>הַ        | -                            | +  | 74.0          | 23.7             | -              | -             | -              | -              | 1   |                 | 1                | 1                     | ?              | 2              | 23:2           |
|  |   |  |                 |                              |  |               |                  |                |               |                |                |   |                 |                  |                       |                |                |                |

Table 11 Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield, New Mexico

|   | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-Residential Control Screening Control Cont |              | OC 22-7 (0-0.5') | (0.S-3.1) T-SS DO       | OC 22-8 (0.0.5') | OC 22-8 (1.5-2.0)         | OC 22-8 (1.5-2.0) PUT                       | OC 55-9 (1 2-3 0.) | OC 22-10 (0-0.5')   | OC 52-10 (1.5'-2.0') | OC 55-11 (0-0.5')                       | OC 22-11 (1.5'-2.0')                  | OC 55-14 (0-0.5')                       | OC 22-14 (1.5-2.0')   | OC 22-16 (0-0.5')   | /OC 22-16 (1.5-2.0') |
|---|---|--|--------------|------------------|-------------------------|------------------|---------------------------|---|--------------------|---|----------------------|---|---------------------------------------|---|---|---|----------------------|
| Analytes  |   |  | Onits        | 6                | 600                     | 600              | 600                       | 009   | √<br>72009 4/13/   | 4   | 4/1/                 | 4/1/                                    | 4/17                                  | 4/8/2009                                | 60  | 4/13/2009 4/  | /13/2009             |
| Sample Date                                       | 1.80E+02  | 3.78E+03 (2)   | ) ma/Ka      |                  | -                       | —                |                           | <u>'L</u>                                   | 1.20 <0            | .20 <0.20   | -                    | -                                       | _                                     | <1.0                                    | 1   | <0.20   | <0.20                |
| 1,4-Didiioloperizerio<br>2.4.5-Trichlorophenol    | 2.38E+04  | 2.38E+04 (1)   | 1_           | <0.20            | <0.20                   | <0.20            | -                         | <0.20 <0                                    |                    | <0.20 <0.2  | Н                    | <1.0                                    | <1.0                                  | <1.0                                    | <1.0  | <0.20   | <0.20                |
| 2.4.6-Trichlorophenol                             | 2.38E+02  | 2.38E+02 (1)   | _            | <0.20            | <0.20                   |                  | _                         | _   |                    | $\dashv$  | 4                    | <1.0                                    | <1.0                                  | <1.0                                    | ×1.0  | <0.20<br><0.20  | <0.20                |
| 2 4-Dichlorophenol                                | 7.15E+02  | H  | L            | <0.40            | <0.40                   |                  | -                         | $\dashv$                                    |                    | $\dashv$  | $\dashv$             | <2.0                                    | <2.0                                  | <2.0                                    | <2.0  | <0.40<br>40   | <0.40                |
| 2,4-Dimethylphenol                                | 4.76E+03  | 4.76E+03 (1)   |              | <0.30            | <0.30                   |                  | _                         | $\dashv$                                    |                    | $\dashv$  | $\dashv$             | ×1.5                                    | <1.5                                  | <1.5                                    | 21.5  | <0.30<br>5.53<br>5.53<br>5.53<br>5.53<br>5.53<br>5.53<br>5.53 | <b>6</b> .30         |
| 2.4-Dinitrophenol                                 | 4.76E+02  | $\vdash$   |              | <0.40            | <0.40                   |                  | <0.40                     | $\dashv$                                    |                    | $\dashv$  | $\dashv$             | <2.0                                    | <2.0                                  | <2.0                                    | <2.0  | <0.40   | <0.40<br>5           |
| 2,4-Dinitrotoluene                                | 1.03E+02  | П  | Ш            | <0.50            | <0.50                   | $\vdash$         | $\dashv$                  | -   |                    | <0.50 <0.5  | $\dashv$             | <2.5                                    | <2.5                                  | <2.5                                    | <2.5  | 0.50  | 0.50                 |
| 2,6-Dinitrotoluene                                | 2.39E+02  | Н  | (1) mg/Kg    | <0.50            | <0.50                   | Н                | $\vdash$                  | <0.50 <0                                    |                    | $\dashv$  | _                    | <2.5                                    | <2.5                                  | <2.5                                    | <b>4.25</b>   | <0.50   | <0.50<br>5           |
| 2-Chloronaphthalene                               | 2.48E+04  | $\vdash$   | Ц            | <0.25            | <0.25                   | +                | -                         | +   |                    | +   | -                    | ×1.3                                    | × .                                   | <u>^</u>                                | <u>د</u> ر  | <0.25   | <0.25                |
| 2-Chlorophenol                                    | 1.55E+03  | $\dashv$   |              | <0.20            | <0.20                   | +                | +                         | +   |                    | -   | -                    | 2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 41.0                                  | ^1.0<br>2.5                             | 1.0<br>7.0<br>7.0<br>7.0  | <0.20   | 07.0                 |
| 2-Methylnaphthalene                               | 4.10E+03  | <u> </u>   | 4            | <0.25            | <0.25                   | <0.25            | <0.25                     | CO 25 CO < CO |                    | <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 <0.25 | 5 6 6                | \$ 1.3<br>2.15                          | < 1.3<br>< 0.5                        | 5.5                                     | 2.5   | <0.23   | <0.23                |
| 2-Methylphenol                                    | 3.10E+04  | 1  | (3) mg/Kg    | V0.50            | 00.00                   | +                | +                         | ╁   |                    | +   | +                    | 7 0                                     | 2.5<br>2.10                           | 410                                     | 0 TV  | 02.02   | \$0.20<br>\$0.20     |
| 2-Nitroaniline                                    | 1.80E+03  | 1  | _            | <0.20            | 02.02                   | +                | +                         | 0.20  | ┸                  | <0.20   | +                    | 0.1V                                    | 0.1×                                  | 410                                     | 41.0  | <0.20   | <0.20                |
| 2-Nitrophenol                                     | - 1 26 L  | 2 715±02   |              | 20.20<br>20.25   | <0.20                   | +                | +                         | ╁   | ┸                  | ╀   | ╀                    | <1.3                                    | <1.3                                  | × 1.3                                   | ×1.3  | <0.25   | <0.25                |
| 3,3 - Dichlorobenzidine                           | 3 10E±03  | 7 15 102   | (2) mg/Kg    | 02.02            | 02.0><br>02.0>          | <0.20            | +                         | ╁   |                    | ╁   | $\vdash$             | <1.0                                    | <1.0                                  | <1.0                                    | 41.0  | <0.20   | <0.20                |
| 3+4-Ineurlylphenol                                |   |  | 1_           | <0.20            | <0.20                   | ╀                | ╁                         | ╁   |                    |   |                      | <1.0                                    | <1.0                                  | <1.0                                    | <1.0  | <0.20   | <0.20                |
| 2-Niu Odi III III E<br>4 6-Dinitro-2-methylphenol |   | -  | ma/Ka        | <0.50            | <0.50                   | <del> </del>     | $\vdash$                  | ┝   |                    |   |                      | <2.5                                    | <2.5                                  | <2.5                                    | <2.5  | <0.50   | <0.50                |
| 4-Bromophenyl phenyl ether                        | !   | 1  | mg/Kg        | <0.20            | <0.20                   | -                | Н                         | H   |                    | $\dashv$  | $\dashv$             | <1.0                                    | <1.0                                  | <1.0                                    | 4.0   | <0.20   | <0.20                |
| 4-Chloro-3-methylphenol                           | 1   | ,  | mg/Kg        | <0.50            | <0.50                   | Н                | Н                         | <0.50 <0                                    |                    | $\dashv$  | $\dashv$             | <2.5                                    | <2.5                                  | <2.5                                    | <2.5  | <0.50   | <0.50                |
| 4-Chloroaniline                                   | 8.60E+01  |  | (4) mg/Kg    | <0.50            | <0.50                   |                  | <0.50                     | -   |                    | $\dashv$  | +                    | <2.5                                    | <2.5                                  | <2.5                                    | <2.5  | <0.50   | 40.50<br>50          |
| 4-Chlorophenyl phenyl ether                       | 1   | 1  | _            | <0.20            | <0.20                   | 4                | $\dashv$                  | +   |                    | +   | +                    | ×1.0                                    | 0.1<br>2,10                           | 0.12                                    | 0.12  | <0.20   | 07.0                 |
| 4-Nitroaniline                                    | 8.60E+02  |  | (4) mg/Kg    | <0.25            | <0.25                   | <0.25            | +                         | +   |                    | +   | $\dotplus$           | V / S                                   | ۸<br>د: ۵                             | ۸<br>دن د                               | \$ 5  | 20.02   | 20.20                |
| 4-Nitrophenol                                     | - 00 7  | 1 000 1  | _ _          | 07.0             | 0.20                    | +                | 07:0>                     | ×0.20<br>×0.20                              | $\perp$            | <0.20   | 2 0                  | 2 0                                     | 0 >                                   | )<br> <br> <br> <br> <br>               | 40.0  | <0.20   | <0.20                |
| Acenaphthene                                      | 1.80E+04  | $\top$   | (1) mg/kg    | \$0.20<br>\$0.20 | <0.20                   | 02.02            | +                         | +   |                    | +   | +                    | <1.0                                    | 2<br>V                                | 2.0                                     | 4.0   | <0.20   | <0.20                |
| Acenaphtnylene                                    | 3 00F+03  | 7)   | (4) ma/Ka    | <0.20            | <0.20                   | +                | +                         | +   | L                  | +   | $\vdash$             | v.1.0                                   | <1.0                                  | ×1.0                                    | <1.0  | <0.20   | <0.20                |
| Anthracene  | 6.68E+04  | 6.68E+04   | 1            | <0.20            | <0.20                   | +                | ╀                         | $\vdash$                                    |                    | -   | H                    | <1.0                                    | <1.0                                  | <1.0                                    | <1.0  | <0.20   | <0.20                |
| Azobenzene  | 2.20E+02  | 1  | _            | <0.20            | <0.20                   | Н                |                           | Н   |                    | $\vdash$  | $\dashv$             | √1.0                                    | <1.0                                  | <1.0                                    | 0.10  | <0.20   | <0.20                |
| Benz(a)anthracene                                 | 2.34E+01  | 2.13E+02   | (2) mg/Kg    | <0.20            | <0.20                   | $\dashv$         | -                         | +   |                    | +   | +                    | <1.0                                    | <1.0                                  | <1.0                                    | 0.5   | <0.20   | 40.20                |
| Benzo(a)pyrene                                    | 2.34E+00  | 2.13E+01   | (2) mg/Kg    | <0.20            | <0.20                   | +                | <0.20<br>> 0.20<br>> 0.20 | +   |                    | +   | +                    | )<br> <br> <br> <br>                    | )<br>V<br>V                           | 0.5                                     | 0.5   | 0.20  | <0.20<br>20.20       |
| Benzo(b)fluoranthene                              | 2.34E+01  | 2.13E+02   |              | <0.20            | <0.20<br>20.50<br>50.50 | 07.0             | ┿                         | 0> 0> 0> 0> 0>                              |                    | +   | 0.1.0                | 2 2 2                                   | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 0.10                                    | \<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\ | <0.50   | <0.50                |
| Benzo(g,h,i)perylene                              | 234E+02   | 2 OFE+03   | mg/Kg        | 0000             | 00.00                   | +                | +                         | +   | _                  | +-  | igapha               | 4.0                                     | <1.0                                  | ×1.0                                    | 41.0  | <0.20   | <0.20                |
| Benzoic acid                                      | 2.50E+06  | 1  | <del> </del> | <0.50            | <0.50                   | <0.50            | < 0.50 <                  | -   |                    |   |                      | <2.5                                    | <2.5                                  | <2.5                                    | <2.5  | <0.50   | <0.50                |
| Benzyl alcohol                                    | 3.10E+05  | ,  | -            | <0.20            | <0.20                   | Н                | Н                         | $\vdash$                                    |                    |   | -                    | _                                       | <1.0                                  | <1.0                                    | 0.10  | <0.20   | <0.20                |
| Bis(2-chloroethoxy)methane                        | 1.80E+03  | -  | $\perp$      | <0.20            | <0.20                   | $\dashv$         | $\dashv$                  | <0.20 <0                                    | $\perp$            | <0.20 <0.2  | 20 × 1.0             | 0.F<br>2.0                              | 4.0                                   | 4.0                                     | 0.12  | <0.20   | 0.20                 |
| Bis(2-chloroethyl)ether                           | 1.36E+01  | 1.47E+02   | $\perp$      | <0.20            | <0.20                   | +                | +                         | +   | $\perp$            | +   | +                    | +                                       | 7 7                                   | 7 7                                     | 5 6   | 02.07   | 02.02                |
| Bis(2-chloroisopropyl)ether                       | 4.54E+02  | 3.10E+03   | $\perp$      | <0.20            | <0.20                   | <0.20            | +                         | +   | ┸                  | +-  | +                    | 2.5                                     | × 1.0                                 | 2.5                                     | 0.1.0   | <0.20   | <0.50                |
| Bis(2-ethylhexyl)phthalate                        | 1.37E+03  | 4.76E+03   |              | <0.50            | 0.50                    | +                | +                         | +   | $\perp$            | +   | +                    | -                                       | 410                                   | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   | 2.70<br>V-10  | <0.20   | <0.20                |
| Butyl benzyl phthalate                            | 9.10E+03  | -  |              | \$0.20<br>\$0.20 | 20.20                   | +                | +                         | 02.02                                       | L                  | <0.20 <0.20   | $\dotplus$           | +                                       | ×1.0                                  | ×10                                     | 40.0  | <0.20   | <0.20                |
| Carbazole   | 7 245±02  | COEE+04  | mg/Kg        | \$0.20<br>\$0.20 | <0.20                   | +                | +                         | +   |                    | ╁   | ╀                    | <1.0                                    | 4.0                                   | 2<br>0.1>                               | ×1.0  | <0.20   | <0.20                |
| Chrysene<br>Dispar(a b)anthroppo                  | 2.34E+03  | 2 13F+01   | (2) mg/Kg    | <0.20            | <0.20                   | +                | ╀                         | <0.20 <0                                    |                    | ╁   | $\vdash$             | <1.0                                    | <1.0                                  | <1.0                                    | <1.0  | <0.20   | <0.20                |
| Dibenz(a,n)antinacene<br>Dibenzatinas             | 4.04E+00  | 4.10L101   | _            | <0.20            | <0.20                   | +                | <0.20                     | ╁╌  | _                  | ╀   |                      | <1.0                                    | <1.0                                  | <1.0                                    | <1.0  | <0.20   | <0.20                |
| Diethyl nhthalate                                 | 1 91F+05  | 1 91E+05   | (1) ma/Ka    | <0.20            | <0.20                   | <0.20            | ╁                         | <0.20 <0                                    | L                  | $\vdash$  |                      | <1.0                                    | <1.0                                  | <1.0                                    | <1.0  | <0.20   | <0.20                |
| Dimethyl phthalate                                | 2.38E+06  | 2.38E+06   | <u> </u>     | <0.20            | <0.20                   | Н                | Н                         |   |                    | $\dashv$  | $\dashv$             | $\dashv$                                | <1.0                                  | √<br>1.0                                | √<br>0.10   | <0.20   | <0.20                |
| Di-n-butyi phthalate                              | 2.38E+04  | 2.38E+04   | Ш            | <0.50            | <0.50                   | -                | _                         | +   |                    | $\dashv$  | $\dashv$             | +                                       | <2.5                                  | <2.5                                    | <2.5  | <0.50<br>50.50  | <0.50<br>5           |
| Di-n-octyl phthalate                              |   |  | _            | <0.20            | <0.20                   | +                | <0.20                     | <0.20                                       | $\perp$            | <0.20 <0.20   | 20 <1.0              | V 7                                     | 7 7.0                                 | ^ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 7.0   | <0.20   | <0.20                |
| Fluoranthene                                      | 8.91E+03  | 8.91E+03 (   | (1) mg/Kg    | <0.25            | <0.25                   | <0.25            | $\dashv$                  | $\dashv$                                    | _                  | $\dashv$  | $\downarrow$         | _                                       | 2:                                    | 6.1.5                                   | 5.1.  | \ C2.U^   | 50.20 J              |
|   |   |  |              |                  |                         |                  |                           |   |                    |   |                      |   |                                       |   |   |   |                      |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

|   | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential<br>Screening<br>Levels 2-10' | Source    | (.6.0-0) T-SZ | (0.5-2.1) 7-52 | 22-8 (0.0.5') | (0.5-2.1) 8-52 | qua (0.s-2.1) 8-ss | (3.0-0) 6-SS | ('0.S-Z.r) e-SZ | 22-10 (0-0.5') | 22-10 (1.5'-2.0') | 22-11 (0-0.5') | (1.5'-2.0') | (.5.0-0) 41-52    | (1.5-2.0') | 22-16 (0-0.5°) | 22-16 (1.5-2.0') |
|---|---|--|-----------|---------------|----------------|---------------|----------------|--------------------|--------------|-----------------|----------------|-------------------|----------------|-------------|-------------------|------------|----------------|------------------|
| Analytes  |   |  | Units     | YOC -         | DOA            | DOA           | DOA            | DOA                | DOA          | DOA             | DOA            | DOA               | DOA            | DOA         | DOA               | DOA        | DOA            | DOA              |
| Sample Date                                       |   |  |           | 4/13/2009     | 4/13           | 4/13/2009     | 4/13/2009      | 600                | 600          | 600             | 600            | 600               | 600            | 4/14/2009   | 4/8/2009          | 60         | 600            | 4/13/2009        |
| Fluorene  | 8.91E+03  | 8.91E+03   | (1) mg/Kg | _             | <0.50          | <0.50         | <0.50          | <0.50              | <0.50        | <0.50           | <0.50          | <2.5              | <2.5           | <2.5        | <2.5              | <2.5       | <0.50          | <0.50            |
| Hexachlorobenzene                                 | 1.20E+01  | 1.03E+02 (                                       | (2) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | √<br>1.0          | √<br>1.0       | <1.0        | د.<br>1.0         | <1.0       | <0.20          | <0.20            |
| Hexachlorobutadiene                               | 2.20E+02  | )  | (4) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | ۲٠<br>م           | v.<br>0.1      | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Hexachlorocyclopentadiene                         | 8.11E+02  | 8.11E+02 (                                       | (1) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | v.<br>1.0         | ×1.0           | <1.0        | 0.1>              | <1.0       | <0.20          | <0.20            |
| Hexachloroethane                                  | 2.38E+02  | 2.38E+02 (                                       | (1) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | ×1.0           | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Indeno(1,2,3-cd)pyrene                            | 2.34E+01  | 2.13E+02 (                                       | (2) mg/Kg | <0.25         | <0.25          | <0.25         | <0.25          | <0.25              | <0.25        | <0.25           | <0.25          | <1.3              | ×<br>1.3       | <1.3        | ۸ <del>۱</del> .3 | <1.3       | <0.25          | <0.25            |
| Isophorone  | 2.02E+04  | 4.75E+04 (                                       | (2) mg/Kg | <0.50         | <0.50          | <0.50         | <0.50          | <0.50              | <0.50        | <0.50           | <0.50          | <2.5              | <2.5           | <2.5        | <2.5              | <2.5       | <0.50          | <0.50            |
| Naphthalene                                       | 2.52E+02  | 7.02E+02 (                                       | (2) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | <1.0           | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Nitrobenzene                                      | 2.77E+02  | 5.20E+02 (                                       | (2) mg/Kg | <0.50         | <0.50          | 09.0>         | <0.50          | <0.50              | <0.50        | <0.50           | <0.50          | <2.5              | <2.5           | <2.5        | <2.5              | <2.5       | <0.50          | <0.50            |
| N-Nitrosodi-n-propylamine                         | 2.50E+00  | )  | (4) mg/Kg | Ц             | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | <1.0           | √<br>0.10   | ×<br>1.0          | <1.0       | <0.20          | <0.20            |
| N-Nitrosodiphenylamine                            | 3.91E+03  | 3.40E+04 (                                       | (2) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | <1.0           | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Pentachlorophenol                                 | 1.00E+02  | 1.03E+03 (                                       | (2) mg/Kg | <0.40         | <0.40          | <0.40         | <0.40          | <0.40              | <0.40        | <0.40           | <0.40          | <2.0              | <2.0           | <2.0        | <2.0              | <2.0       | <0.40          | <0.40            |
| Phenanthrene                                      | 7.15E+03  | 7.15E+03 (                                       | 1) mg/Kg  | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | <1.0           | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Phenol  | 6.88E+04  | 6.88E+04 (                                       | (1) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | ×1.0           | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Pyrene  | 6.68E+03  | 6.68E+03 (                                       | (1) mg/Kg | <0.20         | <0.20          | <0.20         | <0.20          | <0.20              | <0.20        | <0.20           | <0.20          | <1.0              | <1.0           | <1.0        | <1.0              | <1.0       | <0.20          | <0.20            |
| Pyridine  | 1.00E+03  | )  | (3) mg/Kg | <0.50         | <0.50          | 09:0>         | <0.50          | <0.50              | <0.50        | <0.50           | <0.50          | <2.5              | <2.5           | <2.5        | <2.5              | <2.5       | <0.50          | <0.50            |
| Total Petroleum Hydrocarbons - (EPA Method 8015B) | B) mg/kg  |  |           |               |                |               |                |                    |              |                 |                |                   |                | :           |                   |            |                |                  |
| Diesel Range Organics (DRO)                       | 2 1   | 2000   | (5) mg/Kg | <10           | <10            | 120           | 180            | 190                | 46           | 53              | <10            | 190               | 34             | 410         | 71                | 029        | 24             | 1000             |
| Gasoline Range Organics (GRO)                     | 2000  |  | (5) mg/Kg | <5.0          | <5.0           | <5.0          | <5.0           | <5.0               | <5.0         | <5.0            | <5.0           | <5.0              | <5.0           | <5.0        | <5.0              | <5.0       | <5.0           | <5.0             |
| (Motor Oil Range Organics (MRO)                   | 2000  | 2000   | (6) mg/Kg | <20           | <50            | 220           | 510            | 580                | 110          | 120             | <50            | 620               | 74             | 1100        | 350               | 1800       |                | 1200             |

(5) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for industrial exposure via vapor migration and inhalation of ground water
(6) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for industrial exposure via vapor migration and inhalation of ground water

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

| Analytes                                    | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential<br>Screening<br>Levels 2-10' | Source<br>Units | AOC 22-16 (36-38') 1 |   | L                  |                 | ]               | AOC 24-3 (0-0.5') | AOC 24-3 (1.5-2.0') | AOC 24-4 (1.5-2.0') | AOC 24-4 (1.5-2.0') DUF | AOC 24-5 (0-0.5') | AOC 24-5 (0-0.5') DUP | AOC 24-5 (1.5-2.0') | AOC 24-6 (0.0.5') | AOC 24-6 (1.5-2.0') |
|---|---|--|-----------------|----------------------|---|--------------------|-----------------|-----------------|-------------------|---------------------|---------------------|-------------------------|-------------------|-----------------------|---------------------|-------------------|---------------------|
| Sample Date                                 |   |  |                 |                      | 4/23/2009 4/  | 4/23/2009 4/2      | 4/23/2009 4/23/ | 4/23/2009 4/23/ |                   | /2009 4/23/         | 41                  | 09 4/23/200             | _                 |                       | 4/8/2009            | _                 | 4/8/2009            |
| Antimony                                    | 1.24E+02  |  | lacksquare      | <2.5                 | <13   |                    | <2.5 <2         | -               | <2.5              | <2.5 <2.5           | 5 <2.5              | <13                     | <13               | <2.5                  | <13                 | <13               | <13                 |
| Arsenic                                     | 1.77E+01  | M  | (2) mg/Kg       | <2.5                 | <13   | Н                  | Н               | <2.5 <2         | Н                 | $\vdash$            | $\vdash$            | Н                       | H                 | <2.5                  | <2.5                | <13               | <13                 |
| Baríum                                      | 4.35E+03  |  |                 | 220                  | -   | -                  | $\dashv$        | $\dashv$        |                   | -                   | $\dashv$            | -                       | $\dashv$          | 170                   | 140                 | 180               | 160                 |
| Beryllium                                   | 1.44E+02  | $\neg$   | (1) mg/Kg       | <0.15                | +   |                    | $\dashv$        | 0.3 0.          | 4                 | $\dashv$            | -                   | $\dashv$                | $\dashv$          | 0.28                  | <0.75               | <0.75             | <0.75               |
| Cadmium                                     | 3.09E+02  | 3.09E+02   | _               | <0.10                | -   | 4                  | -               |                 |                   | -                   | +                   | -                       | $\dashv$          | <0.10                 | <0.50               | \$0.50<br>.50     | <0.50               |
| Chromium                                    | 4.47E+05  | 4.47E+05   | (1) mg/Kg       | 2.7                  | $\dashv$  | $\dashv$           | +               | $\dashv$        | 4                 | +                   | $\dashv$            | $\dashv$                | $\dashv$          | 9.4                   | 6.2                 | 175               | 53                  |
| Cobalt                                      | 3.00E+02  |  | 4               | 2                    | +   | +                  | +               | -+              | +                 | +                   | +                   | 4                       | -                 | 4.4                   | 4.7                 | ٥                 | δ.                  |
| Cyanide                                     | 6.19E+03  | 6.19E+03   | 4               | <0.5                 | +   | +                  | +               | +               | +                 | +                   | +                   | +                       | +                 | Q.0.5                 | CO.2                | 50.5              | \$0.5<br>6.05       |
| Lead  | 8.00E+02  | - 1000   |                 | 200                  | 8.4.8   | 9 000              | +               | 4               | -                 | ╁                   | +                   | +                       | +                 | 4.7                   | 5.1                 | 0.7               | 0000                |
| Mercury                                     | 6 10E+01  | 6.36E+01   | (2) mg/kg       | <0.033<br>1.7        | +   | +                  | - -             | <0.033 <0.0     | +                 | +                   | +                   | -                       | +                 | V0.033                | 50.03               | 7.2               | 7                   |
| Solonium                                    | 1 555 +03                                       | 1 55E+03   | (1) mg/Kg       | )<br>5.              | 0.9   | ‡ &                | 5.3<br>×13      | ╀               | ╀                 | ╀                   | ╁                   | +                       | +                 | <2.5                  | <13                 | 4.i5<br><13       | <13                 |
| Silver                                      | 1.55E+03  | 1.55E+03   | ┸               | <0.25                | \<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\<br>\ | <del> </del>       | +               | +               | ╀                 | ╀                   | ╀                   | +-                      | ╀╌                | <0.25                 | ×1.3                | ×<br>1.3          | ۸<br>کانکا          |
| Vanadium                                    | 1.55E+03  | 1.55E+03   | ↓_              | 12                   | 18  | ╀                  | ╁               | ╀               | ├                 | ╂-                  | ╀╌                  | ╀                       | ╀╴                | 13                    | 15                  | 18                | 16                  |
| Zinc  | 9.29E+04  | 9.29E+04   | ╄               | 12                   | 29  | 33                 | 20 1            | 18 1            | $\vdash$          | Н                   | Н                   | H                       | $\vdash$          | 36                    | 28                  | 35                | 40                  |
| tile Organic Compounds - (EPA Method 8260B) | E   |  |                 |                      |   |                    |                 |                 |                   |                     |                     |                         | ŀ                 |                       |                     |                   |                     |
|   |   | $\vdash$   | (2) mg/Kg       |                      | -   |                    | 1               |                 |                   |                     |                     | 1                       | 1                 | 1                     | 1                   | 1                 | :                   |
| 1,1,1-Trichloroethane                       | 6.43E+04  | Н  |                 | -                    | 1   | -                  | 1               |                 |                   |                     |                     | 1                       | 1                 | ŀ                     | :                   | :                 | :                   |
| 1,1,2,2-Tetrachloroethane                   | 4.33E+01  | $\neg$   |                 | 1                    | •   | ľ                  | 1               |                 | _<br>_<br>}       | -                   |                     | :                       | ;                 | :                     |                     | :                 | :                   |
| 1,1,2-Trichloroethane                       | 9.43E+01  | -  | (2) mg/Kg       | i                    | 1   | -                  | -               | -               | 1                 | +                   | !                   | -                       | :                 | ,                     | :                   | ;                 | :                   |
| 1,1-Dichloroethane                          | 3.50E+02  | -  | $\perp$         | !                    | -   | ŀ                  |                 |                 | 1                 | 1                   | -                   | :                       | !                 | <u> </u>              | :                   | :                 | :                   |
| 1,1-Dichloroethene                          | 1.83E+03  | -  | (1) mg/Kg       | -                    | :   | :                  | 1               | -               |                   | :                   |                     | •                       | :                 | :                     | •                   | •                 |                     |
| 1, 1-Dichioropropene                        | :   ;   | :   :  | ma/Ka           | :   :                |   | <u> </u>           | +               |                 | -                 | $\frac{1}{1}$       | 1 1                 | 1                       | <b> </b>          |                       |                     | +                 |                     |
| 1.2.3-Trichloropropane                      | 4.54E+00  | +  | 4               | 1                    | :   |                    | -               |                 |                   | -                   | -                   | !                       | <u> </u>          | !                     | •                   |                   |                     |
| 1.2.4-Trichlorobenzene                      | 4.27E+02  | 4.27E+02 (                                       | (1) mg/Kg       | 1                    | -   |                    |                 |                 | _                 |                     | _                   | :                       |                   | :                     | 1                   | ,                 | 1                   |
| 1,2,4-Trimethylbenzene                      | 2.80E+02  | Н  |                 | 1                    | :   | 1                  |                 |                 |                   |                     | 1                   |                         | <br> -            | :                     | 1                   | •                 | •                   |
| 1,2-Dibromo-3-chloropropane                 | 1.09E+00  | 2.30E+01 (                                       | (2) mg/Kg       | ;                    | -   | 1                  | +               | <u> </u>        | +                 | -                   |                     | 1                       | :                 | ;  <br>-              | :                   | :                 | :                   |
| 1,2-Dibromoethane (EDB)                     | 3.14E+00  | $\dashv$   |                 |                      | -   | <u> </u>           | 1               | -               |                   | +                   | -                   | -                       | : :               |                       |                     | :                 | :   ;               |
| 1,2-Dichloroethane (FDC)                    | 4 28F+01  | 7.51F+02   | ┸               |                      | : :   |                    | -               |                 | -                 |                     | <del> </del>        | :                       | <br> -            | ;                     | 1                   | -                 | i                   |
| 1.2-Dichloropropane                         | 8.17E+01  | +  | (2) mg/Kg       |                      |   | 1                  |                 | -               |                   | -                   |                     |                         |                   |                       | 1                   | :                 | :                   |
| 1,3,5-Trimethylbenzene                      | 2.00E+02  |  | Ц               | -                    | :   | •                  |                 | '  <br>         | -                 | 1                   | -                   | :                       | ;                 |                       | 1                   | -                 | :                   |
| 1,3-Dichlorobenzene                         | 1   | 1  |                 | 1                    | -   | :                  | <br>            | +               |                   |                     | -                   | :                       | •                 | ,                     | -                   | :                 | •                   |
| 1,3-Dichloropropane                         | 2.00E+04  | ) 07 07 0  | (3) mg/Kg       | :                    | :   | :                  | +               | -               |                   | +                   |                     | !                       | :                 |                       |                     | :                 |                     |
| 1,4-Dichlorobenzene                         | 1.80E+02  | 十  | ᆚ               | !                    | :   | :                  | <br> -          | +               | -                 |                     | 1                   | :   :                   |                   | :   ;                 | :                   | :   :             | :   ;               |
| 1-Metnyinaphinalene                         | 8.90E+02  |  | ma/Ka           | :   :                | -   |                    |                 | -               |                   | -                   | -                   |                         | <br> -            | !   !                 | 1                   | †                 | ,                   |
| 2-Butanone                                  | 1.48E+05  | 1.48E+05   | (1) ma/Ka       | ;                    |   |                    | -               | '               |                   | -                   | -                   |                         | :                 | <br> -                | ,                   | ;                 | :                   |
| 2-Chlorotoluene                             | 6.19E+03  | 6.19E+03   | ļ.,             | :                    |   |                    |                 | -               |                   | 1                   |                     | :                       | :                 |                       |                     |                   | 1                   |
| 2-Hexanone                                  |   | !  | mg/Kg           | :                    | :   |                    |                 |                 |                   | -                   |                     | 1                       |                   | :                     | ,                   | :                 | :                   |
| 2-Methylnaphthalene                         | 4.10E+03  | )  | (3) mg/Kg       | -                    | -   | -                  | 1               |                 |                   |                     |                     | ;                       | !                 | !                     | :                   | :                 | 1                   |
| 4-Chlorotoluene                             | 7.20E+04  |  | Ц               | 1                    | -   | :                  | 1               | '  <br>         |                   | ; }<br>-<br>        | 1                   | 1                       | ;                 | ;                     | •                   | -<br>:<br>        | •                   |
| 4-IsopropyItoluene                          | -   | -  | mg/Kg           | -                    | 1   | -                  | +               | -               | -                 | <u> </u>            | :                   | •                       | :                 | :                     | :                   | :                 | ;                   |
| 4-Methyl-2-pentanone                        | - L   | - 000  |                 | 1 6                  | •   | !                  |                 | +               | 1                 | 1                   | -                   | -                       | :                 | !                     | :                   | ;                 | :                   |
| Acetone                                     | 2.63E+05  | 263000   | $\perp$         | <0.75                |   | +                  | +               | <u> </u>        |                   |                     | :   :               | : :                     | :   :             | : ;                   | :   ;               | ;                 | •                   |
| Brownhoazone                                | 8.34E+01  | 4.7 IE+UZ  | (z) mg/kg       | :                    | <br> <br> <br>  | :   :              | -               |                 | <br>              |                     |                     |                         |                   |                       |                     | -<br>!   !        | :                   |
| Bromodichloromethane                        | 2 92F+01  | 3 50F+03   | (2) mg/Kg       |                      | : :   | <del> </del><br> - | ·   ·<br>•   •  | -               | +                 | +                   | <br> -              | :                       | :                 |                       |                     | :                 |                     |
| DIVINOUNISHISHIS                            | 1.000   | 1  | _               | 1                    |   |                    |                 |                 | 1                 | 7                   |                     |                         |                   |                       |                     |                   | }                   |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

| Analytes  | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential<br>Screening of<br>Levels 2-10' | Units         | <sup>1</sup> ('86-38') 1 | VOC 54-1 (0-0.5') | AOC 24-1 (1.5-2.0°) | AOC 24-2 (0.0.5') | ∀OC 54-3 (0-0.5') | AOC 24-3 (1.5-2.0') | ∀OC 5 <del>4-4</del> (0-0.5') | AOC 24-4 (1.5-2.0') | AOC 24-4 (1.5-2.0') DUR | ∀OC 54-5 (0-0.5')   | AOC 24-5 (0-0.5') DUP | AOC 24-5 (1.5-2.0') | AOC 24-6 (0.0.5') | AOC 24-6 (1.5-2.0')     |
|---|---|---|---------------|--------------------------|-------------------|---------------------|-------------------|-------------------|---------------------|-------------------------------|---------------------|-------------------------|---|-----------------------|---------------------|-------------------|-------------------------|
| Sample Date                                     |   |   | ì             | 4/14/2009 4              | 73/2009 4/2       | 14                  | 12009 4/23/20     | 4/2               | 4                   | 4/23/2009                     | 4/23/2009           | 4/23/2009               | +   | +                     | 1                   | +                 | 1/8/2009                |
| Bromoform                                       | 2.20E+03  | (3)   | mg/Kg         |                          | -                 |                     | -                 |                   |                     | :                             | -                   | ,                       | -   | -                     | '                   | :                 | ;                       |
| Bromomethane                                    | 6.71E+01  | $\vdash$  |               |                          | 1                 | -                   | -                 | -                 |                     | -                             | -                   | -                       | -   | -                     | :                   | -                 | :                       |
| Carbon disulfide                                | 5.89E+03  |   | ) mg/Kg       | :                        | -                 | -                   | -                 |                   |                     | -                             | -                   | -                       | -   | :                     | :                   |                   | :                       |
| Carbon tetrachloride                            | 2.43E+01  | 1.99E+02 (2)  |               |                          | -                 |                     |                   | -                 |                     |                               | -                   | ,                       |   | •                     | -                   |                   | ł                       |
| Chlorobenzene                                   | 1.58E+03  | <del>                                     </del>    |               |                          | -                 |                     | -                 |                   |                     |                               | :                   |                         | :   | :                     | -                   | -                 | :                       |
| Chloroethane                                    | -   | $\vdash$  |               | -                        | -                 |                     |                   |                   |                     | -                             | :                   | -                       | 1   |                       |                     |                   | :                       |
| Chloroform                                      | 3.19E+01  | 6.71E+02 (2   | Ш             | 1                        | 1                 |                     |                   | :                 | 1                   | :                             | :                   |                         | :   | <br> <br> <br>        | :                   |                   | ı                       |
| Chloromethane                                   | 1.98E+02  | -   | Ц             | -                        | -                 | -                   | -                 | :                 | -                   | -                             |                     | 1                       | :   | :                     | :                   | 1                 | 1                       |
| cis-1,2-DCE                                     | 3.10E+03  | $\dashv$  | _             | 1                        | ;                 |                     | -                 | '                 | -                   | :                             | :                   | ;                       | :   | :                     | :                   | :                 | :                       |
| cis-1,3-Dichloropropene                         | 1.26E+02  | 5.10E+02 (2)  | _             | -                        | :                 |                     | :                 | -                 | !                   | •                             | •                   | ,                       | :   | •                     | :                   | :                 | i                       |
| Dibromochloromethane                            | 6.13E+01  | 1.99E+03 (2   | _             | ;                        | +                 | -                   | 1                 | -                 | :                   | -                             | ;                   | ;                       | -   | :                     |                     | ;                 | 1                       |
| Ulbromometnane                                  | 1.00E+04  | +   | 1             | 1                        | :                 | 1                   | +                 | <u>:</u><br>      | :                   | :                             | <u>;</u>            | 1                       | :   | :                     | <u> </u>            | :                 | -                       |
| Dichidonaton                                    | 1.37E+U3  | 6.87E±03 (1)  | mg/kg         | !   :                    | : 1               |                     | :   :             | :   :             | :                   | :   :                         | :   :               | :   ;                   | : :   | :   :                 | : :                 | : :               | : :                     |
| LittyDelizerie                                  | 2.03L+02  | ┿   | 4             |                          | -                 | +                   | -                 | :   ;             | :   :               |                               | : :                 | 1                       | : :   |                       |                     | +                 |                         |
| Isonomylbenzene                                 | 1 03E+04  | 1 03E+04 (1)  | 4             |                          |                   |                     | :   :             | : :               | : :                 | : :                           | 1                   | •                       |   | :                     | ·   ·               |                   |                         |
| Methyl tert-butyl ether (MTRE)                  | 4 69F+03  | +   | 1             |                          |                   |                     | +                 |                   | :                   |                               |                     |                         | :   |                       |                     | ;                 |                         |
| Methylene chloride                              | 1.09E+03  | 1 06F+04 (2)  | ↓_            |                          |                   | -                   |                   | :                 | :                   | :                             |                     |                         |   | ;                     |                     | -                 | ;                       |
| Naphthalene                                     | 2.52E+02  | +   | ┺             | 1                        |                   |                     |                   | -                 | :                   | :                             | :                   | ,                       |   | :                     |                     | :                 |                         |
| n-Butylbenzene                                  | 1   | <del> </del>  | Ļ             | -                        |                   |                     | -                 |                   |                     | ,                             |                     | ,                       |   | :                     | <br> -              | ;                 | !                       |
| n-Propylbenzene                                 | -   |   | mg/Kg         |                          |                   |                     |                   |                   |                     | :                             | :                   |                         | -   |                       | :                   | -                 | :                       |
| sec-Butylbenzene                                | 1   |   | mg/Kg         |                          |                   | -                   |                   | -                 | -                   | 1                             | -                   | 1                       | -   | 1                     | -                   | -                 |                         |
| Styrene   | 3.03E+04  | 30300 (1)   | _             | 1                        | :                 | -                   | :                 | ;                 | -                   | 1                             | :                   | 1                       | :   | :                     |                     | :                 |                         |
| tert-Butylbenzene                               | L   | +   |               | 1                        | :                 |                     | -                 | -                 |                     | :                             | :                   | ;                       | :   | <u> </u>              | <u> </u>            | <del>-</del>  -   | ;                       |
| l etrachloroethene (PCE)                        | 3.64E+01  | $\boldsymbol{+}$                                    | $\rightarrow$ | 1                        | •                 | 1                   | +                 | 1                 | 1                   | •                             | <u> </u>            | •                       | <u> </u>  | •                     | ;                   | +                 | !                       |
| Toluene   | 2.11E+04  | 2.11E+04 (1)<br>9.14E±02 (1)                        | _             | 1                        |                   |                     |                   | !                 | :                   |                               | :                   | ,                       | ;   | -                     | -                   | 1                 | :                       |
| trans-1,2-UCE                                   | 4 26E±02  | ╅   | Mg/Kg         |                          | -                 | : ;                 | -                 | !  !              |                     | 1                             | !                   | 1                       | •   •   | : :                   | : ;                 | :   :             | •                       |
| Trickloroethana (TCE)                           | 2 53E+02  | +-  | ┸             | : !                      |                   |                     | :   :             | : :               | :   :               | ;                             | 1 1                 | 1                       | •   | -<br> <br>            |                     |                   |                         |
| Trichloroftuoromethane                          | 5.82E+03  | 5.82E+03 (1)  | ┺             | 1                        | 1                 |                     | <u> </u>          | :                 | !                   |                               | :                   | ;                       | :   |                       |                     | ;                 |                         |
| Vinyl chloride                                  | 2.59E+01  | 2.48E+02 (2)  | _             | <br> -                   |                   | -                   |                   | :                 |                     | -                             | :                   | :                       |   |                       | :                   |                   | i                       |
|   |   | 3.13E+03 (1)  | )  mg/Kg      | -                        | -                 | -                   |                   | -                 | -                   | -                             | ŀ                   | •                       | 1   | i                     |                     | -                 | •                       |
| Volatile Organic Compounds - (EPA Method 8260B) | hg/Kg-dry                                       | 0,705,0   | -             | 3000                     | 080 0             | 0/ 10000/           | 072 /1 04         | 770 077           | 70.051              | 70 074                        | 20.076              | 70.081                  | 808.07  | 2                     | 50                  | 7 63              | 6000                    |
| 1,1,1,Z-1etracilloroeurarie                     | 6.43F+07  | 6.43F+07 (1)  | ) lig/Ka-dry  | <0.965                   | +-                | ╀                   | <0.973 <1.01      | +                 | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | 2 2                   | 21.09               | V 103             | <0.923                  |
| 1,1,2,2-Tetrachloroethane                       | 4.33E+04  | +-  |               | ╀                        | ╀                 | +-                  | ├-                | ╁╴                | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | ×1.04                 | <1.09               | <1.03             | <0.923                  |
| 1,1,2-Trichloroethane                           | 9.43E+04  | т   |               | Н                        | Н                 | <0.987 <0           | <0.973 <1.01      | H                 | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | <1.04                 | <1.09               | <1.03             | <0.923                  |
| 1,1-Dichloroethane                              | 3.50E+05  |   | _             | -                        | $\dashv$          | $\dashv$            | _                 | $\dashv$          | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | 40.                   | 4.09                | -                 | <0.923                  |
| 1,1-Dichloroethene                              | 1.83E+06  | 1.83E+06 (1)  |               | +                        | +                 | $\frac{1}{2}$       | 4                 | +                 | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | 40.1                  | 4.09                | -                 | <0.923                  |
| 1,1-Dichloropropene                             | !   | ;   | µg/Kg-dry     | +                        | +                 | +                   | +                 | +                 | <0.951              | <0.941                        | <0.946              | <0.961                  | 40.898<br>600<br>600<br>600<br>600<br>600<br>600<br>600<br>600<br>600<br>60 | 40.12                 | 41.09               | +                 | <0.923                  |
| 1,2,3-Inchlorobenzene                           |   | +   | <del>-</del>  | +                        | +                 | +                   | +                 | +                 | <0.951              | <0.94                         | \$0.940<br>\$0.046  | <0.90 /                 | \$0.030<br>\$0.000  | 4 5                   | N 2                 | +                 | <0.923                  |
| 1.2.3-Inchloropane                              | 4.34E+03  | 3.10E+04 (2)  | ) pg/kg-dry   | <0.905                   | 0.800             | <0.967              | <0.973 <1.01      | <0.977            | <0.951              | <0.94                         | <0.940              | ×0.961                  | <0.05   | 2 2                   | 00: V               | ╁                 | <0.923                  |
| 1.2.4 Trimathulhanzana                          | 2 ROF +05                                       | +   | _             | +                        | ╀                 | +                   |                   | ╁                 | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | ×1 04                 | 2 T                 | +                 | <0.02<br><0.02<br><0.02 |
| 1.2-Dibromo-3-chloropropane                     | 1.09E+03  | 2.30E+04 (2)  | _             | +-                       | ╀                 | +                   | <0.973 <1.01      | +                 | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | 40.1                  | 41.09               | <1.03             | <0.923                  |
| 1,2-Dibromoethane (EDB)                         | 3.14E+03  | +   | _             | ╀                        | ⊬                 | -                   | ╄                 | $\vdash$          | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | ×1.04                 | <1.09               | <1.03             | <0.923                  |
| 1,2-Dichlorobenzene                             | 9.71E+06  | t   | -             | $\vdash$                 | H                 | Н                   |                   | H                 | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | <1.04                 | <1.09               | Н                 | <0.923                  |
| 1,2-Dichloroethane (EDC)                        | 4.28E+04  |   | () µg/Kg-dry  | <0.965                   | $\dashv$          | $\dashv$            | $\dashv$          | $\dashv$          | <0.951              | <0.941                        | <0.946              | <0.961                  | <0.898  | <1.04                 | <1.09               |                   | <0.923                  |
| 1,2-Dichloropropane                             | 8.17E+04  | $\neg$  | (2) µg/Kg-dry | <0.965                   | > 686.0>          | <0.987 <0           | <0.973 <1.01      | <0.977            | <0.951              | <0.941                        | <0.946              | \$ 0.961<br>\$ 0.961    | <0.898  | 40.7                  | 41.09               | <1.03             | <0.923                  |
| 1,3,5-Trimethylbenzene                          | 2.00E+U5  | - 16  | ) pg/Kg-ary   | <0.965                   | -                 | -                   | 4                 | $\dashv$          | -CO:901             | <0.941                        | <0.940              | <0.301                  | <0.030<br>1   | <1.04                 | <1.09               | $\dashv$          | <0.923                  |
|   |   |   |               |                          |                   |                     |                   |                   |                     |                               |                     |                         |   |                       |                     |                   |                         |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

| Analytes   | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential C<br>Screening O<br>Levels 2-10' | Units          | VOC 22-16 (36-38') ¹       | AOC 24-1 (0-0.5')              | AOC 24-1 (1.5-2.0')  | AOC 24-2 (0.0.5') | AOC 24-2 (1.5-2.0')   | ∀OC 54-3 (0-0.5')  | AOC 24-3 (1.5-2.0') | VOC 54-4 (0-0.5')    | AOC 24-4 (1.5-2.0') | AOC 24-4 (1.5-2.0') DUF | AOC 24-5 (0-0.5')  | ∀OC 54-2 (0-0'2.) DNL | AOC 24-5 (1.5-2.0')                     | ∀OC 54-6 (0.0.5') | AOC 24-6 (1.5-2.0') |
|--|---|--|----------------|----------------------------|--------------------------------|--|-------------------|---|--|---------------------|----------------------|---------------------|-------------------------|--|-----------------------|---|-------------------|---------------------|
| 1  |   |  |                |                            | 6                              | 600  | 6                 | 009 4/  | ō  | 6                   | 6                    | 1_                  | 6                       | 60   | 60                    | 6                                       | 60                | 4/8/2009            |
| 1,3-Dichlorobenzene                              | 1   | 1  | -              | $\dashv$                   | $\dashv$                       | 4  | -                 | -   |  | -                   | $\dashv$             | _                   | 4                       | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| 1,3-Dichloropropane                              | 2.00E+07  | ┪  | (3) µg/Kg-dry  | $\dashv$                   | <0.989                         | $\vdash$   |                   | <1.01 <(  | $\dashv$   |                     | <0.941               |                     | <0.961                  | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| 1,4-Dichlorobenzene                              | 1.80E+05  | 3.78E+06 (2)   | <del>_</del> . | +                          | +                              | 1  | -                 | $\dashv$  | <0.977 <   | +                   | $\dashv$             | <0.946              | $\dashv$                | <0.898   | 2.04                  | ×1.09                                   | 21.03             | <0.923              |
| 2,2-Dichloropropane                              | 707.7   |  | _              | <0.965                     | +                              | +  | +                 | +   | -}   | +                   | ╬                    | +                   | +                       | <0.898<br>0.898<br>0.50<br>0.50<br>0.50<br>0.50<br>0.50<br>0.50<br>0.50<br>0.5 | <1.04                 | 41.09                                   | ×1.03             | <0.923              |
| 2-Butanone                                       | 1.48E+U8  | 1.48E+08   |                | 43.86                      | 3.50                           | +  | $\dotplus$        | +   | +  | 53.81<br>50.05      | +                    | - -                 | ╁                       | 62.29  | 7.47                  | 85.45                                   | 1.4.1             | 43.69<br>43.69      |
| 2-Chlorotoluene                                  | 0.19E+U0  | +  | ug/kg-dry      | 20.303<br>88.62            | ╀                              | 40.98/<br>A. 05  | <0.9/3 <          | ×1.01   | ╁  | ╁                   | +                    | +                   | 108.05                  | \$0.898<br>7.3.50  | 40.12                 | 80.17                                   | 21.03             | 52.923              |
| Z-nexatione                                      | 7 20E+07  | 1 1  | (3) IIG/Kg-dry | 40.965<br>40.965           | +                              | +  | -                 | +   | +  | +                   | <0.70<br><0.941<br>< | +                   | +                       | 20.53<br>0 808<br>0 808  | - 10<br>V             | 500.1                                   | 3                 | <0.05<br><0.923     |
| 4-Isopropytoluene                                |   |  | ug/Kg-dry      | <0.965                     | v<br>686.0>                    | +  | ╀                 | +   | > 776.0>   | <0.951              | ╀                    | ┼-                  | <0.961                  | <0.898<br><0.898   | 20.12                 | 60.7                                    | 4.03              | <0.923              |
| 4-Methyl-2-pentanone                             | ;   |  | ug/Kg-dry      | <3.86                      | ┼                              | ╀  | ╄                 | +   | ╁  | ╁                   | <3.76                | <3.78               | <3.84                   | <3.59  | <4.17                 | <4.36                                   | c4.11             | <3.69               |
| Acetone  | 2.63E+08  | 2.63E+08 (1)   | -              | :                          | H                              | Н  |                   | H   | Н  | Н                   |                      | Н                   |                         | <3.59  | <4.17                 | <4.36                                   | <4.11             | <3.69               |
| Benzene  | 8.54E+04  | 4.71E+05   |                | <0.965                     | <0.989                         | $\vdash$   |                   | $\vdash$  | > 2.977 <  |                     | <0.941               | -                   | <0.961                  | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| Bromobenzene                                     | 4.10E+05  | - 1  | -              | <0.965                     | $\dashv$                       | $\dashv$   | -                 | +   | -  | +                   | +                    | +                   | $\dashv$                | <0.898   | 40.12                 | 4.09                                    | ×1.03             | <0.923              |
| Bromodichloromethane                             | 2.92E+04  | 3.50E+06   | -              | <0.965                     | +                              | +  | $\downarrow$      | +   | $\dashv$   | +                   | <0.941               | +                   | $\dashv$                | <0.898<br>0.898  | 41:04                 | 41.09                                   | ~1.03<br>5        | <0.923              |
| Bromotorm  | 2.20E+06  | ┪  | -              | <0.965                     | +                              | $\dashv$   | -}                | +   | +  | +                   | +                    | +                   | +                       | 40.838<br>40.838   | 1.04<br>20.04         | 21.09                                   | 7.03<br>2.03      | <0.923              |
| Bromomethane                                     | 6.71E+04  | 6.71E+04   | _              | 40.965<br>2.865            | \$ 0.383<br>8 0.783<br>8 0.783 | <0.987<br><0.987<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05<br><0.05 | <0.973 <          | 10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12<br>10.12 | <0.977 < CO.977 < CO. | \$ 100 PS 1         | 0.341<br>7.278       | <0.946              | <0.961<br>/3.84         | 0.898<br>7.898<br>8.098  | 40.12                 | 21.09                                   | ×1.03             | <0.923              |
| Carbon totrachlorida                             | 2.095+00  |  |                | 70.00                      | ╁                              | ╁  | +                 | +   | ╀  | ╁                   | +                    | +                   | +                       | 808 02   | 2 5                   | 200                                     | 3 5               | 60.05               |
| Chlorohenzene                                    | 1.58E+06  | 1.33E+03   | ing/Kg-dry     | <0.902<br><0.905<br><0.905 | ┿                              | +  | +                 | +   | ╁  | ╁                   | +-                   | +                   | <0.30<br><0.961         | 40.890<br>A0.898   | 2 2                   | 00.10                                   | 3 2               | <0.923              |
| Chloroethane                                     | -   | ╈  | +-             | <0.965                     | }                              | ╁  | 1                 | +   | ╁  | ╁                   | ╀                    | ╁                   | ╁                       | <0.898   | ×104                  | V 09                                    | 7<br>03<br>V      | <0.923              |
| Chloroform                                       | 3.19E+04  | 6.71E+05 (2)   |                | <0.965                     | ┝                              | ┝  | _                 | <1.01   | }-   | ├                   | -                    | ┝                   | ┝                       | <0.898   | 40.1                  | <1.09                                   | <1.03             | <0.923              |
| Chloromethane                                    | 1.98E+05  |  | -              | <0.965                     | H                              | Н  | $\vdash$          | $\left  \cdot \right $  | Н  | <0.951 <            | Н                    | $\vdash$            | $\vdash$                | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| cis-1,2-DCE                                      | 3.10E+06  | 3.10E+06   | -+             | <0.965                     | -                              |  | 4                 | +   | $\dashv$   | $\dashv$            | $\dashv$             | -                   | <0.961                  | <0.898   | ×1.04                 | <1.09                                   | <1.03             | <0.923              |
| cis-1,3-Dichloropropene                          | 1.26E+05  | 5.10E+05   |                | <0.965                     | 0.989                          | <0.987   | -                 |   | ╬  |                     |                      | ╬                   |                         | 868.0>   | 20.0                  | 109                                     | 4.03              | <0.923              |
| Dibromomethane                                   | 1.00E+07  | +  | (3) ua/Ka-dry  | <0.965                     | +                              | ╁  | <0.973            | V V   | ╁  | <0.951              | <0.941               | - -                 | ╁                       | ×0.898   | 104                   | 00.7<br>00.00                           | 7 7               | <0.923              |
| Dichlorodifluoromethane                          | 1.37E+06  | 1.37E+06 (1)   | -              | <0.965                     | +                              | +  | ╄                 | ╁   | ╁  | +-                  | ╁                    | ╀                   | ╄                       | <0.898   | ×1.04                 | <1.09                                   | <1.03             | <0.923              |
| Ethylbenzene                                     | 3.85E+05  | 6.63E+06   | (2) µg/Kg-dry  | <0.965                     | _                              | $\vdash$   | _                 |   | -  | $\vdash$            | H                    | H                   | ├                       | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| Hexachlorobutadiene                              | 2.20E+05  | -  | $\vdash$       | <0.965                     | $\dashv$                       | Н  | $\dashv$          | Н   | Н  |                     | $\dashv$             | $\vdash$            | $\vdash$                | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| Isopropylbenzene                                 | 1.03E+0/  | -  |                | 40.965<br>0.965            | 686.05                         | <0.987<br><0.987<br><0.087   | <0.973            | 7 7 7   | <0.977 <   | +                   | +                    | <0.946              | +                       | 808.0  | 40.5                  | 5 5                                     | 7 7 7             | <0.923              |
| Methylene chloride                               | 1.09E+06  | 1.06E+07 (2)   | ) ug/Kg-dry    | 13.2                       | ╀                              | +  | +                 | ╁   | +-   | +-                  | 3.48                 | +                   | 3.85                    | 2.42   | <2.09                 | 2.18                                    | <2.05             | <1.85               |
| Naphthalene                                      | 2.52E+05  | 7.02E+05   | -              | <0.965                     | $\vdash$                       | $\vdash$   | -                 | H   | H  | H                   |                      | <0.946              |                         | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| n-Butylbenzene                                   | -   | 1  | µg/Kg-dry      | <0.965                     | +                              | $\dashv$   | -                 |   | -}   | +                   | +                    | -                   | $\dashv$                | <0.898   | 20.7                  | 41.09                                   | 4.03              | <0.923              |
| n-Propylbenzene                                  | 1   | :  | ug/kg-ary      | C08.05                     | 60.00                          | <0.987 A   | <0.973 <          | V 101   | +  | +                   | <0.941               | \$0.940<br>\$0.046  | 0.30                    | 0000   | 40.7                  | S   S                                   | 21.03             | <0.923              |
| Sec-bulyiberizerie                               | 3 03F+07  | 3 03F+07 (1)   |                | <0.965<br><0.965           | -                              | +  | 1                 | +   | > 776.0>   | <0.951              | +                    | +-                  | +                       | ×0.898   | 2 2                   | 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 3 5               | <0.923              |
| tert-Butylbenzene                                | -   | $\top$   | ug/Kg-dry      | <0.965                     | ╀                              | ╀  | -                 | ╁   | }  | ╀╴                  | ╀                    | ╀╌                  | $\vdash$                | <0.898   | ×1.04                 | <1.09                                   | <1.03             | <0.923              |
| Tetrachloroethene (PCE)                          | 3.64E+04  | 3.38E+05 (2)   |                | <0.965                     | Н                              | $\left\{ \cdot \right\}$   | H                 | H   | $\vdash$   | $\vdash$            | Н                    | Н                   | Н                       | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| Toluene  | 2.11E+07  | 2.11E+07 (1)   |                | <0.965                     | Н                              | Н  | <0.973 <          |   | > 276.0>   | $\dashv$            |                      |                     | Н                       | <0.898   | <1.04                 | <1.09                                   | <1.03             | <0.923              |
| trans-1,2-DCE                                    | 8.14E+05  | -  | _              | <0.965                     | -                              | -  | -                 | <1.01   | $\dashv$   | $\dashv$            | <0.941               | $\dashv$            | $\rightarrow$           | <0.898   | ×1.04                 | <1.09                                   | <1.03             | <0.923              |
| trans-1,3-Dichloropropene                        | 1.26E+05  | 5.10E+05 (2)   | !) µg/Kg-dry   | <0.965                     |                                |  | 8                 | 2   | +  | -                   |                      | $\dashv$            | $\rightarrow$           | <0.898   | ×1.04                 | <1.09                                   | <1.03             | <0.923              |
| Trichloroethene (TCE)                            | 2.53E+05  | $\rightarrow$  | _              | <0.965                     | $\dashv$                       | +  | +                 | +   | <0.977 <   | +                   | <0.941               | +                   | -                       | <0.898   | 40.1                  | <1.09                                   | ×1.03             | <0.923              |
| Trichlorofluoromethane                           | 5.82E+06  | 5.82E+06 (1)   | _              | <0.965                     | $\dashv$                       | +  | <u></u>           | +   | -  | $\dashv$            | $\dashv$             | +                   | +                       | <0.898   | ×1.04                 | V-109                                   | ×1.03             | <0.923              |
| Vinyl chloride                                   | 2.59E+04  | $\dashv$   |                | <0.965                     | × 686.0×                       | +  | <u></u>           | $\dashv$  | +  | <0.951 <            | <0.941               | <0.946              | <0.961                  | ×0.898   | 40.0                  | <1.09                                   | <1.03             | <0.923              |
| Xylenes, Total                                   | 3.13E+06  | 3.13E+06 (1)   | )   µg/Kg-dry  | <0.965                     | $\dashv$                       | <0.987   | <0.973            | <1.01 <   | $\dashv$   | $\dashv$            | $\dashv$             | $\dashv$            | $\dashv$                | <0.898   | <1.04<br>             | <1.09                                   | <1.03             | <0.923              |
| Semi Volatile Organics - (EPA Method 82/0) mg/kg | 4 27F+02  | 4 27F+02 (1)   | ) ma/Ka        | <0.20                      | <0.20                          | <0.20  | -                 | <0.20   | $\vdash$   | _                   | -                    | -                   | <0.20                   | <0.20  | <0.20                 | <0.20                                   | <0.20             | <10                 |
| 1.2-Dichlorobenzene                              | 9.71E+03  | +  | ↓_             | <0.20                      | <0.20                          | ╀  | <0.20             | +   | $\vdash$   | <0.20               | <0.20                | <0.20               | <0.20                   | <0.20  | <0.20                 | <0.20                                   | <0.20             | V 0.                |
| 1,3-Dichlorobenzene                              |   | 1  | mg/Kg          | <0.20                      | $\mathbb{H}$                   | <0.20  | Н                 | <0.20 <   | <0.20  | Н                   | H                    | $\vdash \vdash$     | <0.20                   | <0.20  | <0.20                 | <0.20                                   | <0.20             | <1.0                |
|  |   |  |                |                            |                                |  |                   |   |  |                     |                      |                     |                         |  |                       |   |                   |                     |

Table 11 Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield, New Mexico

|   | Non-                     | Non-   |                | , (.8 <b>2</b> -98 | (.9:0                 | 6-2.0')          | ('5.0                   | 5-2.0')                 | 0.5')  | (2-2.0,)  | (.5.0-                  | .5-2.0')         | .5-2.0°) DUI  | ('5.0-                  | 9UQ ('8.0-       | ('0.S-&.  | ('8.0.   | .5-2.0")          |
|---|--------------------------|--|----------------|--------------------|-----------------------|------------------|-------------------------|-------------------------|--|---|-------------------------|------------------|---|-------------------------|------------------|---|--|-------------------|
|   | Screening<br>Levels 0-2' |  |                | )C 22-16 (3        | OC 54-1 (0-           | OC 54-1 (1.      | OC 54-5 (0 <sup>-</sup> | OC 54-5 (1 <sup>-</sup> | OC 54-3 (0-  | OC 54-3 (1  | OC 54-4 (0              | OC 54-4 (1       | OC 54-4 (1  | OC 54-2 (0·             | OC 54-2 (0       | OC 54-2 (1  | OC 54-6 (0   | DC 24-6 (1        |
| Analytes                                      |                          |  | Units          | g                  | g                     | 9                | g                       | ₹<br>4/23/2009 4/2      | ₹/2009   | 600   | 60                      | 600              | 600   | 6                       | 4/8/2009         | 4/8/2009  | 60   | ₹/8/2009          |
| Sample Date                                   | 1 80F+02                 | 3 78E+03 (2)                                     | ma/Ka          | _                  | _                     |                  | -                       |                         | 0.20   | _   | _                       |                  | ┸   | +                       | <0.20            | <0.20   | ┥  | v-1.0             |
| 1,4-Uldirologenzene<br>2,4 5. Trichloronhenol | 2.38E+04                 | +-   | 上              | <0.20              | <0.20                 | <0.20            | ╁╴                      | <0.20                   | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| 2.4.6-Trichlorophenol                         | 2.38E+02                 | +  | <u> </u>       | <0.20              | <0.20                 | <0.20            |                         | H                       | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | √<br>1.0          |
| 2.4-Dichlorophenol                            | 7.15E+02                 | 7.15E+02 (1)                                     | _              | <0.40              | <0.40                 | <0.40            |                         | -                       | <0.40  | <0.40   | <0.40                   | <0.40            | <0.40   | <0.40                   | <0.40            | <0.40   | <0.40  | <2.0              |
| 2.4-Dimethylphenol                            | 4.76E+03                 | <del>                                     </del> | 上              | <0.30              | <0.30                 | <0.30            | '                       | Н                       | <0.30  | <0.30   | <0.30                   | <0.30            | <0.30   | <0.30                   | <0.30            | <0.30   | <0.30  | <1.5              |
| 2.4-Dinitrophenol                             | 4.76E+02                 | 4.76E+02 (1)                                     | ┖              | <0.40              | <0.40                 | <0.40            | <0.40                   | Н                       | <0.40  | <0.40   | <0.40                   | <0.40            | <0.40   | <0.40                   | <0.40            | <0.40   | <0.40  | <2.0              |
| 2.4-Dinitrotoluene                            | 1.03E+02                 | +  | L              | <0.50              | <0.50                 | <0.50            |                         | Н                       | <0.50  | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50  | <2.5              |
| 2.6-Dinitrotoluene                            | 2.39E+02                 | 2.39E+02 (1)                                     | <u> </u>       | <0.50              | <0.50                 | <0.50            |                         |                         | <0.50  | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50  | <2.5              |
| 2-Chloronaphthalene                           | 2.48E+04                 | $\vdash$   | L              | <0.25              | <0.25                 | <0.25            |                         |                         | <0.25  | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25  | <u>~</u>          |
| 2-Chlorophenol                                | 1.55E+03                 | 1.55E+03 (1)                                     | Ш              | <0.20              | <0.20                 | <0.20            |                         | $\dashv$                | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | \$0.20<br>\$   | V-1.0             |
| 2-Methylnaphthalene                           | 4.10E+03                 | (3)  | Ш              | <0.25              | <0.25                 | <0.25            | 4                       | <0.25                   | <0.25  | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25  | <u>دا</u> ر       |
| 2-Methylphenol                                | 3.10E+04                 | (3)  | _              | <0.50              | <0.50                 | <0.50            | +                       | $\dashv$                | <0.50<br>0.50  | <0.50   | 20.50                   | 0.50             | 20.50   | 0.50                    | 00.50            | 20.50<br>50.50  | 20.50  | 27.5              |
| 2-Nitroaniline                                | 1.80E+03                 | (3   | _              | <0.20              | <0.20                 | <0.20            | <0.20                   | <0.20<br>0.20<br>0.20   | <0.20  | <0.20   | 40.20<br>50.20          | 40.20            | <0.20<br>5.50<br>5.50<br>5.50<br>5.50<br>5.50<br>5.50<br>5.50 | 40.20<br>50.20          | 40.20<br>20.20   | 07.0>   | 07.0   | 0.0               |
| 2-Nitrophenol                                 | 1                        | ┪  | _              | <0.20              | <0.20                 | <0.20            | -                       | +                       | 0.20   | \$0.20<br>\$2.6   | 07:05                   | 07.0             | 07.0  | 07.0                    | \$0.20<br>\$0.20 | 20.20   | 02.00  | 0 6               |
| 3,3'-Dichlorobenzidine                        | 4.26E+01                 | 3.71E+02 (2)                                     |                | <0.25              | <0.25                 | <0.25            | <0.25                   | ╁                       | 07.0   | \$0.25  | 27.02                   | 27.0             | 27.0  | 67.0                    | 27.0             | 67.02   | 27.07  | <u>۱</u><br>ن د   |
| 3+4-Methylphenol                              | 3.10E+03                 | 1  | $\perp$        | <0.20              | <0.20<br>5.20<br>5.20 | \$0.20<br>\$0.20 | +                       | +                       | 07.0   | 20.20   | 07.07                   | 02.00            | 02.0  | 22.0                    | 02.02            | 02.02   | 02.00  | 5 2               |
| 3-Nitroaniline                                | 1                        | ,  | mg/Kg          | 07.0<br>0.20       | 07.0                  | <0.20<br>50.20   | +                       | +                       | 07.0   | 70.20   | 20.60                   | 0.20             | 0.50  | 20.20                   | 20.50            | 0.50  | 0 20   | 20.5              |
| 4,6-Dinitro-2-methylphenol                    | ;                        | -  | mg/Kg          | 00.00<br>00.00     | 00.00                 | V0.50            | +                       | +                       | 200  | 00.00   | 3 5                     | 200              | 00.00   | 200                     | 05.0             | 8 6   | 2 5  | ( V               |
| 4-Bromophenyl phenyl ether                    | 1                        | -  | mg/Kg          | <0.20<br>50.50     | 07.0                  | <0.20            | +                       | 20.20                   | 20.20  | 20.20   | 0.50                    | 0.20             | 07.0  | <0.20                   | 07.0             | 07.07   | 05.00  | 5 6               |
| 4-Chloro-3-methylphenol                       | - 100                    |  | 4              | \$0.30<br>\$0.50   | 20.30                 | 2000             | 20.00                   | ╁                       | 200  | <0.50<br><0.50<br><0.50   | 200                     | \$0.50<br>\$0.50 | \$0.50<br>\$0.50  | <0.50<br><0.50<br><0.50 | <0.50            | <0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50<br><0.50 | \$0.50   | <2.5              |
| 4-Chloroaniline                               | 0.00E+01                 | (4)  | $\perp$        | 20.02              | 00.00                 | 2000             | +                       | +                       | 40.20<br>40.20   | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | v<br>10<br>10     |
| 4-Chlorophenyi phenyi ether                   | R GOE+02                 | (4)  | Works          | <0.25              | <0.25                 | <0.25            | <0.25                   | ╁                       | <0.25  | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25  | <1.3              |
| 4-Nitrophenol                                 | 100.0                    |  | 1_             | <0.20              | <0.20                 | <0.20            | -                       | -                       | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| Acenaphthene                                  | 1.86E+04                 | 1.86E+04 (1)                                     | <u> </u>       | <0.20              | <0.20                 | <0.20            | _                       |                         | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| Acenaphthylene                                | 1                        | t  | _              | <0.20              | <0.20                 | <0.20            | <0.20                   | Н                       | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | 41.0              |
| Aniline                                       | 3.00E+03                 | (4)  |                | <0.20              | <0.20                 | <0.20            | _                       | -                       | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | V.                |
| Anthracene                                    | 6.68E+04                 | 6.68E+04 (1)                                     | _              | <0.20              | <0.20                 | <0.20            | <0.20                   | <0.20                   | <0.20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | <0.20<br>5.50<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00     | 40.20<br>50.20          | <0.20<br>5.30    | <0.20<br>\$0.20   | 40.20                   | <0.20            | <0.20   | 02.0   | 0.12              |
| Azobenzene                                    | 2.20E+02                 | <del>-</del>                                     | _              | <0.20              | <0.20                 | <0.20            | +                       | +                       | 07.0   | 02.0  | 07.0                    | 02.00            | 02.02   | 07.02                   | 07.02            | 20.20   | 02.00  | 0. 2              |
| Benz(a)anthracene                             | 2.34E+01                 | 2.13E+02 (2                                      | _              | \$0.20<br>\$0.20   | 02.00                 | 20.20            | +                       | $^{+}$                  | 02.07  | 02.07   | 02.07                   | 02.07            | 02.02   | 02.02                   | 20.20            | 02.02   | 02.02  | 5 0               |
| Benzo(a)pyrene                                | 2.34E+00                 | -  | $\perp$        | \$0.20             | 20.20                 | 20.20            | +                       | ╀                       | 02.02  | 02.02   | 20.02                   | 40.20<br>02.05   | 02.02   | 02.0>                   | 02.02            | 02.0>   | 02.02  | 0.10              |
| Benzo(a h i)aga laga                          | 4.34E+01                 | 2.13ETU2 (2)                                     | SV/SI          | \$0.20<br>\$0.50   | <0.50                 | <0.50            | +                       | <0.50<br><0.50          | <0.50  | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50  | <2.5              |
| Benzo(k)flioranthene                          | 2.34E+02                 | 2.06E+03 (2                                      | 1              | <0.20              | <0.20                 | <0.20            | $\vdash$                | H                       | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| Benzoic acid                                  | 2.50E+06                 | (3)  | 3) mg/Kg       | <0.50              | <0.50                 | <0.50            |                         | $\dashv$                | <0.50  | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50  | <2.5              |
| Benzył alcohol                                | 3.10E+05                 |  | Щ              | <0.20              | <0.20                 | <0.20            | $\dashv$                | $\dashv$                | <0.20<br>≤0.20   | <0.20   | <0.20                   | <0.20            | <0.20   | \$ 0.20<br>50.20        | <0.20            | <0.20   | <0.20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | 0.0               |
| Bis(2-chloroethoxy)methane                    | 1.80E+03                 | -  | 4              | <0.20              | <0.20                 | <0.20            | <0.20                   | +                       | 40.20  | 0.20  | 02.0                    | 07.0             | 02.00   | 02.0                    | 0.20             | 02.00   | 07.0   | 0 7               |
| Bis(2-chloroethyl)ether                       | 1.36E+01                 | 1.47E+02 (2)                                     | ᆚ              | \$0.20<br>\$0.20   | ×0.20                 | 20.50            | +                       | 20.20                   | 02.02  | 02.02   | 02.02                   | <0.20            | \$0.20<br>\$0.20  | \$0.20<br>\$0.20        | \$0.20<br>\$0.20 | <0.20   | 02.02  | V V               |
| Bis(2-cnloroisopropyl)etner                   | 1 37E+03                 | 4 76E+03 (2)                                     | Sylva<br>Works | 0.20               | <0.50                 | <0.50            | +                       | -                       | <0.50  | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50                   | <0.50            | <0.50   | <0.50  | <2.5              |
| Bistal benzyl obthalate                       | 9.10E+03                 | +  |                | <0.20              | <0.20                 | <0.20            | }                       | <0.20                   | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| Carbazole                                     | ;                        | ;  | ╀-             | <0.20              | <0.20                 | <0.20            | -                       |                         | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| Chrysene                                      | 2.34E+03                 | 2.06E+04 (2)                                     | ╙              | <0.20              | <0.20                 | <0.20            | <0.20                   |                         | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | <1.0              |
| Dibenz(a,h)anthracene                         | 2.34E+00                 | 2.13E+01 (2)                                     | Ľ              | <0.20              | <0.20                 | <0.20            |                         |                         | <0.20  | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20  | V-1.0             |
| Dibenzofuran                                  | 1                        | ╌┼   | $\sqcup$       | <0.20              | <0.20                 | <0.20            | $\dashv$                | <0.20<br>20.20          | <0.20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | Q 50<br>9 50<br>9 50<br>9 50<br>9 50<br>9 50<br>9 50<br>9 50<br>9 | <0.20<br>50.20          | <0.20<br>5.30    | <0.20<br>\$ 50.20   | \$ 0.20<br>\$ 0.20      | <0.20<br>50.20   | <0.20   | \$ 0.20<br>\$  | 0.0               |
| Diethyl phthalate                             | 1.91E+05                 | -+   | _              | <0.20              | <0.20                 | 40.20            | +                       | +                       | 07.0   | 02.00   | 07.07                   | 07.07            | 02.02   | 02.02                   | 02.02            | 02.07   | 20.50  | 0 7               |
| Dimethyl phthalate                            | 2.38E+06                 | 2.38E+06 (1)                                     | _              | 0.20<br>20.20      | <0.20                 | 0.20             | 07.0                    | +                       | \$0.20<br>\$0.50   | \$2.60<br>\$0.50  | <0.50<br><0.50<br><0.50 | ~                | <0.50   | <0.50                   | <0.50            | \$0.50<br>\$0.50  | ~0.£0<br><0.50   | <2.5              |
| Di-n-butyl phthalate                          | 4.30ETU4                 | 2.38E+04 (T)                                     | mg/Ka          | 300                | \$0.50<br>\$0.20      | \$0.20           | +                       | +                       | <0.20  | <0.20   | 40.20                   | <0.20            | <0.20   | <0.20                   | <0.20            | <0.20   | <0.20<br><0.20   | 41.0              |
| UI-n-octyr primalate<br>Flingranthene         | 8.91E+03                 | 8.91E+03 (1                                      | (1) ma/Ka      | <0.25              | <0.25                 | <0.25            | <0.25                   | <0.25                   | <0.25  | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25                   | <0.25            | <0.25   | <0.25  | ۸ <del>۱</del> .3 |
| IdOlanusis                                    |                          | 7  | _]             |                    |                       |                  | $\frac{1}{1}$           |                         |  |   |                         |                  |   |                         |                  |   |  |                   |

Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield Refinery - Bloomfield, New Mexico Table 11

|   | <br>                     |                          |           |            |           |             |              |              |          |              | -           |                    | iu.         | }—-<br>  | В                 |            |          |                      |
|---|--------------------------|--------------------------|-----------|------------|-----------|-------------|--------------|--------------|----------|--------------|-------------|--------------------|-------------|----------|-------------------|------------|----------|----------------------|
|   | Non-<br>Residential      | Non-<br>Residential      | urce      | (36-38،) ۱ | ('8.0-0)  | (1.5-2.0')  | (0.0.5')     | (1.5-2.0')   | (0-0.5') | (1.5-2.0')   | (0-0.5')    | (1.5-2.0')         | (۱.5-۲.۱) ت | ('8.0-0) | UG (.2.0-0)       | (1.5-2.0') | (0.0.5°) | ('0.S-2.1            |
|   | Screening<br>Levels 0-2' | Screening<br>Levels 2-10 |           | 22-16      | Z4-1      | ) L-ÞZ      | Z-ÞZ         | Z-ÞZ         | 24-3     | 24-3         | 54-4 (      | ) <del>b-</del> bZ | Sd-4 (      | <br>S-42 | S- <del>1</del> 2 | 5-45       | 9-42     | ) 9- <del>1</del> /2 |
| Analytes  |                          |                          | Units     | DOA        | DOA       | AOC         | DOA          | DOA          | DOA      | 20A          | DOA         | DOA                | OOA         | OOA      | SOA               |            | SOO Y    | 30V                  |
| Sample Date                                       |                          |                          |           | 4/14/2009  | 4/23/2009 | 4/23/2009 4 | 4/23/2009 4/ | 4/23/2009 4/ | 600      | 4/23/2009 4/ | 4/23/2009 4 | 4/23/2009 4/       | 4/23/2009 4 | 600      | 60                | 4/8/2009   | 60       | 4/8/2009             |
| Fluorene  | 8.91E+03                 | 8.91E+03                 | (1) mg/Kg | <0.50      | <0.50     | <0.50       | <0.50        | <0.50        | <0.50    | <0.50        | <0.50       | <0.50              | <0.50       | <0.50    | <0.50             | <0.50      | <0.50    | <2.5                 |
| Hexachlorobenzene                                 | 1.20E+01                 | 1.03E+02 (               | (2) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Hexachlorobutadiene                               | 2.20E+02                 | H                        | (4) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Hexachlorocyclopentadiene                         | 8.11E+02                 | 8.11E+02 (               | (1) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Hexachloroethane                                  | 2.38E+02                 | 2.38E+02 (               | 1) mg/Kg  | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Indeno(1,2,3-cd)pyrene                            | 2.34E+01                 | _                        | (2) mg/Kg | <0.25      | <0.25     | <0.25       | <0.25        | <0.25        | <0.25    | <0.25        | <0.25       | <0.25              | <0.25       | <0.25    | <0.25             | <0.25      | <0.25    | <1.3                 |
| Isophorone  | 2.02E+04                 | 4.75E+04 (               | (2) mg/Kg | <0.50      | <0.50     | <0.50       | <0.50        | <0.50        | <0.50    | <0.50        | <0.50       | <0.50              | <0.50       | <0.50    | <0.50             | <0.50      | <0.50    | <2.5                 |
| Naphthalene                                       | 2.52E+02                 | 7.02E+02 (               | (2) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Nitrobenzene                                      | 2.77E+02                 | 5.20E+02 (               | (2) mg/Kg | <0.50      | <0.50     | <0.50       | <0.50        | <0.50        | <0.50    | <0.50        | <0.50       | <0.50              | <0.50       | <0.50    | <0.50             | <0.50      | <0.50    | <2.5                 |
| N-Nitrosodi-n-propylamine                         | 2.50E+00                 | -                        | (4) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| N-Nitrosodiphenylamine                            | 3.91E+03                 | 3.40E+04 (               | (2) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Pentachlorophenol                                 | 1.00E+02                 | 1.03E+03 (               | (2) mg/Kg | <0.40      | <0.40     | <0.40       | <0.40        | <0.40        | <0.40    | <0.40        | <0.40       | <0.40              | <0.40       | <0.40    | <0.40             | <0.40      | <0.40    | <2.0                 |
| Phenanthrene                                      | 7.15E+03                 | Ť                        | (1) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Phenol  | 6.88E+04                 | 6.88E+04 (               | (1) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | <1.0                 |
| Pyrene  | 6.68E+03                 | 6.68E+03                 | (1) mg/Kg | <0.20      | <0.20     | <0.20       | <0.20        | <0.20        | <0.20    | <0.20        | <0.20       | <0.20              | <0.20       | <0.20    | <0.20             | <0.20      | <0.20    | ×1.0                 |
| Pyridine  | 1.00E+03                 | )                        | (3) mg/Kg | <0.50      | <0.50     | <0.50       | <0.50        | <0.50        | <0.50    | <0.50        | <0.50       | <0.50              | <0.50       | <0.50    | <0.50             | <0.50      | <0.50    | <2.5                 |
| Total Petroleum Hydrocarbons - (EPA Method 8015B) | 15B) mg/kg               |                          |           |            |           |             |              |              |          |              |             |                    |             |          |                   |            |          |                      |
| Diesel Range Organics (DRO)                       | 2000                     | 2000                     | (5) mg/Kg | 18         | 28        | <10         | 22           | <10          | <10      | <10          | 130         | <10                | <10         | 360      | 330               | 12         | 20       | 1400                 |
| Gasoline Range Organics (GRO)                     | 2000                     | 2000                     | (5) mg/Kg | <5.0       | <5.0      | <5.0        | <5.0         | <5.0         | <5.0     | <5.0         | <5.0        | <5.0               | <5.0        | <5.0     | <5.0              | <5.0       | <5.0     | <5.0                 |
| Motor Oil Range Organics (MRO)                    | 2000                     | 2000                     | (6) mg/Kg | 59         | 140       | <50         | <u>7</u> 6   | <50          | <50      | <50          | 240         | <50                | <50         | 029      | 610               | 66         | 72       | 2200                 |

| Motor Oil Range Organics (MRO) | 5000 | 5000 | 16) | mg/Kg | 50 | 5000 | 16 | 5000 | 16 | 5000 | 16 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 500

Table 11 Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield, New Mexico

| Z                                       |   |  |   |   |  | ,   |
|---|---|--|---|---|--|---|
| Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential<br>Screening<br>Levels 2-10'  | Source   | Units   | VOC 54-7 (0-0.5')   | AOC 24-7 (1.5-2.0')  | VOC 54-7 (39-42°)   |
|   |   |  |   | 4/7/2009  | 4/7/2009   | 4/7/2009  |
| 1.24E+02                                | 1.24E+02  | (1)  | ma/Ka   | <13   | <13  | <2.5  |
| 1.77E+01                                | 6.54E+01  | 0  | ma/Ka   | <13   | <13  | <2.5  |
| 4.35E+03                                | 4.35E+03  | E  | ma/Ka   | 210   | 150  | 530   |
| 1.44E+02                                | 1.44E+02  | (E)  | mg/Kg   | <0.75   | <0.75  | <0.15   |
| 3.09E+02                                | 3.09E+02  | Ξ  | mg/Kg   | <0.50   | <0.50  | <0.10   |
| 4.47E+05                                | 4.47E+05  | (1)  | mg/Kg   | 38  | 54   | 4   |
| 3.00E+02                                |   | (3)  | mg/Kg   | 4.9   | 4.4  | 2.4   |
| 6.19E+03                                | 6.19E+03  | (1)  | mg/Kg   | <0.5  | <0.5   | <0.5  |
| 8.00E+02                                | ;   | (3)  | mg/Kg   | 7.2   | 5.1  | 0.84  |
| 4.99E+01                                | 6.36E+01  | (2)  | mg/Kg   | <0.033  | <0.033   | <0.032  |
| 6.19E+03                                | 6.19E+03  | (£)  | mg/Kg   | 6.8   | 5.8  | 1.6   |
| 1.55E+03                                | 1.55E+03  | <u>(i)</u>   | mg/Kg   | <13<br>4.3  | ×13  | 47.5  |
| 1.55E+03                                | 1.55E+03  | Ē  | mg/kg   | 51.5  | 5.1.3  | 41  |
| 0.205±04                                | 1.55=+03  |  | mg/kg   | / 2   | <u>0</u>   | - 4   |
| 9.29ETU4                                | 9.230104  |  | BV/BIII   | 35  | ş  | 2   |
| 1.61E+02                                | 2.78E+03  | (2)  | ma/Ka   |   |  | ;   |
| 6.43E+04                                | 6.43E+04  | Ξ  | mg/Kg   | :   |  | 1   |
| 4.33E+01                                | 5.99E+02  | (2)  | mg/Kg   | 1   | ;  | 1   |
| 9.43E+01                                | 1.24E+03  | (2)  | mg/Kg   | -   | :  | 1   |
| 3.50E+02                                | 6.88E+03  | (2)  | mg/Kg   | :   | :  | 1   |
| 1.83E+03                                | 1.83E+03  | (1)  | mg/Kg   | 1   | :  | •   |
| :                                       | 1)  |  | mg/Kg   | :   | :  | ۱   |
| V EAE+00                                | 3 10E±01  | (0)  | 6V/6III   | •   | :   :  | ;   |
| 4.34L100                                | 4 27F+02  | (4)  | ma/Ka   |   | •  | ۱   ۱   |
| 2.80E+02                                | 1 1   | (3)  | mg/Kg   | :   | :  | :   |
| 1.09E+00                                | 2.30E+01  | (2)  | mg/Kg   |   | -  | : 1   |
| 3.14E+00                                | 4.86E+01  | (2)  | mg/Kg   | :   | :  | -   |
| 9.71E+03                                | 9.71E+03  | Ξ  | mg/Kg   | :   | :  | :   |
| 4.28E+01                                | 7.51E+02  | <u>(</u> 2)  | mg/Kg   | 1   | :  | 1   |
| 3.1/E+01                                | 1.1/E+02  | 9  | mg/kg   | :   | :   :  | :   |
| 2.00F.02                                |   | 2  | ma/Ka   | ·   '   |  | :   |
| 2.00E+04                                | :   | (3)  | mg/Kg   | 1   | :  |   |
| 1.80E+02                                | 3.78E+03  | (2)  | mg/Kg   | :   |  | 1   |
| 9.90E+02                                | -   | (4)  | mg/Kg   | :   | 1  | :   |
| 1                                       | 1   |  | mg/Kg   | :   | :  | :   |
| 1.48E+05                                | 1.48E+05  | <u>(£</u>  | mg/Kg   | :   | :  | ;   |
| 6.19E+03                                | 6.19E+03  | <u> </u>   | mg/Kg   | :   | :  | !   |
| -                                       | 1   | į  | mg/Kg   | •   | :  |   |
| 4.10E+03                                | ;   | <u>ව</u>   | mg/Kg   | :   | :  | :   |
| /.20E+04                                | ·   ;   | ତ୍ର  | mo/Ka   |   | : :  | : :   |
| ;                                       | 1   |  | mg/Kg   |   | :  |   |
| 2.63E+05                                | 263000  | (1)  | mg/Kg   | 1   | :  | 1   |
| 8.54E+01                                | 4.71E+02  | (2)  | mg/Kg   | :   | :  |   |
| 4.10E+02                                | -   | <u>ල</u>   | mg/Kg   | :   | :  |   |
| 2.92E+U1                                | 3.50E+03  | (7)  | mg/Kg   | :   | -  | 1   |
|   | 1.24E+02<br>1.77E+01<br>4.35E+03<br>1.44E+02<br>3.09E+02<br>4.47E+05<br>3.09E+02<br>4.99E+01<br>6.19E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.55E+03<br>1.61E+02<br>2.80E+02<br>1.89E+01<br>8.17E+01<br>2.00E+02<br>1.89E+01<br>8.17E+01<br>2.00E+02<br>1.89E+01<br>8.17E+01<br>2.00E+04<br>1.80E+05<br>1.89E+01<br>8.17E+01<br>2.00E+04<br>1.80E+05<br>1.89E+01<br>8.17E+01<br>2.00E+04<br>1.80E+05<br>1.80E+02<br>1.89E+01<br>8.17E+01<br>2.00E+04<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+02<br>2.00E+04<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.80E+05<br>1.8 | The state of the | E+02 1.24E+02<br>E+03 4.35E+03<br>E+04 4.35E+03<br>E+05 3.09E+02<br>E+05 3.09E+02<br>E+05 4.47E+05<br>E+03 6.19E+03<br>E+03 6.19E+03<br>E+04 6.36E+01<br>E+03 1.55E+03<br>E+04 6.36E+01<br>E+04 1.24E+03<br>E+02 6.88E+03<br>E+03 1.55E+03<br>E+04 6.36E+01<br>E+04 1.24E+03<br>E+04 0.30E+01<br>E+03 1.55E+03<br>E+04 1.24E+03<br>E+04 1.24E+03<br>E+04 1.24E+03<br>E+04 1.24E+03<br>E+04 1.35E+03<br>E+05 1.48E+05<br>E+06 3.71E+02<br>E+07 1.77E+02<br>E+06 3.78E+03<br>E+06 1.48E+05<br>E+07 1.78E+03<br>E+08 1.86E+01<br>E+09 2.30E+01<br>E+09 3.71E+02<br>E+01 1.77E+02<br>E+04 | E+02 1.24E+02 (1) E+03 4.35E+03 (1) E+04 6.54E+01 (2) E+05 3.09E+02 (1) E+06 4.47E+05 (1) E+06 4.47E+05 (1) E+07 3.09E+03 (1) E+03 6.19E+03 (1) E+03 6.19E+03 (1) E+04 6.43E+04 (1) E+04 6.43E+04 (1) E+04 6.43E+04 (1) E+04 6.43E+04 (1) E+04 6.43E+03 (1) E+04 6.43E+04 (1) E+05 2.30E+01 (2) E+06 3.10E+01 (2) E+07 1.55E+03 (1) E+08 6.19E+03 (1) E+09 9.29E+04 (1) E+09 1.55E+03 (1) E+01 1.57E+02 (2) E+01 1.77E+02 (2) E+02 2.30E+01 (2) E+03 9.71E+03 (1) E+04 6.43E+03 (1) E+05 2.30E+01 (2) E+06 3.78E+03 (1) E+07 1.751E+02 (2) E+08 6.19E+03 (1) E+09 - | E+02         1.24E+02         (1)         mg/kg           E+03         1.24E+02         (1)         mg/kg           E+01         6.54E+01         (2)         mg/kg           E+02         1.44E+02         (1)         mg/kg           E+02         1.44E+02         (1)         mg/kg           E+02         1.44E+02         (1)         mg/kg           E+02         3.09E+02         (1)         mg/kg           E+03         3.09E+02         (1)         mg/kg           E+03         1.55E+03         (1)         mg/kg           E+03         1.55E+03         (1)         mg/kg           E+04         6.19E+03         (1)         mg/kg           E+04         1.55E+03         (1)         mg/kg           E+04         6.19E+03         (1)         mg/kg           E+05         1.55E+03         (1)         mg/kg           E+04         6.19E+03         (1)         mg/kg           E+04         6.19E+03         (1)         mg/kg           E+04         6.29E+04         (1)         mg/kg           E+04         1.24E+03         (1)         mg/kg           E+04         6.3 | E+02         1.24E+02         (1)         mg/kg         <13 |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

|                               |                          | \$<br>2                   |                 |                | (.                  | (,0:     | (,z                |
|-------------------------------|--------------------------|---------------------------|-----------------|----------------|---------------------|----------|--------------------|
|                               | Residential              | Residential               | nrce            |                | <b>∂.0-</b> 0       | S-3.1    | ₹ <del>৮</del> -6€ |
|                               | Screening<br>Levels 0-2' | Screening<br>Levels 2-10' | os              |                | ) T- <del>4</del> S | ) T-4S   | :)                 |
| Analytes                      |                          |                           |                 | Units          | OOA                 | YOC      | DOA                |
| te                            |                          |                           | ]               |                | 4/7/2009            | 4/7/2009 | 4/7/2009           |
| Bromoform                     | 2.20E+03                 | ; ;                       | ල :             | mg/Kg          | -                   | :        | 1                  |
| Bromomethane                  | 6.71E+01                 | 6.71E+01                  | $\widehat{\Xi}$ | mg/Kg          | : }                 | -        | 1                  |
| Carbon distingle              | 5.89E+03                 | 5.89E+03                  | $\exists$       | mg/kg          |                     | •        | :                  |
| Carbon tetrachionide          | 4.43E+01                 | 1.99E+02                  | ર્ગ દ           | mg/kg          | •                   |          | 1                  |
| Cilionophane                  | 1.305+03                 | 1.300+03                  | $\exists$       | mg/kg          | :                   | ;        | :                  |
| Chloroform                    | 3 10F±01                 | E 71E+02                  | 0               | mg/Kg          | 1   1               | :   ;    | :   :              |
| Chloromethane                 | 1 98F+07                 | 1 13F+03                  | 96              | ma/Ka          | 1                   |          |                    |
| cis-1.2-DCE                   | 3.10E+03                 | 3.10E+03                  | 1 8             | ma/Ka          | :                   |          | ł                  |
| cis-1,3-Dichloropropene       | 1.26E+02                 | 5.10E+02                  | 2               | mg/Kg          | 1                   | :        | 1                  |
| Dibromochloromethane          | 6.13E+01                 | 1.99E+03                  | 2               | mg/Kg          | :                   | ;        | 1                  |
| Dibromomethane                | 1.00E+04                 |                           | (3)             | mg/Kg          | -                   | -        |                    |
| Dichlorodifluoromethane       | 1.37E+03                 | 1.37E+03                  | (1)             | mg/Kg          | 1                   | :        | 1                  |
| Ethylbenzene                  | 3.85E+02                 | 6.63E+03                  | 0               | mg/Kg          | ;                   | :        | 1                  |
| Hexachlorobutadiene           | 2.20E+02                 | 1 1                       | ୍ର              | mg/Kg          | •                   | :        | ;                  |
| Isopropylbenzene              | 1.03E+04                 | 1.03E+04                  | $\Xi$           | mg/Kg          | 11                  | :        | 1                  |
| Methylogo chlorido            | 4.69E+03                 | 4 OSE + 04                | <u> </u>        | mg/kg          | :                   | :        | 1                  |
| Nanthalana                    | 2 52E+03                 | 7.02E+04                  | યે ઉ            | mo/Ka          | 1   1               | :   :    |                    |
| naprigrame<br>n-Birtylhenzene | 4.02L+02                 | 1.021.102                 | /4              | mg/Kg          |                     | :        | : :                |
| n-Propylbenzene               |                          |                           | L               | ma/Ka          |                     |          |                    |
| sec-Butylbenzene              | -                        | }                         |                 | mg/Kg          |                     |          |                    |
| Styrene                       | 3.03E+04                 | 30300                     | (1)             | mg/Kg          |                     | -        | :                  |
| benzene                       |                          | 1                         |                 | mg/Kg          | 1                   | :        |                    |
| Tetrachloroethene (PCE)       | 3.64E+01                 | 3.38E+02                  | (2)             | mg/Kg          | ***                 | -        | :                  |
| Toluene                       | 2.11E+04                 | 2.11E+04                  | $\widehat{\Xi}$ | mg/Kg          | 1                   | :        | :                  |
| trans-1,2-DCE                 | 8.14E+02                 | 8.14E+02                  | 9               | mg/Kg          | -                   | :        | 1                  |
| trans-1,3-Dichloropropene     | 1.26E+02                 | 5.10E+02                  | 7 (             | mg/kg          | :                   | :        | :                  |
| Trichlorofluoromethane        | 2.53E+02<br>5.82E+03     | 4.60E+03                  | 3 5             | mg/Kg<br>mg/Kg | :   :               | :   :    | 1   1              |
| Vinyl chloride                | 2.59E+01                 | 2.48E+02                  | (2              | mg/Ka          |                     |          |                    |
| Xylenes, Total                | 3.13E+03                 | 3.13E+03                  | Ξ               | mg/Kg          | :                   | 1        | 1                  |
| unds - (EPA Method 8260B)     | µg/Kg-dry                |                           |                 | i              |                     |          |                    |
| 1,1,1,2-Tetrachloroethane     | 1.61E+05                 | 2.78E+06                  | Q (             | pg/Kg-dry      | 41.04               | 1.01     | <1.07              |
| 1.1.1-Indicoettiale           | 4 33F+04                 | 4 33F+04                  | 3               | ng/Ka-dry      | 107                 | V V      | ×1.07              |
| 1,1,2-Trichloroethane         | 9.43E+04                 | 9.43E+04                  | 10              | na/Kg-dry      | ×1.04               | <1.01    | <1.07              |
| 1,1-Dichloroethane            | 3.50E+05                 | 3.50E+05                  | (2)             | pg/Kg-dry      | <1.04               | <1.01    | <1.07              |
| 1,1-Dichloroethene            | 1.83E+06                 | 1.83E+06                  | (1)             | µg/Kg-dry      | <1.04               | <1.01    | <1.07              |
| 1,1-Dichloropropene           | 1                        | ;                         |                 | ug/Kg-dry      | <1.04               | <1.01    | <1.07              |
| 1,2,3-Trichlorobenzene        | :                        | 1                         |                 | µg/Kg-dry      | 40.1                | <1.01    | <1.07              |
| 1,2,3-Trichloropropane        | 4.54E+03                 | 3.10E+04                  |                 | ug/Kg-dry      | 40.1                | ×1.01    | <1.07              |
| 1,2,4-I richlorobenzene       | 4.27E+U5                 | 4.27E+05                  | $\Xi$           | ug/Kg-dry      | ×1.04               | 41.01    | <1.07              |
| 1,2,4-1 rimethylbenzene       | 2.80E+05                 |                           | ୭ ଚ             | ug/Kg-dry      | 40.1                | 7 21.01  | V1.07              |
| 1,z-Dibromoethane (FDR)       | 3.14F+03                 | 4.30E+04<br>4.86F+04      | <u> </u>        | ug/kg-dry      | 7 7                 | 2 2      | √1.07<br>7.07      |
| 1,2-Dichlorobenzene           | 9.71E+06                 | 9.71E+06                  | įΞ              | ug/Kg-dry      | ×1.04               | 1.01     | <1.07              |
| 1,2-Dichloroethane (EDC)      | 4.28E+04                 | 7.51E+05                  | (2)             | µg/Kg-dry      | <1.04               | <1.01    | <1.07              |
| 1,2-Dichloropropane           | 8.17E+04                 | 1.17E+05                  | (7)             | hg/Kg-dry      | <1.04               | ×1.01    | <1.07              |
| 1,3,5-Trimethylbenzene        | 2.00E+U2                 | 1                         | ව               | рg/Kg-dry      | ×1.04               | <1.01    | <1.0/              |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

| Units         A           47/2009         4           47/2009 </th <th></th> <th>Residential<br/>Screening<br/>Levels 0-2'</th> <th>Residential<br/>Screening<br/>Levels 2-10'</th> <th>Source</th> <th></th> <th>C 24-7 (0-0.5°</th> <th>C 24-7 (1.5-2.0</th> <th>C 54-7 (39<del>-4</del>2'</th>  |  | Residential<br>Screening<br>Levels 0-2' | Residential<br>Screening<br>Levels 2-10' | Source           |           | C 24-7 (0-0.5°        | C 24-7 (1.5-2.0 | C 54-7 (39 <del>-4</del> 2' |
|--|--|---|--|------------------|-----------|-----------------------|-----------------|-----------------------------|
| 100    | Sample Date                                      |   |  |                  | Units     | ΟA                    | ΟA              | OΑ                          |
| 2.00E-07 (3) µg/Kg-dry <1.04 1.80E+05 3.78E+06 (2) µg/Kg-dry <1.04 1.80E+05 1.78E+06 (1) µg/Kg-dry <1.04 1.48E+08 1.48E+08 (1) µg/Kg-dry <1.04 1.48E+08 1.48E+08 (1) µg/Kg-dry <1.04 1.20E+07 (3) µg/Kg-dry <1.04 1.20E+07 (3) µg/Kg-dry <1.04 1.20E+04 4.71E+05 (2) µg/Kg-dry <1.04 2.20E+04 4.71E+05 (2) µg/Kg-dry <1.04 2.20E+04 3.50E+06 (1) µg/Kg-dry <1.04 2.20E+04 1.30E+07 (1) µg/Kg-dry <1.04 2.20E+06 1.58E+06 (1) µg/Kg-dry <1.04 2.20E+06 1.58E+06 (1) µg/Kg-dry <1.04 1.20E+06 1.30E+06 (2) µg/Kg-dry <1.04 1.20E+06 (2) µg/Kg-dry              |  |   |  | _                |           | 4/7/2009              | 4/7/2009        | 4/7/2009                    |
| 1.08E+05   3.78E+06   0. j j j j j j j j j j j j j j j j j j   | 1,3-Dichlorobenzene                              |   | ;  | Ś                | ug/Kg-dry | 41.04                 | 1.07            | /0.1>                       |
| 1.48E+08   | 1,3-Dichloropropane                              | 2.00E+0/                                | 3 795 406                                | ୍ ଚ              | ug/Kg dry | 40.12                 | 10.1            | V 1.07                      |
| 1.48E+08   1.48E+08   (1)   1967g-dry   4.16   1.48E+08   (1)   1967g-dry   4.16   1.48E+08   (1)   1967g-dry   4.10   1.48E+08   4.18E+08   4.18E+08   (1)   1967g-dry   4.10   1.48E+08   4.18E+08   4.18E+08   (1)   1967g-dry   4.10      | 1,4-Dichloropenzene                              | C0+=00.1                                | 3.70=+00                                 | 3                | hg/kg-dry | 10.1                  | 2 2             | V V                         |
| 6.19E-06   | 2. Butanone                                      | 1 48F+08                                | 1 48F+08                                 | €                | 10/Kg-dry | <4.16                 | <4.06           | <4 29                       |
| 100    | 2-Chlorofolijene                                 | 6 19F+06                                | 6.19E+06                                 | Ξ                | ua/Ka-dry | × 104                 | 2<br>10<br>10   | <1.07                       |
| 7.20E+07 (3) µg/kg-dry <1.04   | 2-Hexanone                                       | 10.10                                   | - 101.0                                  |                  | ua/Ka-dry | <b>4.</b> 16          | <4.06           | <4.29                       |
| 100    | 4-Chlorotoluene                                  | 7.20E+07                                |  | (2)              | ug/Kg-dry | ×1.04                 | <1.01           | <1.07                       |
| 10   | 4-Isopropyltoluene                               | 1                                       |  |                  | ug/Kg-dry | L                     | <1.01           | <1.07                       |
| 10   10   10   10   10   10   10   10  | 4-Methyl-2-pentanone                             | 1                                       | 1  |                  | ug/Kg-dry |                       | <4.06           | <4.29                       |
| 8.54E+04 4.71E+05 (2) 197kg-dry <1.04 2.92E+04 (3) 197kg-dry <1.04 2.92E+06 (3) 197kg-dry <1.04 2.20E+06 (3) 197kg-dry <1.04 2.20E+06 5.88E+06 (1) 197kg-dry <1.04 2.36E+06 5.88E+06 (1) 197kg-dry <1.04 1.58E+06 1.38E+06 (1) 197kg-dry <1.04 1.58E+06 1.13E+04 (1) 197kg-dry <1.04 1.58E+06 1.13E+06 (2) 197kg-dry <1.04 1.26E+05 3.10E+06 (1) 197kg-dry <1.04 1.26E+05 3.10E+06 (2) 197kg-dry <1.04 1.20E+06 1.38E+06 (1) 197kg-dry <1.04 1.20E+06 1.38E+06 (1) 197kg-dry <1.04 1.20E+06 1.38E+06 (2) 197kg-dry <1.04 1.38E+06 1.38E+06 (2) 197kg-dry <1.04 1.09E+06 1.38E+06 (2) 197kg-dry <1.04 2.20E+05 1.06E+07 (2) 197kg-dry <1.04 2.20E+06 1.06E+07 (2) 197kg-dry <1.04 1.09E+06 1.06E+07 (1) 197kg-dry <1.04 1.20E+05 1.06E+07 (1) 197kg-dry <1.04 1.20E+05 1.06E+07 (1) 197kg-dry <1.04 1.20E+05 1.06E+05 (2) 197kg-dry <1.04 1.2                   | Acetone  | 2.63E+08                                | 2.63E+08                                 | (1)              | µg/Kg-dry |                       | <4.06           | 7.8                         |
| # 10E+05   | Benzene  | 8.54E+04                                | 4.71E+05                                 | <u>@</u>         | ug/Kg-dry | ×1.04                 | -4.01<br>101    | <1.07                       |
| 2.92E+04 3.50E+06 (1) µg/Kg-dry <1.04  2.20E+06 - (3) µg/Kg-dry <1.04  5.89E+06 5.89E+06 (1) µg/Kg-dry <1.04  2.43E+04 1.99E+05 (2) µg/Kg-dry <1.04  1.58E+06 1.58E+06 (1) µg/Kg-dry <1.04  1.28E+06 1.13E+06 (1) µg/Kg-dry <1.04  1.26E+05 3.10E+06 (2) µg/Kg-dry <1.04  1.20E+05 3.10E+06 (2) µg/Kg-dry <1.04  1.20E+05 (1) µg/Kg-dry <1.04  1.37E+06 1.37E+06 (1) µg/Kg-dry <1.04  1.37E+06 1.37E+07 (2) µg/Kg-dry <1.04  1.37E+06 1.03E+07 (2) µg/Kg-dry <1.04  1.37E+06 3.38E+05 (2) µg/Kg-dry <1.04  1.37E+06 1.06E+07 (2) µg/Kg-dry <1.04  1.37E+06 1.06E+07 (2) µg/Kg-dry <1.04  2.52E+05 7.02E+05 (2) µg/Kg-dry <1.04  2.52E+06 8.56E+07 (1) µg/Kg-dry <1.04  2.52E+06 8.56E+07 (1) µg/Kg-dry <1.04  2.52E+06 8.50E+07 (1) µg/Kg-dry <1.04  2.52E+06 8.14E+05 (1) µg/Kg-dry <1.04  2.52E+06 8.14E+05 (1) µg/Kg-dry <1.04  2.53E+06 8.14E+05 (1) µg/Kg-dry <1.04  2.53E+06 8.14E+05 (2) µg/Kg-dry <1.04  2.55E+06 8.14E+05 (2) µg/Kg-dry <1.04  3.13E+06 (1) µg/Kg-dry <1.04  3.13E+07 (1) µg/ | Bromobenzene                                     | 4.10E+05                                | ŀ  | ଡ                | ug/Kg-dry | 102                   | <1.01           | <1.07                       |
| 1.20E+06   | Bromodichloromethane                             | 2.92E+04                                | 3.50E+06                                 | $\overline{\Xi}$ | ug/Kg-dry | 2.04<br>2.04          | 4.01            | <1.07                       |
| See  | Bromoform  | 2.20E+06                                | 1 1                                      | <u>ම</u>         | µg/Kg-dry | 4                     | 7.01            | <1.07                       |
| 1.00   | Bromomethane                                     | 6.71E+04                                | 6.71E+04                                 |                  | ug/kg-ary | 1                     | 1015            | 70.1                        |
| 1.58E+06   | Carbon disuitide                                 | 2.89E+06                                | 3.89E+06                                 | 3                | ug/kg-dry | 1                     | 2 4.00          | <4.29                       |
| 1.30E-02   1.30E-05    | Carbon tetlachionide                             | 1.43E+04                                | 1.58E+05                                 | ijĘ              | My Ka-dry | 7 7                   | 2 5             | 4107                        |
| 3.19E+04 6.71E+05 (2) µg/Kg-dry <1.04  1.98E+05 1.13E+06 (2) µg/Kg-dry <1.04  1.20E+05 3.10E+06 (1) µg/Kg-dry <1.04  1.20E+05 5.10E+05 (2) µg/Kg-dry <1.04  1.00E+07 (1) µg/Kg-dry <1.04  1.37E+06 (1) µg/Kg-dry <1.04  2.20E+05 (2) µg/Kg-dry <1.04  2.20E+05 (2) µg/Kg-dry <1.04  1.03E+07 (1) µg/Kg-dry <1.04  2.20E+05 (2) µg/Kg-dry <1.04  2.20E+05 (2) µg/Kg-dry <1.04  2.52E+05 (2) µg/Kg-dry <1.04  2.52E+05 (3) µg/Kg-dry <1.04  2.52E+05 (1) µg/Kg-dry <1.04  2.52E+05 (2) µg/Kg-dry <1.04  2.52E+06 (3) µg/Kg-dry <1.04  2.52E+06 (1) µg/Kg-dry <1.04  2.52E+06 (1) µg/Kg-dry <1.04  2.52E+06 (1) µg/Kg-dry <1.04  2.52E+07 (1) µg/Kg-dry <1.04  2.52E+06 (2) µg/Kg-dry <1.04  2.52E+06 (2) µg/Kg-dry <1.04  2.52E+06 (3) µg/Kg-dry <1.04  2.52E+06 (1) µg/Kg-dry <1.04  2.52E+06 (2) µg/Kg-dry <1.04  2.52E+06 (3) µg/Kg-dry <1.04  2.52E+06 (1) µg/Kg-dry <1.04  2.52E+06 (2) µg/Kg-dry <1.04  2.52E+06 (3) µg/Kg-dry <1.04  2.55E+06 (4) µg/Kg-dry <1.04   | Chloroethane                                     | -                                       | -  |                  | ug/Kg-dry | 104                   | <1.01           | <1.07                       |
| 1.98E+05   | Chloroform                                       | 3.19E+04                                | 6.71E+05                                 | 3                | ug/Kg-dry | <1.04<br>40.1>        | <1.01           | <1.07                       |
| 3.10E+06 3.10E+06 (1) µg/Kg-dry <1.04 1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04 1.00E+07 (3) µg/Kg-dry <1.04 1.00E+07 (3) µg/Kg-dry <1.04 1.03E+07 1.37E+06 (1) µg/Kg-dry <1.04 2.20E+05 (3) µg/Kg-dry <1.04 1.03E+07 1.03E+07 (1) µg/Kg-dry <1.04 1.03E+07 1.09E+06 (1) µg/Kg-dry <1.04 1.09E+06 1.06E+07 (2) µg/Kg-dry <1.04 1.09E+06 1.06E+07 (1) µg/Kg-dry <1.04 1.09E+06 1.06E+05 (2) µg/Kg-dry <1.04 1.26E+05 5.10E+05 (1) µg/Kg-dry <1.04 1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04 1.26E+06 5.82E+06 (1) µg/Kg-dry <1.04 1.26E+06 5.10E+05 (2) µg/Kg-dry <1.04 1.26E+06 5.10E+05 (2) µg/Kg-dry <1.04 1.26E+06 5.10E+05 (2) µg/Kg-dry <1.04 1.26E+06 5.26E+06 (1) µg/Kg-dry <1.04 1.26E+06 5.10E+05 (2) µg/Kg-dry <1.04 1.26E+06              | Chloromethane                                    | 1.98E+05                                | 1.13E+06                                 | (2)              | µg/Kg-dry | <1.04                 | <1.01           | <1.07                       |
| 126E+05   5.10E+05   (2) µg/Kg-dry <1.04   | sis-1,2-DCE                                      | 3.10E+06                                | 3.10E+06                                 | €                | µg/Kg-dry | 4                     | 4.01            | <1.07                       |
| 1.00   |  | 1.26E+05                                | 5.10E+05                                 | <u></u>          | ug/Kg-dry | 2<br>2<br>2<br>2<br>3 | 4.01            | <1.07                       |
| 1.00E+07   | Dibromochloromethane                             | 6.13E+04                                | 1.99=+06                                 | <u> </u>         | ug/Kg-dry | V1:04                 | 5 5             | V1.07                       |
| 1.3/E+06   1.3/E+06   (1) pg/kg-dry   1.04     2.20E+05   6.63E+06   (2) pg/kg-dry   1.04     2.20E+05   1.03E+07   (1) pg/kg-dry   1.04     4.69E+06   6.55E+07   (2) pg/kg-dry   1.04     4.69E+06   6.55E+07   (2) pg/kg-dry   1.04     4.69E+06   6.55E+07   (2) pg/kg-dry   1.04     2.52E+05   7.02E+05   (2) pg/kg-dry   1.04   |  | 1.00E+07                                | 4 275 106                                | र्ग              | ug/kg-dry | 2 2                   | 2 5             | V 1.07                      |
| Automatical Contents   | Jichiofodiliuofometnane                          | 3.85E+05                                | 6.37=+06                                 | 3                | Hg/Ng-dry | 10.1                  | 4 01            | <1.07                       |
| 1.03E+07   1.03E+07   1.04   1.04   1.05E+07   1.09E+06   6.55E+07   (2) µg/kg-dry <1.04   1.09E+06   1.06E+07   (2) µg/kg-dry <1.04   2.52E+05   7.02E+05   (2) µg/kg-dry <1.04   1.09E+06   1.06E+07   (2) µg/kg-dry <1.04   1.09E+06   1.00E+07   (2) µg/kg-dry <1.04   1.09E+06   1.00E+07   (1) µg/kg-dry <1.04   1.09E+06   1.00E+07   (1) µg/kg-dry <1.04   1.09E+06   1.00E+05   (2) µg/kg-dry <1.04   1.00E+05   1.00E+06   (2) µg/kg-dry <1.04   1.00E+05   1.00E+06   (3) µg/kg-dry <1.04   1.00E+06   1.00E+06   (1) µg/kg-dry <1.04   1.00E+06   1.00E+06   (2) µg/kg-dry <1.04   1.00E+06   1.00E+06   (3) µg/kg-dry <1.04   1.00E+06   1.00E+06   (1) µg/kg-dry <1.04   1.00E+06   1.00E+   | -triyiborizerie<br>Hexachlorobitadiene           | 2.20E+05                                | -  | <u>ා</u> ල       | ua/Ka-dry | ^<br>104              | <1.01           | <1.07                       |
| A.69E+06   6.55E+07   (2)   µg/Kg-dry   <1.04     1.09E+06   1.06E+07   (2)   µg/Kg-dry   <1.04     2.52E+05   7.02E+05   (2)   µg/Kg-dry   <1.04  | sopropylbenzene                                  | 1.03E+07                                | 1.03E+07                                 | E                | ug/Kg-dry | ×1.04                 | <1.01           | <1.07                       |
| 1.09E+06 1.06E+07 (2) µg/Kg-dry 2.37  2.52E+05 7.02E+05 (2) µg/Kg-dry <1.04  µg/Kg-dry <1.04  µg/Kg-dry <1.04  3.03E+07 3.03E+07 (1) µg/Kg-dry <1.04  3.64E+04 3.38E+05 (2) µg/Kg-dry <1.04  2.11E+07 2.11E+07 (1) µg/Kg-dry <1.04  8.14E+05 8.14E+05 (2) µg/Kg-dry <1.04  2.53E+05 5.10E+05 (2) µg/Kg-dry <1.04  2.53E+06 5.10E+05 (2) µg/Kg-dry <1.04  2.55E+06 5.82E+06 (1) µg/Kg-dry <1.04  2.55E+06 5.82E+06 (1) µg/Kg-dry <1.04  3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04  3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04  3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04  4.27E+02 4.27E+02 (1) µg/Kg-dry <1.0   | her  | 4.69E+06                                | 6.55E+07                                 |                  | ug/Kg-dry |                       | <1.01           | <1.07                       |
| 2.52E+U5 7.02E+U5 (2) µg/Kg-dry <1.04  | Methylene chloride                               | 1.09E+06                                | 1.06E+07                                 |                  | ug/Kg-dry | _1                    | 2.39            | 2.71                        |
| 100    | Naphthalene                                      | 2.52E+05                                | 7.02E+05                                 | 3                | µg/Kg-dry | 41.04<br>20.15        | 4.01            | <1.07                       |
| 1.04   | n-Butylbenzene                                   | !!!                                     | : :                                      |                  | ug/kg-dry | 2 2                   | V V             | ×1.07                       |
| 3.03E+07 3.03E+07 (1) µg/Kg-dry <1.04  1.04  | r-Tropyiborizerie<br>sec-Birtylbenzene           |   | 1  |                  | ua/Ka-dry | \<br>20<br>10         | <101            | <1.07                       |
| (1) 3.64E+04 3.38E+05 (2) µg/Kg-dry <1.04   2.11E+07 2.11E+07 (1) µg/Kg-dry <1.04   8.14E+05 8.14E+05 (1) µg/Kg-dry <1.04   8.14E+05 8.14E+05 (1) µg/Kg-dry <1.04   7.26E+05 5.10E+05 (2) µg/Kg-dry <1.04   7.53E+06 5.82E+06 (1) µg/Kg-dry <1.04   7.59E+04 2.48E+05 (2) µg/Kg-dry <1.04   7.59E+04 2.48E+05 (2) µg/Kg-dry <1.04   7.59E+04 3.13E+06 (1) µg/Kg-dry <1.04   7.59E+02 4.27E+02 (1) µg/Kg-dry <1.04   7.59E+03 4.27E+02 (1) µg/Kg-dry <1.07   7.59E+03 4.27E+03 (1) µg/Kg-dry   7.59E+03 | Styrene  | 3.03E+07                                | 3.03E+07                                 | Ξ                | ua/Ka-dry | ×1.04                 | <1.01           | <1.07                       |
| (2) 3.64E+04 3.38E+05 (2) µg/Kg-dry <1.04 2.11E+07 (1) µg/Kg-dry <1.04 1.26E+05 8.14E+05 (1) µg/Kg-dry <1.04 1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04 1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04 2.53E+05 5.82E+06 (1) µg/Kg-dry <1.04 2.59E+04 2.48E+05 (2) µg/Kg-dry <1.04 2.59E+04 2.48E+05 (2) µg/Kg-dry <1.04 3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04 4.27E+02 4.27E+02 (1) µg/Kg-dry <1.0  |  | 1                                       | 1  |                  | ug/Kg-dry | <1.04                 | <1.01           | <1.07                       |
| ne 2.11E+07 2.11E+07 (1) µg/Kg-dry <1.04  8.14E+05 8.14E+05 (1) µg/Kg-dry <1.04  1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04  2.53E+05 4.60E+06 (2) µg/Kg-dry <1.04  5.82E+06 5.82E+06 (1) µg/Kg-dry <1.04  2.59E+04 2.48E+05 (2) µg/Kg-dry <1.04  2.59E+04 2.48E+05 (2) µg/Kg-dry <1.04  3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04  4.27E+02 4.27E+02 (1) µg/Kg-dry <1.04  4.27E+02 4.27E+02 (1) µg/Kg-dry <1.04  | (PC  | 3.64E+04                                | 3.38E+05                                 | (2)              | ug/Kg-dry | ×1.04                 | <1.01           | <1.07                       |
| ne 1.26E+05 8.14E+05 (1) µg/Kg-dry <1.04 1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04 2.53E+05 4.60E+06 (2) µg/Kg-dry <1.04 5.82E+06 5.82E+06 (1) µg/Kg-dry <1.04 2.59E+04 2.48E+05 (2) µg/Kg-dry <1.04 3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04 3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04 4.27E+02 4.27E+02 (1) µg/Kg-dry <1.04 4.27E+02 4.27E+03 (1) µg/Kg <1.0  | Toluene  | 2.11E+07                                | 2.11E+07                                 | (i)              | ug/Kg-dry |                       | <1.01           | <1.07                       |
| ne 1.26E+05 5.10E+05 (2) µg/Kg-dry <1.04 2.53E+05 4.60E+06 (2) µg/Kg-dry <1.04 5.82E+06 5.82E+06 (1) µg/Kg-dry <1.04 2.59E+04 2.48E+05 (2) µg/Kg-dry <1.04 3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04 3.13E+06 3.13E+06 (1) µg/Kg-dry <1.04 4.27E+02 4.27E+02 (1) mg/Kg <1.0  | rans-1,2-DCE                                     | 8.14E+05                                | 8.14E+05                                 | $\overline{\Xi}$ | ug/Kg-dry |                       | <1.01           | <1.07                       |
| 3.13E+06   | rans-1,3-Dichloropropene                         | 1.26E+05                                | 5.10E+05                                 | 0                | µg/Кg-dry | 40.12                 | 4.01            | <1.07                       |
| - (EPA Method 8270) mg/kg 4.27E+02   | Trichloroethene (TCE)                            | 2.53E+05                                | 4.60E+06                                 | <u> </u>         | ug/Kg-dry | 41.04                 | 10.12           | V1.07                       |
| - (EPA Method 8270) mg/kg 4.27E+02 (1) mg/kg <1.0 (2) mg/kg <1.0 (2) mg/kg <1.0 (3) mg/kg <1.0 (4.27E+02 (4.27E+02 (1) mg/kg <1.0 (4.27E+03 (4.27E+03 (1) mg/kg <1.0 (4.27E+03 ( | I richlorofluoromethane                          | 3.8ZE+00                                | 5.82E+06                                 |                  | pg/kg-dry |                       | 7 7             | 70.7                        |
| - (EPA Method 8270) mg/kg  | Vinyl chloride                                   | 2.59E+04                                | 2.40E+U3<br>3.13E+U6                     |                  | Hg/Ng-dry |                       | V V             | ×1.07                       |
| 4.27E+02 4.27E+02 (1) mg/Kg <1.0   | Semi Volatile Organics - (EPA Method 8270) mg/ko | ┪                                       | 9.12L                                    |                  | S S L S L |                       |                 |                             |
| Q 71E+03   Q 71E+03   <10  | 1,2,4-Trichlorobenzene                           | <u> </u>                                | 4.27E+02                                 | (1)              | mg/Kg     | <1.0                  | <0.20           | <0.20                       |
| 9.7 IE+03 (1) HB/VB (1.0   | I,2-Dichlorobenzene                              | 9.71E+03                                | 9.71E+03                                 | $\widehat{\Xi}$  | mg/Kg     | <1.0                  | <0.20           | <0.20                       |

Table 11
Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24
Bloomfield Refinery - Bloomfield, New Mexico

|  | Non-<br>Residential      | Non-<br>Residential       | ırce             |                | (.9.0-0      | ('0.S-2.1 | (.Z <del>V</del> 68  |
|--|--------------------------|---------------------------|------------------|----------------|--------------|-----------|--|
|  | Screening<br>Levels 0-2' | Screening<br>Levels 2-10' | 108              |                | ) Y-4S O     | ) T-4S O  | :)   |
| Analytes   |                          |                           |                  | Units          | OΑ           | ΟA        | ΟA   |
| Sample Date  | 1 001                    | 2 70 - 03                 | Ś                |                | 4/7/2009     | 4/7/2009  | 4/7/2009   |
| 1,4-Didilorophizerie                               | 2.38E+04                 | 2.38E+04                  | ÿ (E             | mg/Kg          | 0.15         | <0.20     | <0.20<br><0.20   |
| 2,4,6-Trichlorophenol                              | 2.38E+02                 | 2.38E+02                  | $\widehat{\Xi}$  | mg/Kg          | <1.0         | <0.20     | <0.20  |
| 2,4-Dichlorophenol                                 | 7.15E+02                 | 7.15E+02                  | Ξ                | mg/Kg          | <2.0         | <0.40     | <0.40  |
| 2,4-Dimethylphenol                                 | 4.76E+03                 | 4.76E+03                  | <u>(1</u>        | mg/Kg          | <1.5         | <0.30     | <0.30  |
| 2,4-Dinitrophenol                                  | 4.76E+02                 | 4.76E+02                  | $\widehat{\Xi}$  | mg/Kg          | <2.0         | <0.40     | \$0.40<br>2.5  |
| 2,4-Dinitrotoluene                                 | 1.03E+02                 | 4.76E+02                  | (7)              | mg/Kg          | <2.5         | 0.50      | 0.50   |
| 2.0-Dilitioudidette                                | 2.39E+02                 | 2.39L+02                  | $\Xi$            | ma/Ka          | <13          | <0.25     | <0.25  |
| 2-Chlorophenol                                     | 1.55E+03                 | 1.55E+03                  | Ξ                | mg/Kg          | <1.0         | <0.20     | <0.20  |
| 2-Methylnaphthalene                                | 4.10E+03                 |                           | (3)              | mg/Kg          | <1.3         | <0.25     | <0.25  |
| 2-Methylphenol                                     | 3.10E+04                 | 1                         | <u>ල</u>         | mg/Kg          | <2.5         | <0.50     | <0.50  |
| 2-Nitroaniline                                     | 1.80E+03                 | 1                         | <u></u>          | mg/Kg          | 41.0         | <0.20     | \$ 0.20<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 50<br>\$ 5 |
| 2-Nitrophenol                                      | 10C V                    | 2 74 - 100                | Ć                | mg/Kg          | ۸۱.0<br>د ر  | <0.20     | 07.0   |
| 3,3 -Uichlorobenziaine<br>3+4 Mathylahanol         | 3 10E+03                 | 3.7 15+02                 | <u> </u>         | mg/Kg          | ر<br>د ا د   | CZ-0>     | <0.20  |
| 3-Nitroanline                                      | 101.0                    | 1                         |                  | ma/Ka          | <10          | <0.20     | <0.20  |
| 4.6-Dinitro-2-methylphenol                         | !                        |                           |                  | mg/Kg          | <2.5         | <0.50     | <0.50  |
| 4-Bromophenyl phenyl ether                         | 1                        | 1                         |                  | mg/Kg          | <1.0         | <0.20     | <0.20  |
| 4-Chloro-3-methylphenol                            | -                        |                           |                  | mg/Kg          | <2.5         | <0.50     | <0.50  |
| 4-Chloroaniline                                    | 8.60E+01                 | -                         | <del>(</del> 4)  | mg/Kg          | <2.5         | <0.50     | <0.50  |
| 4-Chlorophenyl phenyl ether                        |                          | 1                         |                  | mg/Kg          | <1.0         | <0.20     | \$ 20  |
| 4-Nitroaniline                                     | 8.60E+02                 | 1                         | (4)              | mg/kg          | 51.5         | <0.25     | <0.25  |
| 4-Nitrophenol                                      | 1 86E±04                 | 1 86E±04                  | ()               | mg/kg          | 0.15         | 07.02     | 02.02  |
| Acenaphthylene                                     | 1.00[.104                | 1.000                     |                  | ma/Ka          | ×1.0         | <0.20     | <0.20  |
| Aniline  | 3.00E+03                 | 1                         | (4)              | ma/Ka          | <1.0         | <0.20     | <0.20  |
| Anthracene   | 6.68E+04                 | 6.68E+04                  | Ξ                | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Azobenzene   | 2.20E+02                 |                           | (4)              | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Benz(a)anthracene                                  | 2.34E+01                 | 2.13E+02                  | (2)              | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Benzo(a)pyrene                                     | 2.34E+00                 | 2.13E+01                  | 2                | mg/Kg          | <1.0         | 07.0>     | 07.0   |
| Benzo(a) i)nerviene                                | 2.345+01                 | 2.13E+U2                  | (7)              | mg/Ng<br>ma/Ka | 0.1.V        | <0.20     | <0.20<br><0.50<br><0.50  |
| Berzo(k)fluoranthene                               | 2.34E+02                 | 2.06E+03                  | (2)              | ma/Ka          | <1.0         | <0.20     | <0.20  |
| Benzoic acid                                       | 2.50E+06                 | ,                         | (E)              | mg/Kg          | <2.5         | <0.50     | <0.50  |
| Benzyl alcohol                                     | 3.10E+05                 | 1                         | (3)              | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Bis(2-chloroethoxy)methane                         | 1.80E+03                 | 1                         | ଚ                | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Bis(2-chloroethyl)ether                            | 1.36E+01                 | 1.4/E+02                  | <u> </u>         | mg/Kg          | 0.10         | 07.02     | 0.20   |
| Bis(2-chiology)physalien Bis(2-chylhexyl)phthalate | 1,37E+03                 | 4.76E+03                  | 3 (2             | ma/Ka          | <2.5         | <0.50     | <0.50  |
| Butyl benzyl phthalate                             | 9.10E+03                 | ,                         | ( <del>4</del> ) | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Carbazole  |                          | -                         |                  | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Chrysene   | 2.34E+03                 | 2.06E+04                  | (2)              | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Dibenz(a,h)anthracene                              | 2.34E+00                 | 2.13E+01                  | (2)              | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Dibenzofuran                                       |                          | 1 1                       |                  | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Diethyl phthalate                                  | 1.91E+05                 | 1.91E+05                  | $\widehat{\Xi}$  | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Dimetryl phthalate                                 | 2.38E+Ub                 | 2.38E+U6                  | $\Xi$            | mg/Kg<br>ma/Ka | <1.U<br><2.5 | <0.20     | <0.20  |
| Di-n-octvl phthalate                               | 1001                     | 100.1                     |                  | mg/Kg          | <1.0         | <0.20     | <0.20  |
| Fluoranthene                                       | 8.91E+03                 | 8.91E+03                  | (1)              | mg/Kg          | <1.3         | <0.25     | <0.25  |
|  |                          |                           |                  |                |              |           |  |

Group 3 Soil Analytical Results Summary - SWMUs No. 4 and 5, AOC 22 (Crude Receiving Rack) and AOC 24 Bloomfield Refinery - Bloomfield, New Mexico Table 11

|   | Non-<br>Residential<br>Screening<br>Levels 0-2' | Non-<br>Residential<br>Screening<br>Levels 2-10' | Source |       | (.5.0-0) 7-42 | (1.5-2.0') | (3 <del>0-</del> 45.) |
|---|---|--|--------|-------|---------------|------------|-----------------------|
| Analytes  |   |  |        | Units | OOA           | >0\        | OOA                   |
| Sample Date                                       |   |  |        |       | 6002/2/4      | 4/7/2009   | 4/7/2009              |
| Fluorene  | 8.91E+03  | 8.91E+03   | (I)    | mg/Kg | <2.5          | <0.50      | <0.50                 |
| Hexachlorobenzene                                 | 1.20E+01  | 1.03E+02   | (2)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Hexachlorobutadiene                               | 2.20E+02  |  | (4)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Hexachlorocyclopentadiene                         | 8.11E+02  | 8.11E+02   | (1)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Hexachloroethane                                  | 2.38E+02  | 2.38E+02   | (1)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Indeno(1,2,3-cd)pyrene                            | 2.34E+01  | 2.13E+02   | (2)    | mg/Kg | <1.3          | <0.25      | <0.25                 |
| Isophorone  | 2.02E+04  | 4.75E+04   | (2)    | mg/Kg | <2.5          | <0.50      | <0.50                 |
| Naphthalene                                       | 2.52E+02  | 7.02E+02   | (2)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Nitrobenzene                                      | 2.77E+02  | 5.20E+02   | (2)    | mg/Kg | <2.5          | <0.50      | <0.50                 |
| N-Nitrosodi-n-propylamine                         | 2.50E+00  | -  | (4)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| N-Nitrosodiphenylamine                            | 3.91E+03  | 3.40E+04   | (2)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Pentachlorophenol                                 | 1.00E+02  | 1.03E+03   | (2)    | mg/Kg | <2.0          | <0.40      | <0.40                 |
| Phenanthrene                                      | 7.15E+03  | 7.15E+03   | (1)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Phenoi  | 6.88E+04  | 6.88E+04   | (1)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Pyrene  | 6.68E+03  | 6.68E+03   | (1)    | mg/Kg | <1.0          | <0.20      | <0.20                 |
| Pyridine  | 1.00E+03  | -  | (3)    | mg/Kg | <2.5          | <0.50      | <0.50                 |
| Total Petroleum Hydrocarbons - (EPA Method 8015B) | ) mg/kg   |  |        |       |               |            |                       |
| Diesel Range Organics (DRO)                       | 2000  | 2000   | (5)    | mg/Kg | 120           | 34         | <10                   |
| Gasoline Range Organics (GRO)                     | 2000  | 2000   | (5)    | mg/Kg | <5.0          | <5.0       | <5.0                  |
| Motor Oil Range Organics (MRO)                    | 0009  | 2000   | (9)    | mg/Kg | 280           | 140        | <50                   |

-- No screening level or analytical result available NMED - Technical Background Document for Development of Soil Screening Levels - Revision 5.0 ( August 2009) - Residential Soil

EPA - Regional Screening Levels (April 2009)
(1) NMED - Construction Worker (0-10')
(2) NMED - Industrial (0-2') and Construction Worker (2-10')
(3) EPA - Industrial Soil (0-2')
(4) EPA - Regional Screening Levels (April 2009) Industrial Soil multiplied by 10 pursuant to Provision VII.B. of the July 7, 2007 NMED Order because the constituent is listed as carcinogenic & EPA screening level based on 10-6 risk-based SSL

(5) NMED Oct. 2006 TPH Screening Guidelines - Unknown oil for industrial exposure via vapor

(6) NMED Oct. 2006 TPH Screening Guidelines - Waste oil for industrial exposure via vapor migration and inhalation of ground water migration and inhalation of ground water

TABLE 12
Surface Soil Samples - Vapor Screening Results
Bloomfield Refinery - Bloomfield, New Mexico

| Sample<br>Interval Depth | SWMU 5-1 | SWMU 5-2 | SWMU 5-3 | SWMU 5-4 | SWMU 5-5 |
|--------------------------|----------|----------|----------|----------|----------|
| 0 – 0.5'                 | 9.8      | 7.7      | 12.2     | 13.7     | 12.0     |
| 1.5 – 2'                 | 9.4      | 9.3      | 15.9     | 14.3     | 17.8     |

| Sample<br>Interval Depth | SWMU 5-6 | AOC 22-1 | AOC 22-2 | AOC 22-3 | AOC 22-4 |
|--------------------------|----------|----------|----------|----------|----------|
| 0 – 0.5'                 | 16.0     | 4.5      | 16.1     | 5.1      | 3.4      |
| 1.5 – 2'                 | 12.5     | 3.5      | 2.1      | 3.7      | 2429     |

| Sample<br>Interval Depth | AOC 22-5 | AOC 22-6 | AOC 22-7 | AOC 22-8 | AOC 22-9 |
|--------------------------|----------|----------|----------|----------|----------|
| 0 – 0.5'                 | 1.6      | 1.5      | 1.3      | 1.4      | 0.6      |
| 1.5 – 2'                 | 1.4      | 4.1      | 2.6      | 1.2      | 1.1      |

| Sample<br>Interval Depth | AOC 22-10 | AOC 22-11 | AOC 24-1 | AOC 24-2 | AOC 24-3 |
|--------------------------|-----------|-----------|----------|----------|----------|
| 0 – 0.5'                 | 7.9       | 5.9       | 3.3      | 2.7      | 1.7      |
| 1.5 – 2'                 | 3.8       | 4.3       | 3.9      | 4.1      | 7.7      |

| Sample<br>Interval Depth | AOC 24-4 | AOC 25-1 | AOC 26-1 | AOC 26-2 | AOC 26-3 |
|--------------------------|----------|----------|----------|----------|----------|
| 0 – 0.5'                 | 3.9      | 5.5      | 5.6      | 4.6      | 4.3      |
| 1.5 – 2'                 | 6.4      | 5.5      | 3.5      | 3.9      | 7.2      |

| Sample<br>Interval Depth | AOC 26-4 | AOC 26-5 | AOC 26-6 | AOC 26-7 |
|--------------------------|----------|----------|----------|----------|
| 0 – 0.5'                 | 4.5      | 9.2      | 9.3      | 5.7      |
| 1.5 – 2'                 | 4.1      | 15.2     | 6.6      | 6.1      |

Units - ppm

TABLE 13
Soil Boring Samples - Vapor Screening Results
Bloomfield Refinery - Bloomfield, New Mexico

|  | AOC 26-9                 | 90            | 10.5    | 10.5 | 9.0    | 10.0   | 8.3      | 8.2      | 9.6      | 9.5      | 8.8      | 10.9     | 10.4     | 10.0     | 9.5      | 7.9      | 5.6      | 6.3      | 25.3     | 3939     |          |          |          |          |          |          |          |          |  |
|--|--------------------------|---------------|---------|------|--------|--------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
|  |                          | ╁             |         |      |        | ,      |          |          |          |          |          |          |          |          |          |          | _        |          |          | •••      |          |          |          |          |          |          |          |          |  |
|  | AOC 26-8                 | 4 8/4 0       | 2.3     | 2.0  | 1.2    | 1.0    | 1.9      | 2.5      | 2.1      | 2.1      | 1.8      | 1.2      | 1.1      | 1.3      | 2.4      | 11.0     | 20.8     | 58.7     | 145      |          |          |          |          |          |          |          |          |          |  |
|  | AOC 25-2                 | 00-001        | 5 0     | :    | 0.1    | 0.0    | 0.0      | 0.1      | 0.0      | 0.2      | 0.4      | 0.1      | 0.3      | 0.4      | 0.3      | 0.2      | 0.1      | 3.6      | 2.5      | 4.2      |          |          |          |          |          |          |          |          |  |
|  | AOC 24-7                 | (10104-04)    | 4.0     | 0.2  | 0.3    | 0.4    | 0.3      | 0.4      | 0.4      | 0.1      | 0.5      | 0.3      | 0.1      | 0.1      | 0.1      | 0.3      | 0.2      | 0.4      | 0.9      | 3.4      | 4.4      | 1.2      | 3.1      | 3.1      | 3.6      |          |          |          |  |
|  | AOC 24-6                 | 0 3/5 0       | 4.8     | 4.9  | 2.0    | 5.3    |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Mexico                                       | AOC 24-5                 | 1 2/6 0       | 5.4     | 6.4  | 7.8    | 5.9    |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| omtield, New I                               | AOC 23-1                 | 2 4 72 2      | 14.5    | 14.4 | 14.8   | 12.3   | 1        | 7.1      | 17.6     | 8.7      | 2.2      | 3.9      | 2.4      | 1.6      | 4.0      | 3.6      | 5.4      | 3.2      | 3.3      | 4.4      | 5.3      | 3.3      |          | 3.3      | :        | 2.3      | 3.8      | 4.4      |  |
| Bloomfield Refinery - Bloomfield, New Mexico | AOC 22-16                | 4 6/0 0       | 4.5     | 5.8  | 5.8    | 7.3    | 3.2      | 3.8      | 6.2      | 5.8      | 5.7      | 5.8      | 8.9      | 4.9      | 7.5      | 7.9      | 0.9      | 6.5      | 10.9     | 12.2     | ,        |          |          |          |          |          |          |          |  |
| Bloomfield                                   | AOC 22-15                | 2 0/20 5      | 23.4    | 5.5  | 13.1   | 18.1   | 16.6     | 11.2     | 6.5      | 13.2     | 13.2     | 21.5     | 12.9     | 16.0     | 17.1     | 22.0     | 165      | 510      |          |          |          |          |          |          |          |          |          |          |  |
|  | AOC 22-14                |               | 3 1.    | 6.3  | 5.1    | 4.6    | 3.8      |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
|  | AOC 22-13                | 4403          | 1186    | 1373 | 1349   | 1302   | 1302     | 1345     | 1277     | 1250     | 1660     | 1611     | 1336     | 1131     | 1131     | 1184     | 1268     | 1694     | 1596     | 806      | 1228     |          |          |          |          |          |          |          |  |
|  | AOC 22-12                | 1 000         | 4.0/2.4 | 5.6  | 5.2    | 4.9    | 4.2      | 6.3      | 6.0      | 5.2      | 5.1      | 4.4      | 4.3      | 5.7      | 5.2      | 22.7     | 35.0     | 25.0     | 0.89     | 220      |          |          |          |          |          |          |          |          |  |
|  | SWMU 4-1                 | (BC-WIM)      | 2.0     | 50.8 | 214    | 41     | 9.5      | 9.7      | 8.0      | 8.1      | 7.3      | 6.4      | 6.6      | 5.5      | 6.3      | 4.2      | 3.9      | 2.8      | 3,1      | 3.8      |          |          |          |          |          |          |          |          |  |
|  | Sample<br>Interval Denth | micival Depui | 0 - 2   |      | 6 – 8, | 8 –10, | 10 – 12, | 12 – 14' | 14 – 16' | 16 – 18' | 18 – 20' | 20 – 22' | 22 – 24' | 24 – 26' | 26 – 28' | 28 – 30' | 30 – 32' | 32 – 34' | 34 – 36' | 36 – 38' | 38 – 40' | 40 – 42' | 42 – 44' | 44 – 46' | 46 – 48' | 48 – 50' | 50 – 52' | 52 – 54' |  |

Units - ppm



TABLE 14
Field Screening Results - Ground Water & Subsurface Vapors
Bloomfield Refinery - Bloomfield, New Mexico

|          |            |                |                     | Ground \                 | <b>V</b> ater Data            |      | <u> </u> |              | V                  | apor D                 | ata  |
|----------|------------|----------------|---------------------|--------------------------|-------------------------------|------|----------|--------------|--------------------|------------------------|--|
| Well     | Date       | Well<br>Volume | Temp<br>(degrees F) | Specific<br>Conductivity | Dissolved<br>Oxygen<br>(mg/L) | рН   | ORP      | TDS<br>(ppm) | O <sub>2</sub> (%) | CO <sub>2</sub><br>(%) | PID<br>(ppm)                                     |
|          |            | 0              | 61.00               | 1.644                    | 7.65                          | 7.07 | 269      | 1295         | 19.0               | 0.5                    | 41.1   |
| l        | 5/14/2009  | 1              | 60.30               | 1.499                    | 4.31                          | 6.96 | 260      | 1151         |                    |                        |  |
|          | 071 172003 | 2              | 61.20               | 1.468                    | 4.52                          | 6.79 | 261      | 1205         |                    |                        |  |
| MW-59    |            | 3              | 60.90               | 1.472                    | 4.61                          | 6.80 | 263      | 1241         |                    |                        | ļ  |
| 1        |            | 0              | 63.90               | 1.822                    | 9.90                          | 6.77 | 272      | 1336         | 18.7               | 0.3                    | 37.5   |
| ľ        | 7/16/2009  | 1              | 63.50               | 1.774                    | 4.91                          | 6.76 | 268      | 1297         |                    |                        | ļ  |
|          | 771072000  | 2              | 63.10               | 1.748                    | 4.50                          | 6.77 | 263      | 1278         |                    |                        |  |
|          |            | 3              | 63.20               | 1.751                    | 4.63                          | 6.77 | 264      | 1281         |                    |                        |  |
|          |            | 0              | 67.30               | 1.335                    | 5.91                          | 7.18 | 227      | 1031         | 18.1               | 0.1                    | 21   |
| 1        | 5/14/2009  | 1              | 69.30               | 1.329                    | 6.15                          | 7.16 | 211      | 1027         |                    |                        |  |
| MW-60    | 3/14/2003  | 2              | 68.30               | 1.341                    | 4.91                          | 7.20 | 215      | 1053         |                    |                        |  |
|          |            | 3              | 67.40               | 1.379                    | 5.12                          | 7.19 | 220      | 1068         |                    |                        |  |
|          | 7/16/2009  | DRY            | DRY                 | DRY                      | DRY                           | DRY  | DRY      | DRY          | 18.4               | 0.2                    | 18   |
|          |            | 0              | 63.20               | 1.170                    | 8.76                          | 7.02 | 258      | 900.9        | 0                  | 4.8                    | 1245   |
|          | 5/13/2009  | 1              | 65.50               | 1.212                    | 4.79                          | 7.02 | 262      | 933.5        |                    |                        |  |
| 1        | 3/13/2009  | 2              | 65.70               | 1.143                    | 4.91                          | 6.96 | 255      | 788.5        |                    |                        |  |
| MW-61    | •          | 3              | 65.30               | 1.163                    | 4.83                          | 6.98 | 259      | 771          |                    |                        |  |
| 14144-01 |            | 0              | 75.30               | 0.460                    | 9.61                          | 6.91 | 122      | 329          | 0                  | 3.9                    | 1305   |
|          | 7/16/2009  | 1              | 74.40               | 1.262                    | 3.61                          | 6.89 | 152      | 894          |                    |                        |  |
| ł        | 1/10/2009  | 2              | 71.90               | 1.293                    | 5.22                          | 6.87 | 156      | 918          |                    |                        |  |
|          |            | 3              | 72.10               | 1.291                    | 4.05                          | 6.86 | 157      | 899          |                    |                        |  |
|          |            | 0              | 62.30               | 6.330                    | 5.51                          | 6.92 | 269      | 5671         | 11.2               | 0                      | 79.1   |
| 1        | 5/13/2009  | 1              | 62.20               | 6.369                    | 5.62                          | 6.90 | 237      | 5709         |                    |                        |  |
| İ        | 3/13/2009  | 2              | 62.50               | 6.392                    | 5.43                          | 6.95 | 200      | 5732         |                    |                        |  |
| MW-62    | <u> </u>   | 3              | 62.40               | 6.385                    | 5.70                          | 6.91 | 225      | 5721         |                    |                        |  |
| 14144-02 |            | 0              | 66.10               | 6.821                    | 5.80                          | 6.86 | 231      | 5644         | 10.9               | 0                      | 65   |
|          | 7/16/2009  | 11             | 63.90               | 6.740                    | 8.07                          | 6.84 | 227      | 5584         |                    |                        |  |
| l        | 1/10/2009  | 2              | 63.60               | 6.765                    | 5.80                          | 6.83 | 223      | 5596         |                    |                        |  |
|          |            | 3              | 63.50               | 6.769                    | 5.76                          | 6.84 | 225      | 5589         |                    |                        |  |
|          |            | 0              | 69.10               | 4.137                    | 21.76                         | 6.99 | 291      | 3491         | 3.6                | 7                      | 79   |
|          | 5/13/2009  | 1              | 68.90               | 3.855                    | 13.02                         | 7.08 | 277      | 3285         |                    |                        |  |
| ŀ        | 3/13/2009  | 2              | 68.30               | 3.902                    | 12.79                         | 7.06 | 239      | 3339         |                    |                        |  |
| MW-63    |            | 3              | 67.40               | 3.911                    | 13.14                         | 7.05 | 221      | 3340         |                    |                        |  |
| 14144-03 |            | 0              | 76.30               | 4.445                    | 30.55                         | 6.91 | 255      | 3506         | 3.8                | 6.4                    | 101  |
| }        | 7/15/2009  | 1              | 68.90               | 4.309                    | 15.05                         | 6.90 | 215      | 3493         |                    |                        |  |
|          | 1,10,2009  | 2              | 68.10               | 4.270                    | 11.25                         | 6.88 | 198      | 3371         |                    |                        |  |
|          |            | 3              | 68.40               | 4.373                    | 12.73                         | 6.85 | 201      | 3357         |                    |                        |  |
|          |            | 0              | 68.4                | 5.539                    | nm                            | 7.06 | 228      | 4858         | 18.1               | 0.8                    | 17   |
|          | 540,000    | 1              | 65                  | 5.554                    | nm                            | 7.03 | 231      | 4885         |                    |                        |  |
| }        | 5/13/2009  | 2              | 69                  | 5.789                    | nm                            | 7.02 | 225      | 4174         |                    |                        |  |
| Base     |            | 3              | <del> </del>        |                          |                               |      |          |              |                    |                        | <del>                                     </del> |
| MW-64    |            | 0              | 67.1                | 5.494                    | nm<br>30.42                   | 7.04 | 227      | 4861         | 10                 | 0.5                    | 10   |
| Ì        |            |                | 69.7                | 5.650                    | 12.65                         | 6.93 | 220      | 4733         | 18                 | 0.5                    | 10   |
|          | 7/15/2009  | 2              | 66.5                | 5.705                    | 11.83                         | 6.92 | 213      | 4770         | <del> </del>       |                        | ļ  |
| ł        | ì          |                | 66.3                | 5.827                    |                               | 6.90 | 211      | 4732         | <del> </del>       |                        | 1  |
|          | L          | 3              | 65.1                | 5.833                    | 11.41                         | 6.89 | 203      | 4751         |                    |                        |  |

TABLE 14
Field Screening Results - Ground Water & Subsurface Vapors

Bloomfield Refinery - Bloomfield, New Mexico

|           |           |                |                     | Ground V                 | Vater Data                    |      |        |              | V                     | apor D                 | ata          |
|-----------|-----------|----------------|---------------------|--------------------------|-------------------------------|------|--------|--------------|-----------------------|------------------------|--------------|
| Well      | Date      | Well<br>Volume | Temp<br>(degrees F) | Specific<br>Conductivity | Dissolved<br>Oxygen<br>(mg/L) | рН   | ORP    | TDS<br>(ppm) | O <sub>2</sub><br>(%) | CO <sub>2</sub><br>(%) | PID<br>(ppm) |
|           |           | 0              | 69.9                | 3.006                    | 7.59                          | 6.84 | 247    | 2490         | 0                     | 4.9                    | 1820         |
|           | 5/12/2009 | 1              | 67.8                | 2.988                    | 4.15                          | 6.92 | 201    | 2459         |                       |                        |              |
|           | 5/12/2009 | 2              | 66.1                | 3.023                    | 3.78                          | 6.85 | 180    | 2483         |                       |                        |              |
|           |           | 3              | 66.5                | 3.059                    | 3.65                          | 6.83 | 195    | 2465         |                       |                        |              |
| MW-65     |           | 0              | 73.9                | 3.022                    | 10.14                         | 6.94 | 236    | 2303         | 0.1                   | 3.9                    | 1530         |
|           |           | 1              | 70.3                | 3.150                    | 3.65                          | 6.93 | 216    | 2415         |                       |                        |              |
|           | 7/16/2009 | 2              | 69.1                | 3.229                    | 2.50                          | 6.87 | 193    | 2490         |                       |                        |              |
|           |           | 3              | 69.7                | 3.308                    | 2.60                          | 6.86 | 180    | 2552         |                       |                        |              |
|           |           | 0              | 74.4                | 2.923                    | 11.51                         | 6.97 | 188    | 2432         | 0.4                   | 6.8                    | 1880         |
|           | 5/12/2009 | 1              | 67.7                | 3.120                    | 9.85                          | 6.95 | 168    | 2605         |                       |                        |              |
|           | 3/12/2003 | 2              | 66.2                | 3.205                    | 7.67                          | 6.94 | 191    | 2654         |                       |                        |              |
| MW-66     |           | 3              | 68.7                | 3.125                    | 8.15                          | 6.93 | 187    | 2605         |                       |                        |              |
| 14144-00  |           | 0              | 72.0                | 3.277                    | 37.40                         | 6.97 | 239    | 2529         | 0.3                   | 7.2                    | 2180         |
|           | 7/15/2009 | 1              | 71.9                | 3.162                    | 22.90                         | 6.95 | 192    | 2436         |                       |                        |              |
|           | 7/15/2009 | 2              | 70.6                | 3.479                    | 9.72                          | 6.94 | 182    | 2689         |                       |                        |              |
|           |           | 3              | 71.9                | 3.455                    | 7.97                          | 6.98 | 169    | 2653         |                       |                        |              |
|           | 4/14/2009 | NA             | 58.9                | 2.585                    | 1.81                          | 7.77 | -102.5 | nm           | nm                    | nm                     | nm           |
| AOC (22   |           | 0              | 69.1                | 2.561                    | 18.79                         | 6.99 | 261    | nm           | 5.3                   | 2.19                   | 450          |
| AOC (22-  | 7/29/2009 | 1              | 66.9                | 2.540                    | 10.12                         | 6.97 | 258    | nm           |                       |                        |              |
| 12) /TW-1 | 112312009 | 2              | 65.3                | 2.547                    | 9.51                          | 6.96 | 233    | nm           |                       |                        |              |
|           |           | 3              | 65.9                | 2.550                    | 10.13                         | 6.97 | 245    | nm           |                       |                        |              |

nm - not measured

TABLE 15
Water Level Measurements
Bloomfield Refinery - Bloomfield, New Mexico

| Well      | Date      | Top of<br>Casing (ft-<br>msl) | Depth to<br>Bottom (ft) | Depth to<br>Product (ft) | Depth to<br>Water (ft) | Groundwater<br>Elevation (ft-<br>msl) | Product<br>Thickness<br>(ft) |
|-----------|-----------|-------------------------------|-------------------------|--------------------------|------------------------|---------------------------------------|------------------------------|
| MW-59     | 5/14/2009 | 5545.2                        | 46.95                   | NPP                      | 43.33                  | 5501.87                               | 0                            |
|           | 7/16/2009 | 5545.2                        | 46.95                   | NPP                      | 43.38                  | 5501.82                               | 0                            |
| MW-60     | 5/14/2009 | 5543.71                       | 43.39                   | NPP                      | 42.4                   | 5501.31                               | 0                            |
|           | 7/16/2009 | 5543.71                       | 43.40                   | NPP                      | 42.84                  | 5500.87                               | 0                            |
| MW-61     | 5/13/2009 | 5539.41                       | 40.86                   | 36.63                    | 36.85                  | 5502.74                               | 0.22                         |
| 19199-01  | 7/16/2009 | 5539.41                       | 40.58                   | 36.63                    | 37.05                  | 5502.7                                | 0.42                         |
| MW-62     | 5/13/2009 | 5561.32                       | 61.28                   | NPP                      | 56.00                  | 5505.32                               | 0                            |
|           | 7/16/2009 | 5561.32                       | 61.33                   | NPP                      | 56.24                  | 5505.08                               | 0                            |
| MW-63     | 5/13/2009 | 5547.26                       | 47.84                   | NPP                      | 44.88                  | 5502.38                               | 0                            |
| 10100-03  | 7/15/2009 | 5547.26                       | 47.85                   | NPP                      | 44.93                  | 5502.33                               | 0                            |
| MW-64     | 5/13/2009 | 5552.29                       | 52.40                   | NPP                      | 50.12                  | 5502.17                               | 0                            |
| 19199-0-9 | 7/15/2009 | 5552.29                       | 52.43                   | NPP                      | 50.18                  | 5502.11                               | 0                            |
| BANAL CE  | 5/12/2009 | 5539.52                       | 44.37                   | NPP                      | 37.00                  | 5502.52                               | 0                            |
| MW-65     | 7/16/2009 | 5539.52                       | 44.25                   | NPP                      | 37.02                  | 5502.5                                | 0                            |
|           |           | 5544 G2                       | 15 EQ                   |                          |                        |                                       | 0.01                         |
| MW-66     | 5/12/2009 | 5544.63<br>5544.63            | 45.58<br>45.57          | 41.84                    | 41.85                  | 5502.79<br>5502.77                    | 0.01                         |
|           | 7/15/2009 | 5544.63                       | 45.57                   | 41.82                    | 42.02                  | 5502.77                               | 0.2                          |
| TW-1      | 7/29/2009 | 5543.61                       | 45.56                   | NPP                      | 40.99                  | 5502.62                               | 0                            |

NPP - no product present

Table 16 Ground Water Analytical Results Summary Bloomfield Refinery - Bloomfield, New Mexico

| MW-66                       | 0.004    | 0.033  | 0.088  | <0.0030   | <0.0020 | 240       | 250               | <0.0060       | 0.0074        | <0.005      | 2           | 8.9         | 0.026    | 69     | 89                 | 6.3     | 6.5                | <0.00020 | <0.010 | 4.7           | 4.4               | 0.005  | 550                | 299            | <0.050 | <0.020 |                                     | <sup>2</sup> 20       | 200                   | 250               | 250            | 950            | <50             | <50                | <100                              | Ş<br>20   | 2800                | 200                 | \$ 20                      | 88                   | <50             | 810                | 200             | हु।<br>इ        | 280              | ×100            | ×200    | <50             | <500       | 200                 | လ<br>လ       | 000           | 1100    | 3500    | Q\$<br>V\$0     | <50               | <50    | ×500<br>×500                         |  |
|-----------------------------|----------|--------|--------|-----------|---------|-----------|-------------------|---------------|---------------|-------------|-------------|-------------|----------|--------|--------------------|---------|--------------------|----------|--------|---------------|-------------------|--|--------------------|----------------|--------|--------|-------------------------------------|-----------------------|-----------------------|-------------------|----------------|----------------|-----------------|--------------------|-----------------------------------|---|---------------------|---------------------|----------------------------|----------------------|-----------------|--------------------|-----------------|-----------------|------------------|-----------------|---------|-----------------|------------|---------------------|--------------|---------------|---------|---------|-----------------|-------------------|--------|--------------------------------------|--|
| MW-66                       | 0.002    | 0.024  | 0.13   | <0.0030   | <0.0020 | ,         | 220               | <0.0060       | 0.012         | <0.005      | 3.4         | 18          | 0.019    | 1      | 64                 | -       | 5.1                | <0.00020 | 0.012  | ,             | 4.7               | <0.050   | 20.0030            | 540            | <0.050 | 0.055  |                                     | V 199                 | 000                   | 4100              | 2100           | ×100           | <100            | <100               | <200                              | √<br>100<br>100   | 2000                | 300                 | 2<br>2<br>2<br>3<br>3<br>3 | 120                  | <100            | 200                | 2 S             | 0015            | 2400             | 2000            | <1000   | <100            | <1000      | 400                 | 200          | 2007          | 1300    | 4600    | v<br>100<br>100 | <100              | <100   | <100<br><1000                        |  |
| \$9-WW<br>7/16/2009         | <0.005   | 0.024  | 0.074  | <0.0030   | <0.0020 | 240       | 260               | <0.0060       | <0.0060       | <0.005      | 4           | 5.3         | <0.0050  | 82     | 84                 | 3.8     | 3.9                | <0.00020 | <0.010 | 3.4           | 3.9               | <0.001<br>5.0055   | 20,000             | 520            | <0.050 | <0.020 |                                     | 210                   | 2 5                   | 27 0              | 2 0            | 2012           | <10             | <10                | <sup>2</sup> 20                   | 운   | 300                 | 2 E                 | ×10                        | 270                  | <10             | 490                | 9 9             |                 | 2 5              | 800             | ×100    | <10             | <100       | 240                 | 010          | 2450          | 110     | 2400    | 410             | <10               | <10    | ×100<br>×100                         |  |
| 5/12/2009                   | <0.001   | 0.015  | 0.13   | <0.0030   | <0.0020 | ,         | 230               | <0.0060       | <0.0060       | <0.005      | 1.1         | 3.6         | 900.0    | -      | 79                 | 2.8     | ı                  | <0.00020 | <0.010 | 1             | 3.7               | <0.050   | 20.00              | 480            | <0.050 | <0.020 |                                     | 250                   | 8 8                   | r S               | 250            | 250            | <20             | <20                | <40                               | ος<br> <br>   | One C               | F &                 | 8                          | 250                  | <20             | 510                | 80              | 3 8             | 3 5              | 64              | <200    | <20             | <200       | 230                 | 25/5         | 2000          | <200    | 7100    | 85              | <20               | <20    | 200<br>200<br>200                    |  |
| MW-65<br>5/12/2009          | 0.001    | 0.021  | 0.15   | <0.0030   | <0.0020 | -         | 230               | <0.0060       | <0.0060       | <0.005      | 96.0        | 3.5         | <0.0050  | -      | 79                 | 2.7     | 1                  | <0.00020 | <0.010 | 1             | 3.8               | <0.050   | nenn-ny            | 480            | <0.050 | <0.020 |                                     | 250                   | 077                   | 200               | 202            | 8,7            | <20             | <20                | <40                               | 07<br>V   | 1400                | 3 8                 | \$20                       | 220                  | <20             | 200                | 8               | 200             | 3.05             | 649             | <200    | <20             | <200       | 220                 | 02/5         | 200           | 0000    | 0089    | 8               | <20               | \$20   | 02<br>7500<br>7500                   |  |
| 49-WM-64                    | <0.001   | 0.017  | 0.036  | <0.0030   | <0.0020 | 480       | 200               | <0.0060       | 0.0067        | <0.005      | 0.1         | 5.3         | 0.011    | 73     | 73                 | 0.53    |                    | <0.00020 |        | 2             | 5.7               | 0.024  | 20.000             | 850            | <0.050 | 0.035  |                                     | 0.12                  | 0.00                  | 7 0               | V 0            | V 1.0          | <1.0            | <1.0               | <2.0                              | V .   | 0.0                 | V V                 | v<br>0.1∨                  | <1.0                 | <1.0            | v10                | ۲<br>0<br>7     | 0 0             | 0.12             | <2.0            | <10     | <1.0            | <10        | <4.0                | 0.10         | 2.0           | ×10     | ×1.0    | 0.15            | <1.0              | <1.0   | 0.12<br><10                          |  |
| MW-64<br>5/13/2009          | <0.001   | 900.0  | 0.18   | <0.0030   | <0.0020 | ,         | 470               | 1-            | ╅─            | +-          | _           | 19          | М        |        | 75                 | _       | _                  | <0.00020 | _      | $\rightarrow$ | 5.5               | <0.25  | 20.00              | 820            | <0.050 | 0.085  |                                     | 0.10                  | 0.00                  | 7 0               | V V            | 0.10           | o.1>            | <1.0               | <2.0                              | v. 10   | 0.10                | 7 0                 | ×1.0                       | <1.0                 | <1.0            | ۷.0<br>۲.0         | 0.7             | o 7             | 0.4              | <2.0            | ×10     | <1.0            | <10        | 4.0                 | 0.10         | 0.10          | 000     | 210     | 0.15            | <1.0              | <1.0   | 0.15                                 |  |
| (AUa) 89-WM                 | <0.001   | 0.004  | 0.026  | <0.0030   | <0.0020 | 410       | 420               | <0.0060       | <0.0060       | <0.005      | 0.044       | 1.3         | 0.0051   | 120    | 120                | 4.5     | 4.5                | <0.00020 | 0.012  | 4.6           | 4.3               | 0.023  | 530                | 520            | <0.050 | <0.020 |                                     | 0.17                  | 0.00                  | 2 0               | 0.10           | 41.0           | <1.0            | <1.0               | <2.0                              | 0 0   | 2 5                 | 0 V                 | 410                        | 1.6                  | <1.0            | ۲٠0<br>۲٠0         | 0.0             | 2 0             | 0.4              | <2.0            | 410     | <1.0            | <10        | 0.40                | 0.0          | 2 0           | 0 V     | 210     | <1.0            | <1.0              | <1.0   | 0.10                                 |  |
| MW-63                       | <0.001   | 0.005  |        | ╌         | +-      |           |                   |               |               |             |             |             |          |        |                    |         |                    |          |        |               |                   | 0.026  |                    |                |        |        |                                     | V V                   | 0 0                   | 2 0               | V V            | ۷<br>0<br>0    | <1.0            | <1.0               | <2.0                              | 0.10  | 0.5                 | 7 V                 | 0.10                       | 4.1                  | <1.0            | 0.1×               | 0.10            | 2 5             | 0.4              | <2.0            | <10     | <1.0            | <10        | 0.47                | 0.12         | 0.10          | 200     | 0.10    | <1.0<br>1.0     | <1.0              | <1.0   | 0.15<br>710<br>710                   |  |
| MW-63<br>5/13/2009          | $\vdash$ | 0.007  |        | ╀         | <0.0020 | +-        | t                 | 十             | H             | ╆           | Н           | 21          | Н        | _      | 110                |         | 9                  | <0.00020 |        |               | -+                | <0.25  | +                  | ╁              | +-     | 0.074  |                                     | 4.0                   | 000                   | 7 0               | 0.0            | 0.7            | <1.0            | <1.0               | <2.0                              | V .   | 0.10                | 0 K                 | 0.10                       | 1.9                  | <1.0            | <1.0               | 0 0             | 0 7             | 0.10             | <20             | 410     | <1.0            | <10        | <4.0                | 0.10         | 0.10          | 000     | 10      | 0.15            | <1.0              | <1.0   | 41.0<br>10.70                        |  |
| 29-WW-62<br>//16/2009       | <0.005   | <0.001 |        | ┡         | ╨       | ╀-        | 460               | <0.0060       | 0.0079        | 0.011       | 0.51        | 0.26        | <0.0050  | 39     | 40                 | 3.0     | 2.9                | <0.00020 | <0.010 | 10            | -                 | <0.001<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005<br>5.005 | 4400               | 1400           | <0.050 | <0.020 |                                     | 0.1                   | 0.0                   | V V               | 0.10           | 0.10           | <1.0            | <1.0               | <2.0                              | 0.0   | 0.15                | 0 0                 | 0 0                        | <1.0                 | <1.0            | ۷ <u>.</u>         | 0.0             | )<br>V          | 0.4              | <2.0            | 410     | <1.0            | <10        | 0.45                | 0.0          | 2 0           | 9 0     | 0.10    | 0.12            | <1.0              | <1.0   | 0.10                                 |  |
| MW-62<br>5/13/2009          | -        | 0.001  |        | ┡         | <0.0020 | ╄         | ╌                 | +-            | +             | ╌           | ⊢           | 2.9         | Н        | _      | 36                 |         | -                  | <0.00020 | -      | -             | -                 | <0.25  | +                  | ╁              | ╁      | <0.020 | H                                   | V 10                  | 0.0                   | 0 7               | 0.0            | 0.             | <1.0            | <1.0               | <2.0                              | 0.  | 0.10                | 0 0                 | 0.15                       | <1.0                 | <1.0            | 0.0                | 0.0             | 0.0             | 0.4              | 200             | 49      | <1.0            | <10        | 4.0                 | 0.12         | 2.0           | 200     | 0.0     | 41.0            | <1.0              | <1.0   | 0.15                                 |  |
| 7/16/2009                   | <0.005   | 0.024  |        |           |         |           |                   |               |               |             |             |             |          |        | 45                 | 4.3     | 4.4                | <0.00020 | <0.010 | 1.9           | 2.1               | 40.001<br>5.001  | 440                | 110            | <0.050 | <0.020 |                                     | 05/2                  |                       | 3 6               | 2 0 0          | 0<br>V         | ×10             | <10                | <20                               | ę<br>₽  | 2900                | 3 6                 | ₽<br>₽                     | ۷ <del>۱</del>       | <10             | 220                | ₽<br>\$         |                 | 220              | 800             | ×100    | <10             | <100       | 260                 | ę;           | 2 6           | 3000    | 84      | 95              | <10               | <10    | 100<br>100<br>100<br>100             |  |
| MW-61<br>5/13/2009          | Г        | 0.041  |        | _         | <0.0020 | _         | _                 | $\overline{}$ | $\overline{}$ |             | 1           | 1.2         |          |        | 37                 |         |                    | <0.00020 |        | :             |                   | <0.25  | - 1-               |                | 1      | <0.020 | IΓ                                  | 200                   | 3 8                   | F S               | 200            | 23             | <20             | <20                | <40                               | Ç7  | 2400                | 9 8                 | -<br> <br> <br> <br> <br>  | <20                  | <20             | 820                | 8 8             | 3 5             | 270              | 649             | <200    | <20             | <200       | 450                 | 3 8          | 77            | 1100    | 49      | \$20            | <20               | <20    | <sup>2</sup> 200<br><sup>2</sup> 200 |  |
| MW-60<br>5/14/2009          | <0.001   | 0.003  | 0.065  | <0.0030   | <0.0020 | ,         | 87                | <0.0060       | <0.0060       | <0.005      | <0.020      | 4.6         | 0.0063   | -      | 29                 | 1       | 0.22               | <0.00020 | <0.010 | 1             | 4.2               | <0.25  | 0000.05            | 190            | <0.050 | 0.067  |                                     | 0.5                   | 0.0                   | 7 V               | 0.10           | 4.0            | <1.0            | <1.0               | <2.0                              | V .   | 0.10                | 0 7                 | V 0                        | o:1>                 | <1.0            | ×1.0               | 0.0             | 2 5             | 2 4              | 250             | 95      | <1.0            | c10        | 0.4                 | 0.1.0        | 0.0           | 2 0     | 200     | 0.1×            | <1.0              | <1.0   | 410<br>10<br>10                      |  |
| MW-59                       | <0.005   | 0.016  | 0.1    | <0.0030   | <0.0020 | 120       | ٠.                | _             | ┺             | ـــ         | ١           | -           | _        |        |                    |         |                    |          |        |               |                   | <0.001   | 280                | 280            | <0.050 | <0.020 |                                     | 7.0                   | 000                   | 2 0               | 0.10           | V-1.0          | <1.0            | <1.0               | <2.0                              | 0.<br>V   | ۾<br>م              | 7 0                 | 0.5                        | 5.4                  | <1.0            | 0.5                | 0.0             | 2 5             | 2 45             | <2.0            | <10     | <1.0            | -10<br>-10 | 2                   | 0.5          | 4.6           | 9 0     | 140     | 4.0             | <1.0              | <1.0   | 0.15<br>0.5<br>0.5                   |  |
| MW-59<br>5/14/2009          | -        | 0.014  | _      | -         | -       | +-        | +-                | +             | ┰             | ╄           | ├           | 3.6         | $\vdash$ |        | 31                 | 1       | 2.6                | <0.00020 | <0.010 | -             | 2.4               | <0.25  | -                  | +              | ✝      | 0.025  | H                                   | V 7                   | 000                   | V 1.0             | V V            | V 10           | <1.0            | <1.0               | <2.0                              | √<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | 2 5                 | 0 7                 | 0.5                        | 7.2                  | <1.0            | 4.4                | 0.5             | 0 7             | 2 2              | \$ 0.00         | 01×     | <1.0            | <10        | 4                   | 010          | 4.7           | 200,0   | 210     | <1.0            | <1.0              | <1.0   | <1.0<br><10                          |  |
| 4/9/2005 22-13 (GW)         | F        | 0.017  | _      | ┡-        | <0.0020 | ⊢         | 180               | 0.013         | 0.024         | <0.005      | 24          | 61          | 0.038    | 1      | 81                 |         | 3.9                | 0.00045  | - 1    | - 1           | - 1               | <0.050   | 00000              | 360            | <0.050 | 0.051  |                                     | 7100                  | 2000                  | 4100              | V 100          | 200            | <100            | <100               | <200                              | 001   | 008                 |                     | 8 2                        | 220                  | <100            | 1300               | 00 S            | 200             | 200              | 2002            | ×1000   | <100            | <1000      | 710                 | V 100        | 200           | 41000   | 13000   | ×100            | <100              | <100   | 41000<br>41000                       |  |
| 129/2009<br>POC 22-12/TW-01 | <0.005   | 0.031  |        |           | _       | ١         | 150               | <0.0060       | 0.0084        | <0.005      | 5.9         | 17          | 0.018    | 78     | 70                 | 5.4     | 3.7                | <0.00020 | 0.013  | 3.6           | 5.1               | <0.005   | 410                | 400            | <0.050 | 0.054  |                                     | ×100                  | 000                   | ×100              | 4100           | ×100           | <100            | <100               | <200                              | V 100   | 1300                | 7 00                | × 100                      | <100                 | <100            | 2<br>100<br>100    | 8 5             | 3 5             | 00/4             | 200v            | <1000   | <100            | <1000      | 400                 | 200          | 200           | 000     | 8200    | <100            | <100              | <100   | 41000<br>41000                       |  |
| 4/14/2009 7                 | $\vdash$ | 0.013  | _      | ⊢         | <0.0020 | -         | -                 | -             | ╄             | ـــ         | ▙           | 10          | -        | _      |                    |         |                    | <0.00020 |        |               | $\rightarrow$     | <0.050   | +                  | ┿              | ╁      | 0.027  | H                                   | 05 5                  | 8 8                   | 250               | \$ 65<br>5     | \$50           | <50             | <50                | <100                              | \$ 20   | 000                 | 3 6                 | \$50                       | 61                   | <50             | 240                | 05)<br>5        | 8 4             |                  | 200             | ×500    | <50             | <500       | ×200                | 00 S         | 200           | 2500    | 8600    | √<br>50         | <50               | <50    | -<br>200<br>200<br>200<br>200        |  |
| Units                       | ma/L     | mg/L   | -      |           | 1       |           | T                 | T             | t             | T           |             |             |          |        |                    |         |                    |          | T      | I             | 1                 | mg/L   | $\dagger$          | 1/ou           | ma/L   | mg/L   |                                     | hg/L                  | 1/61                  | 10/1              | 7/01           | J/Bri          | rg/L            | hg/L               | hg/L                              | hg/L  | ng/r                | 1/61                | 1/9                        | rig/L                | hg/L            | ng/L               | ng/L            | 1/6/1           | 1/6/1            | 1/01            | J/Brl   | ng/L            | μg/L       | 7/6rl               | ng/L         | 7/G/1         | 1/8/1   | 1/0/    | la<br>Ng/L      | ng/L              | ng/L   | Hg/L                                 |  |
| Source                      | (2)      | (2)    |        |           | (2)     |           |                   |               |               |             |             | (3)         |          |        |                    |         |                    | (9)      |        |               |                   | <u>ල</u>   |                    |                |        |        |                                     | 1                     |                       |                   |                | ı              | İ               |                    | Ш                                 |   | 1                   |                     | 1                          |                      | П               | -                  |                 | 1               |                  | 1               |         | H               |            | Ξ                   |              |               |         |         |                 |                   |        | E)E                                  |  |
| Screening                   | 0.006    | 0.01   | ļ_     | 0.004     | 0.005   |           |                   | 0.05          | 0.05          | 0.2         | -           |             | 0.015    | -      |                    | 0.2     | -                  | 0.002    | 0.2    |               |                   | 0.05   | 0.00               |                | 0.26   | 10     | 10d 8260W)                          | 0.52                  | 3 5                   | 2 4               | 25             |                |                 | -                  | 9600.0                            | 2   | 2 5                 | 200                 | 009                        | 2                    | 5               | 12                 | , ,             | /30             | 23               | ì               | 7100    | 730             |            | 150                 | 2600         |               | 22000   | 5       | 20              | 0.12              | 8.5    | 1000                                 |  |
| Analytes<br>Sample Date     | Wetais   | enic   | Barium | Beryllium | Cadmium | Calcium * | Calcium Dissolved |               | Cobalt        | nide, Total | , Dissolved | Iron, Total | ead      | nesium | gnesium, Dissolved | nganese | nganese, Dissolved | Mercury  | (el    | assium *      | assium, Dissolved | enium  | Onlyel<br>Codium * | lium Dissolved | adium  |        | atile Organic Compounds - (EPA Mett | 1,2-Tetrachloroethane | 2 2-Tetrachloroethane | 2-Trichloroethane | Dichloroethane | Dichloroethene | Dichloropropene | 3-Trichlorobenzene | 1,2,3-Trichloropropane 0.0096 (1) | 4-Trichlorobenzene  | 4-I rimethylbenzene | Dibromoethane (FDR) | Dichlorobenzene            | Dichloroethane (EDC) | Dichloropropane | 5-Trimethylbenzene | Dichlorobenzene | Dichloropropane | othylnaphthalene | Dichloropropane | ıtanone | 2-Chlorotoluene | exanone    | 2-Methylnaphthalene | niorotoluene | opropylotuene | Acetone | Benzene | nobenzene       | nodichloromethane | noform | Bromomethane<br>Carbon disulfide     |  |

Table 16 Ground Water Analydical Results Summary Bloomfield Refinery - Bloomfield, New Mexico

| 99-WM\ <sup>©</sup> | 550                  | ×100       | <50       | ×50                 | <50          | <50                     | <50                  | <50            | <50                     | 1500         | <sup>2</sup> 50     | 82                       | ×150             | 880          | 51             | 310            | <50              | <50             | 25                | 2500                    | <50             | <50                      | <50                   | \$20<br>\$20           | 2900           |  | <50                   | <50                 | <50                 | 200                 | \$20<br>\$20          | 2100                  | <50              | <100                 | ×50                | 05/05/05/05        | ×50           | 19000              | \$0<br>\$0<br>\$1 | 050            | ×50                   | <50              | ×50             | 0017                                    | 050                    | <50           | <50                        | <50          | 250          | <50           | <50    | ×50        | <50<br>50  | S 6               | 87 65          | 05°                  |
|---------------------|----------------------|------------|-----------|---------------------|--------------|-------------------------|----------------------|----------------|-------------------------|--------------|---------------------|--------------------------|------------------|--------------|----------------|----------------|------------------|-----------------|-------------------|-------------------------|-----------------|--------------------------|-----------------------|------------------------|----------------|--|-----------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------|----------------------|--------------------|--------------------|---------------|--------------------|-------------------|----------------|-----------------------|------------------|-----------------|---|------------------------|---------------|----------------------------|--------------|--------------|---------------|--------|------------|------------|-------------------|----------------|----------------------|
| 99-WM               | 200                  | 0000       | ×100      | ×100                | 2100<br>V    | ×100                    | <100                 | <100           | <100                    | 1600         | 001                 | 140                      | 300              | 260          | <100           | 290            | <100             | V 100           |                   | 2000                    | 2<br>100<br>100 | <100                     | <100                  | 2 3                    | 200            |  | <10                   | <10                 | <10                 | 9                   | 000                   | 87,00                 | 59               | <20<br>20            | 9                  | 010                | 95            | 150                | 32                | 5 5            | 202                   | 16               | 95              | 0,00                                    | 200                    | <10           | <10                        | 9            | 2 5          | 95            | 410    | <10        | 95         | 010               | × 40           | <10                  |
| aa-wm ≙             | 5 5                  | 5 5        | 240       | 200                 | 95           | 410                     | ×10                  | <10            | <10                     | 1400         | ۲ <del>۹</del>      | 4700                     | 308              | 450          | 85             | 260            | 14               | \$              | 2 5               | 150                     | 410             | <10                      | <10                   | 9                      | ×10<br>6400    |  | <50                   | <50                 | <50                 | GÇ (                | နှင့်                 | 305                   | \$50             | <100                 | င်<br>လို          | 00°5°              | 9,05          | 130                | 0\$ E             | <u>ک</u> کو    | 999                   | <50              | \$50            | 2007                                    | 3 9                    | <50           | <50                        | S, 1         | 3 8          | 3 5           | ×50    | <50        | ες (       | 25 55             | 25.05          | <50                  |
| (4Ua) ≥a-ww &       | 3 8                  | Q V        | <20       | 8,0                 | 025          | <20<br><20              | <20                  | <20            | <20                     | 2000         | <sup>2</sup> 20     | 4800                     | 990              | 520          | 20             | 240            | <20              | <sup>2</sup> 20 | 2,5               | 2800                    | <20             | <20                      | <20                   | <sup>2</sup> 20        | 07.2           |  | <10                   | <10                 | <10                 | 95                  | 2 5                   | 02.5                  | 22               | <20                  | ę ;                | 9 5                | 9             | 150                | 9                 | 2 5            | 5 6                   | <10              | 9               | 80 5                                    | €<br>6                 | <10           | <10                        | 200          | 2 5          | ÷ 6           | 410    | <10        | 900        | 2 5               | V 10           | <10                  |
| \$9-WM €            | 3 5                  | 349        | 200       | 200                 | 0%<br>V      | 022                     | 07<br>V30            | <20            | <20                     | 1800         | 8                   | 420                      | 366              | 480          | 49             | 230            | <sup>2</sup> 20  | 250             | 3 5               | 2500                    | <sup>2</sup> 20 | <20                      | <20                   | 8                      | 020            |  | <10                   | <10                 | <10                 | 2/9                 | 2 5                   | 2000                  | 24               | <20                  | 95                 | 2 0                | 200           | 160                | \$ 3              | 2 5            | × 10                  | <10              | ę<br>₹          | 2 5                                     | 2012                   | <10           | <10                        | 2,5          | 2 5          | 200           | 200    | <10        | 8          |                   | 2 2            | ×10                  |
| \$9-WM €            | 2 0                  | 200        | V V       | ×1.0                | ۷.<br>در     | √<br>1.0                | <.10                 | <1.0           | <1.0                    | <1.0         | 0.10                | 0.12                     | 2 V              | 220          | <1.0           | <1.0           | ×1.0             | V .             | 2 5               | V V                     | <1.0            | <1.0                     | <1.0                  | 0,10                   | 0. 2           |  | <10                   | <10                 | <10                 | 2,0                 | 2 0                   | 250<br>V30            | <10              | <20                  | Ç (                |                    | ₽ ₽           | <10                | 200               | 2 0            | 200                   | ×10              | 9               | 2 2                                     | 205                    | <10           | <10                        | \$ 5         | 2 5          | 200           | ×10    | <10        | ×10        | 2 0               | 200            | <10                  |
| 79-WW €             | 2 0                  | 000        | 410       | 210                 | 0.15         | 41.0                    | <1.0                 | <1.0           | <1.0                    | <1.0         | 0.10                | 0.10                     | 230              | <2.0         | <1.0           | <1.0           | 0.10             | 41.0            | 0.0               | 0.0                     | د.<br>1.0       | <1.0                     | <1.0                  | 0.6                    | 0.15           |  | ¢10                   | <10                 | <10                 | 200                 |                       | 020                   | <10              | <20                  | 9                  | 2 5                | 9             | <10                | Ç.                | 0 0            | 95                    | <10              | 9               | R 5                                     | 9                      | <10           | <10                        | 9            | 2 5          | <u></u> €     | ot>    | <10        | V 40       | 010               | 200            | <10                  |
| (4Ua) £8-WM         | 2 0                  | 000        | 0 V       | 0.10                | ۷.<br>د      | 0.10                    | 41.0                 | <1.0           | <1.0                    | ×1.0         | 0.0                 | 0.0                      | 300              | <2.0         | <1.0           | ۸1.0<br>دا.0   | 4.0              | 0.0             | 2 5               | V V                     | 41.0            | ۷.10<br>د                | <1.0                  | 0.0                    | 0.12           |  | <10                   | <10                 | <10                 | ₽<br>₹              |                       | 2 8                   | <10              | \$20                 | ₽<br>₽             | 2 5                | ₽<br>₽        | <10                | ₽ 5               | 010            | 95                    | <10              | ₽ 8             | 5 5                                     | v 10                   | <10           | <10                        | \$ 40        | 2 5          | 2<br>V<br>V   | 49     | <10        | ₽<br>\$    | 0 0               | 05             | <10                  |
| £9-WM <sup>△</sup>  | 2 5                  | 000        | 0 10      | 0.10                | 0.1>         | 0.1≥                    | <1.0                 | <1.0           | <1.0                    | <1.0         | 0.<br>V             | 0.12                     | 3085             | <2.0         | <1.0           | 4.0            | 4.0<br>1.0       | 4.0             | 5 7               | 0.0                     | 0.12            | <1.0                     | <1.0                  | 0.5                    | 0.15           |  | <10                   | <10                 | <10                 | 012                 | 0 5                   | 07, 02                | <10              | <20                  | 9 9                | 0 5                | 6             | <10                | 9                 | 010            | 6                     | <10              | € (             | 2 5<br>5                                | ₽<br>₽                 | <10           | <10                        | 9            | 2 5          | 9             | 95     | <10        | 문          | 010               | 410            | <10                  |
| £8-WM €3            | 2 5                  | 000        | V 1.0     | 0.10                | 0.15         | o.f.o                   | ۷.10<br>د            | <1.0           | ۲٠0<br>د                | <1.0         | 0.0                 | 0.15                     | 300              | <2.0         | ۲ <u>.</u> 0   | ۲٠0<br>د۱.0    | ۷ <u>.</u> 0     | 0.              | 2 5               | 0.10                    | 0.15            | <1.0                     | <1.0                  | 0 0                    | )<br>V         |  | <10                   | <10                 | <10                 | 95                  | 2 6                   | 22                    | <10              | <20                  | 5 5                | 0 0                | 9             | <10                | 2,5               | 010            | 9                     | <10              | 위<br>당          | 0.5<br>V                                | 9                      | <10           | <10                        | 25           | 2 5          | 9             | 49     | <10        | 900        | 010               | 01.0           | <10                  |
| 29-WM €2            | 2 5                  | 000        | V 10      | V 7                 | 0.1×         | 41.0                    | o.f.                 | <1.0           | <1.0                    | 41.0         | 0.                  | )<br>V<br>V              | 300              | 25.0<br>25.0 | <1.0           | <1.0           | <1.0             | 0.<br>0.<br>0.  | 0.0               | 0<br>V<br>V             | v.1.0           | ×1.0                     | <1.0                  | V .                    | 0. 2           |  | <10                   | <10                 | <10                 | <u>و</u> د          | 2 5                   | 2007                  | ×10              | \$20<br>\$           | 9                  | 5 5                | 9             | <10                | <del>\$</del>     |                | ₽<br>₽                | <10              | 9               | 200                                     | 100                    | <10           | <10                        | 20,          | 210          | ₹ €           | ×10    | <10        | 2,00       | 010               | Q V            | ×10                  |
| 29-WM ℃             | 2 0                  | 000        | V 0       | 0.15                | V 10         | 0.10                    | 41.0                 | <1.0           | <1.0                    | <1.0         | 0.<br>V             | 0 7                      | 7 8              | 250          | <1.0           | <1.0           | <1.0             | 0.0             | 0.0               | 0.0                     | V-1.0           | <1.0                     | <1.0                  | 410<br>V               | 0.15           | 2                                      | <10                   | <10                 | c10                 | 000                 | 2 5                   | 020                   | ×10              | <20                  | 95                 | 000                | 000           | <10                | 9                 | 200            | 49                    | <10              | 운               | 02/5                                    | 2 6                    | <10           | <10                        | 우            | 200          | 9 8           | ₽<br>₽ | <10        | 29         | 5 5               | 0.00           | <10                  |
| ra-wm €             | 2 5                  | 2,00       | 05        | 운                   | × 10         | 210                     | ×10                  | <10            | <10                     | 1500         | 원                   | 2 5                      | 2 E              | 200          | 97             | 240            | 15               | ₽;              | 2 5               | ;<br> <br> -            | ×10             | <10                      | ×10                   | 9                      | 010            |  | <50                   | <50                 | <50                 | 000                 | 8 4                   | 00 V                  | 130              | ×100                 | 05)<br>(5)         | \$ 50              | \$ 65         | 1200               | \$ 20             | 35 55          | \$ 65                 | <50              | ×20             | 200                                     | 2050                   | <50           | <50                        | ×20          | 050          | 3 65          | 965    | <50        | \$50       | 05 6              | 250            | <50                  |
| 19-WM €             |                      | 240        | 000       | 800                 | 800          | 8,7                     | 0<br>7<br>7<br>8     | 420<br>420     | <20                     | 1400         | <sup>20</sup>       | 100                      | 200              | 069          | 110            | 310            | <20              | 82              | 3 8               | 3 8                     | 250             | \$<br>\$                 | <20                   | 25                     | 230            |  | <50                   | <50                 | <50                 | 05 S                | 05 6                  | 800                   | ×50              | × 100                | \$ £               | \$ \$              | 260           | 17000              | <sup>&lt;20</sup> | 3 5            | 2000                  | <50              | \$ 50           | 5 6                                     | 3 8                    | <50           | <50                        | \$50         | 200          | 3 8           | \$ 50  | <50        | S\$        | \$ 6              | 3 65           | <sup>2</sup> 50      |
| 09-WM               | 2 0                  | 5 0        | 12        | 10.5                | 410          | 0.F∧                    | √<br>0.1>            | <1.0           | <1.0                    | ×1.0         | 0.10                | V 7                      | 2 6              | 20.5         | <1.0           | <1.0           | <1.0             | V .             | 2 5               | 200                     | 0.F≥            | 410                      | ۲ <u>۱.</u> 0         | <u>5</u>               | 0 5            |  | <10                   | <10                 | <10                 | ₽<br>V              | 2 5                   | 200                   | 95               | <sup>20</sup>        | Ş ç                | 5 5                | 790           | <10                | ₽,                | 2 5            | 9                     | <10              | ₽               | 2 5                                     | V 20                   | <10           | <10                        | <10          | 2 5          | 2 0           | e<br>V | <10        | 9          | 5 5               | 210            | ×10                  |
| 63-WM               | 2 0                  | 000        | ×10       | 21.0                | ×1.0         | 0.10                    | <1.0                 | <1.0           | <1.0                    | 410          | 0.10                | 8 5                      | 2 8              | 188          | 11             | 43             | 9.9              | 0.<br>V         |                   | 2 8                     | v<br>10<br>10   | <1.0                     | ۲ <u>۰</u>            | ۷.<br>ا                | 0.10           |  | <50                   | <20                 | <50                 | င္မ                 | 20 20                 | 4100                  | 950              | ×100                 | 200                | Ç 20               | 3,05          | <50                | 9                 | 2 E            | 3,05                  | <50              | \$              | 8 3                                     | 3 S                    | ×50           | <50                        | <50          | S (          | 3 6           | 3 GŞ   | <50        | \$50       | 80 6              | 265            | <50<br><50           |
| 63-WM               | 2 0                  | 000        | V 10      | ۸<br>0<br>0         | ۷ <u>۲</u> 0 | v<br>10<br>10           | ×1.0                 | <1.0           | <1.0                    | 380          | ۷ <u>۲</u> 0        | 8 4                      | 2 6              | 240          | 10             | 48             | 7.4              | 0.              | -<br>V V          | 2.7                     | 0.15            | ۸.10<br>م                | √<br>1.0              | 0.                     | 0.12           |  | <10                   | <10                 | 95                  | و<br>د<br>د         | 2 5                   | 200                   | ر<br>د<br>اد     | <20                  | 운 :                | 2 5                | 000           | √10                | 9                 | 015            | 은<br>우                | <10              | <b>√</b> 10     | 8 5                                     | ?<br>  <del>0</del>    | 410           | <10                        | <10          | 200          | Q (\$         | 9      | <10        | ×10        | 2 49              | 2101           | ×10                  |
| AOC 22-13 (GW)      | 3 6                  | 0000       | ×100      | 400                 | ×100         | 00.<br>√                | ×100                 | <100           | <100                    | 4300         | V 100               | 240                      | 300              | 8            | 420            | 700            | 110              | ¥ 100           | 300               | 16000                   | 2<br>100<br>100 | × 100                    | ×100                  | 200                    | 23000          |  | <10                   | <10                 | ×10                 | ç ;                 | 2 5                   | 2 8                   | ot>              | <sup>&lt;20</sup>    | ₽;                 | 9 5                | 200           | 100                | ×10               | 2 5            | 0<br>0<br>0<br>0<br>0 | 10               | <del>د</del> او | 7 | 9 6                    | ×10           | <10                        | <10          | 200          | 410           | £ \$   | <10        | 410        | 2 5               | 2 5            | ×10                  |
| 10-WT/S1-SS 200 &   | 2 5                  | 300        | ×100      | 90.00               | 00<br>V      | ×100                    | ×100                 | <100           | <100                    | 2200         | × 100               | 190                      | 3000             | 88           | <100           | 180            | <100             | ×100            | 30.5              | 380                     | ×100            | ×100                     | ×100                  | ¥ 100                  | 200<br>V V     | 2000                                   | <50                   | <50                 | <50                 | Q\$\{\cdot\}        | 8                     | 3 5                   | ×50              | <100                 | \$ 50              | 95 65              | 3 8           | 71                 | ×20               | 25 6           | 3 8                   | <50              | \$50            | 200                                     | 8 9                    | <b>\$</b>     | <50                        | <50          | S (          | 5 5           | \$ 650 | <50        | ×20        | 05 6              | 200            | \$20                 |
| % AOC 22-12 (GW)    | 3,5                  | 300        | ×50       | \$ <del>\$</del> \$ | 55           | \$20                    | ×50                  | <50            | <50                     | 2100         | \$50                | 69                       | 40000<br>4150    | 380          | <50            | 200            | <50              | SS              | 3 4               | 870                     | <50<br><50      | \$50                     | <50                   | ξŞ                     | 200            | 3                                      | <10                   | <10                 | ~ <del>1</del> 0    | <u>و</u>            | 0 5                   | 2 8                   | 8                | <20                  | 9                  | 9 5                | 2 €           | 81                 | × 10              | 2 5            | 95                    | 16               | 410             | 200                                     | 2 0 0                  | <10           | <10                        | <10          | ×10          | 2 5           | 400    | 410        | ×10        | 700               | 200            | ×10<br>×10           |
| Units               | 7/64                 | 1/61       | 1/01      | 1/01                | 1/01         | 1/611                   | 1/61                 | hg/L           | ng/L                    | μg/L         | 1/grl               | 1/6rl                    | 7/6/-            | 1/91         | μg/L           | ng/L           | ng/L             | hg/L            | 7/6/              | 101                     | na/L            | 1/61                     | µg/L                  | hg/L                   | 7/6r           | 1,22                                   | µg/L                  | hg/L                | ng/L                | 1/6/1               | 1/6i                  | 1/01                  | 1/61             | hg/L                 | Hg/L               | 1/0I               | 1/6/1         | µg/L               | hg/L              | 1/6i           | no/L                  | µg/L             | ug/L            | 7/6 <u>1</u>                            | 1/0/                   | rg/L          | µg/L                       | ng/L         | hg/L         | 1,67          | ng/L   | J/Brl      | 7/6r       | 1/6/L             | H9/L           | 1761                 |
| Source              | ]<br>[               | <u> </u>   | E         | )<br>()<br>()       | <u> </u>     |                         | Ξ                    | Ξ              | (1)                     | (2)          | <u>E</u>            | =<br>=<br>=<br>=         | <br> <br> <br>   | )<br>()      |                |                |                  | (2)             | É                 | $\neg \Gamma$           | 1               | Т                        | ГП                    | П                      | <u></u>        | 7                                      | (2)                   |                     | П                   | $\neg \top$         | Т                     | 7                     | П                | Ξ                    | Т                  | Т                  | Т             | T                  | Т                 | Т              | Т                     | 77               |                 | +                                       |                        | Ξ             |                            | (1)          | 1            | 1             | $\top$ | (I)        | E)         |                   | 77             |                      |
| Screening<br>Levels | 000                  | 2          | 100       | 8 6                 | 70           |                         | 0.15                 | 370            | 390                     | 700          | 0.86                | 680                      | 7 4              | 0.14         |                |                |                  | 100             |                   | 750                     | 100             | 0.43                     | 5                     | 1300                   | 1              | 1270W)                                 | 70                    | 909                 |                     | 75                  | 3700                  | 110                   | 730              | 73                   | 0.22               | 37                 | 180           | 150                | 1800              | 110            | 0.15                  | 180              | ,               |   | . .                    | 0.34          |                            | 3.4          | - 0000       | 7700          | 12     | 11000      | 0.12       | 0.029             | 0.00           |                      |
| Analytes            | Carbon Tetracilionoe | Phonothern | Plonoform | Chloromethane       | is-1 2-DCF   | vis-1,3-Dichloropropene | Dibromochloromethane | Dibromomethane | Dichlorodifluoromethane | =thylbenzene | Hexachlorobutadiene | sopropylbenzene (Cumene) | Astrona Chlorida | Naohthalene  | n-Butylbenzene | -Propylbenzene | sec-Butylbenzene | Styrene         | lert-Butylbenzene | Tetrachioroethene (PCE) | rans-1 2-DCE    | rans-1.3-Dichloropropene | Trichloroethene (TCE) | Trichlorofluoromethane | Vinyl chloride | Semi Volatile Organics - (EPA Method 8 | ,2,4-Trichlorobenzene | 1,2-Dichlorobenzene | I,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2,4,5-Trichlorophenol | 7.4.5- Inchlorophenol | 4-Dimethylphenol | 2,4-Dinitrophenol 73 | 2,4-Dinitrotoluene | 2,6-Dinitrotoluene | -Chlorophenol | -Methylnaphthalene | -Methylphenol     | 2-Nitroaniline | 3-Dichlorbenzidine    | ++4-Methyiphenol | -Nitroaniline   | 4,6-Dinitro-2-methylphenol              | -Chloro-3-methylphenol | Chloroaniline | -Chlorophenyl phenyl ether | Nitroaniline | -Nitrophenol | cenaphthylene | viline | Anthracene | Azobenzene | Senz(a)anthracene | senzo(a)pyrene | Benzo(g,h,i)perylene |

Table 16 Ground Water Analytical Results Summary Bloomfield Refinery - Bloomfield, New Mexico

| Analytes   | Screening<br>Levels | Source<br>Cource<br>Source | AOC 22-12 (GW) | AOC 22-12/TW-01 | AOC 22-13 (GW)  | 69-MW         | 69-MW             | 09-MW    | 19-WW             | 19-WM                          | Z9-WW    | 89-WW      | 69-WM       | (4Ua) £8-WM     | #9-MW        | ₱9-MW      | 99-MM                                    | (AUG) 29-WM      | WW-65      | 99-WW  | 99-WM           |
|--|---------------------|----------------------------|----------------|-----------------|-----------------|---------------|-------------------|----------|-------------------|--------------------------------|----------|------------|-------------|-----------------|--------------|------------|--|------------------|------------|--|-----------------|
| Benzo(k)fluoranthene                                     | Г                   |                            | $\vdash$       | <50             | <10             | √10           | <50<br><50        |          | ╀                 | -                              | H        | $\vdash$   | H           | √<br>10<br>10   | -<br>V       | 49         | ×10                                      | ₽<br>9           | <50        | <10  | <50             |
| Benzoic acid   |                     |                            | -              | <100            | <20             | <20           | <100              | 4        | Н                 | $\dashv$                       | $\dashv$ | -          | -           | <20             | <20          | <20        | . <20                                    | <20              | <100       | <sup>2</sup> 20  | ×100            |
| Benzyl alcohol   | 18000               | (1) µg/L                   | -              | <20<br>20       | <10             | <10           | <50               | +        | 4                 | +                              | +        | +          | +           | <10             | ×10          | ×10        | ×10                                      | 430              | ×20        | ×10  | 220             |
| 3is(2-chloroethoxy)methane                               | 7                   | ĺ                          | +              | 05<br>V         | <10             | <10           | <50               | +        | +                 | +                              | +        | +          | +           | <10             | c10          | <10        | c10                                      | 210              | \$20<br>20 | 012  | 200             |
| 3is(2-chloroethyl)ether                                  | 7                   | (1) µg/L                   | +              | 000             | ×10             | 210           | <50<br>70         | +        | +                 | +                              | +        | +          | +           | <10             | ×10          | √10<br>√10 | ×10                                      | 2 3              | 220        | 015  | 000             |
| Bis(2-chloroisopropyl)ether                              |                     |                            | +              | Q 44            | 2 5             | 010           | 25 6              | +        | +                 | +                              | +        | +          | +           | 2 5             | 2 5          | 2 5        | 015                                      | 2 5              | 25 25      | 01.5   | <50<br><50      |
| Sutyl benzyl phthalate                                   | T                   | (1) ug/L                   |                | 3 8             | 000             | 0,00          | 3050              | +        | +                 | +                              | +        | +          | +           | 9 5             | € €          | 000        | Q 25                                     | 100              | 9,99       | 95   | 205×            |
| Carbazole  | Γ                   |                            | -              | ×20             | <10             | 410           | <50               | +        | ╀                 | ╀                              | $\vdash$ | ╀          | ╀           | <10             | <10          | 410        | ×10                                      | ę<br>₽           | \$50       | 10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | <50             |
| Chrysene   | 2.9                 | (1) µg/L                   | _              | <50             | <10             | √10<br>√10    | \$20              | $\vdash$ | ╀                 | ╀                              | $\vdash$ | $\vdash$   | -           | 410             | \$           | ×10        | 95                                       | o₽<br>9          | \$50       | <10  | <50             |
| Dibenz(a,h)anthracene                                    | 6                   |                            |                | <50             | <10             | <10           | <50               | Н        | Н                 | Н                              | Н        | Н          | Н           | <10             | ×10          | <10        | <10                                      | <10              | <50        | <10  | <50             |
| Dibenzofuran   | $\top$              |                            | +              | <50             | 40              | <10           | <50               | +        | $\dashv$          | $\dashv$                       | +        | +          | +           | <del>ک</del> ک  | 9            | ot >       | × 10                                     | \$               | 8          | 운  | ,<br>20<br>1    |
| Diethyl phthalate  | 29000               | (1)<br>100/L               | +              | 000             | V 410           | 210           | S (               | +        | +                 | +                              | +        | +          | +           | 2 5             | 2007         | 100        | 7 710                                    | 2 5              | 25 6       |  | 200             |
| ornernyi primalate                                       |                     | hg/L                       |                | 750             | 7 7 0           | 270           | 000               | +        | +                 | +                              | +        | +          | 1           | 7 7             | 170          | 2 5        | 7 0                                      | 7 5              | 267        |  | 250             |
| i-n-octyl phthalate                                      | , ,                 | 200                        | -              | 99              | 2 0             | 20,00         | 200               | +        | +                 | +                              | +        | +          | +           | 7 0             | 2 5          | V 10       | 210                                      | 2 5              | 250        | 2 5  | \$ 650          |
| luoranthene  | T                   |                            | ł              | 250             | 710             | 000           | 3 6               | +        | +                 | +                              | +        | +          | +           | 100             | 9            | 2 O        | 012                                      | 21.0<br>V-10.1   | \$20       | 95   | 909             |
| Fluorene   | 1500                | (1) µg/L                   | -              | <50             | <10             | 405           | 0 <del>\$</del> > | ╀        | ╀                 | ╀                              | ╀        | $\vdash$   | -           | ot>             | 410          | ~10        | <10                                      | ×10              | \$20       | <10  | 250             |
| exachlorobenzene   |                     |                            |                | <50             | <10             | <10           | <50               | Н        | H                 |                                |          |            | Н           | <10             | ×10          | <10        | <10                                      | <10              | <50        | <10  | <50             |
| exachlorobutadiene                                       |                     |                            |                | <50             | <10             | <10           | <50               | $\dashv$ | -                 |                                |          | $\dashv$   | $\dashv$    | <10             | <10          | <10        | <10                                      | <10              | <50        | c10  | <sup>2</sup> 20 |
| exachlorocyclopentadiene                                 |                     |                            |                | <50             | ~10             | <10           | <50               | $\dashv$ | $\dashv$          | $\dashv$                       | +        | $\dashv$   |             | <10             | <10          | \$         | <10                                      | ₽                | <50        | ₽<br>F   | \$20            |
| Hexachloroethane   | 4.8                 | (1) µg/L                   | 1              | \$ 50           | 799             | 700           | \$ 20             | +        | +                 | +                              | +        | +          | +           | 9 5             | 7 40         | 7 49       | 79                                       | 9 5              | 200        | 5 5  | 8 6             |
| sopporone  | T                   |                            |                | \$ G            | 2 0             | 2 0           | 250               | +        | +                 | +                              | +        | ł          | +           | , v             | 2 0          | 40         | Q V                                      | 9 6              | 050        | 9 0 0  | 99              |
| Naphthalene  |                     | (1)<br>ug/L                | 1              | 220             | 110             | 100           | 120               | +        | ╀                 | ╀                              | ╀        | +          | $\vdash$    | 9               | - 10<br>- 10 | ×10        | 370                                      | 350              | 290        | 330  | 9700            |
| Nitrobenzene   |                     |                            | -              | <50             | <10             | <10           | <50               | ┝        | -                 | ├                              | H        | $\vdash$   | ┞           | <10             | <10          | <10        | <10                                      | <10              | <50        | <10  | <50<br><        |
| N-Nitrosodimethylamine                                   | 0.00042             | (1) µg/L                   |                | <50             | <b>~</b> 10     | <10           | <50               | Н        | Н                 | $\mathbb{H}$                   | H        | H          | Н           | <10             | <10          | <10        | <10                                      | <10              | <50        | <10  | <50             |
| -Nitrosodi-n-propylamine                                 |                     |                            |                | <50             | <10             | <10           | <50               |          |                   |                                | +        | $\dashv$   | 4           | <10             | <10          | <10        | <10                                      | <del>د</del> 10  | <50        | 95   | \$50            |
| -Nitrosodiphenylamine                                    |                     |                            | _              | <50             | ×10             | ×10           | <50               | +        | 4                 | +                              | +        | -          | +           | ę               | 9            | o<br>100   | ×10                                      | ₽                | <50        | ₽<br>₽   | \$20            |
| Pentachiorophenol  |                     |                            | +              | ×100            | <sup>2</sup> 20 | 420           | ×100              | $\dashv$ | +                 | +                              | +        | +          | +           | <sup>2</sup> 50 | 8            | 200        | 8  | 8                | ×100       | 8  | V 100           |
| Phenanthrene   |                     | ng/L                       | _              | 05 05           | 9               | 700           | \$ 50             | 40       | +                 | +                              | +        | +          | +           | 7 49            | 2 5          | ×10        | <10<br><b>49</b>                         | 012<br><b>49</b> | \$ 50      | 01.2<br>7.   | 1600            |
| Pyrene   |                     | (1) ua/L                   | $\frac{1}{1}$  | <sup>2</sup> 20 | ×10             | 95            | \$ \frac{1}{2}    | +        | ╀                 | +                              | +        | ł          | +           | 49              | 8            | 49         | ₹ 0                                      | \$ €             | \$ 65      | 운<br>당   | 62              |
| Pyridine   | 37 (                | Ш                          |                | <50             | <10             | <10           | <50               | Н        | Н                 | Н                              | Н        | Н          | H           | <10             | <10<br><10   | <10        | <10                                      | <10              | <50        | <10  | <50             |
| Alkalinity, Total (As CaCO3)                             | -                   | ma/L Ca(                   |                | 1200            | 1200            | 850           | 820               | -        | -                 | -                              | $\vdash$ | 640        | 630         | 640             | 300          | 300        | 1000                                     | 1000             | 066        | 1000   | 1100            |
| 1 1  |                     | mg/L CaCO3                 | CO3 1100       | 1200            | 1200            | 850           | 820               | 420      | 590 5             | 520 640                        | 0 620    | 640        | 630         | 640             | 300          | 300        | 1000                                     | 1000             | 066        | 1000   | 1100            |
| Bromide  | 1                   | mg/L                       |                |                 |                 |               |                   | $\dashv$ | $\dashv$          | +                              | _        | _          | +           | -               |              |            |  | ,                | -          |  |                 |
| Carbonate  | , ,                 | mg/L Ca                    | CO3 <5.0       | <5.0            | <5.0            | 25.0          | <2.0              | +        | <2.0              | +                              | +        | +          | \$ 55°      | 42.0            | <2.0<br>4.50 | 450<br>440 | <2.0                                     | <2.0             | <2.0       | 25.0   | 0.25            |
| Chioride   | T                   | (3) mg/L                   | 1              | 0/1             | 710             | 35            | 0.34              | +        | +                 | +                              | +        | +          | +           | +               | 200          | 9 0        | 0.21                                     | 029              | 0 24       | 98   | 0.10            |
| Vitrate (As N)+Nitrite (As N)                            | T                   | mg/L                       |                | 10.20           | 1               | <2.0          | 41.0              | 15       | +                 | <1.0                           | 7.0      | 72         | ╀           | +               | 44           | 3 1        | - V- | 41.0             | ×1.0       | 3.1  | 2 1             |
| Nitrogen, Nitrate (As N)                                 |                     |                            |                | 0.19            | 0.15            | 1             |                   | _        | L                 | -                              | L        | $\vdash$   | Н           | 75              | ا، ا         | 48         | :  | -                |            | ١  | 0.7             |
| Nitrogen, Nitrite (As N)                                 | 1 (                 | (2) mg/L                   |                | <2.0            | <1.0            | -             |                   | Н        | Н                 | Н                              | Н        | _          | $\dashv$    | Н               |              | <2.0       | -  | -                | 1          | 1  | <2.0            |
| Sulfate  |                     |                            |                | 36              | 110             | 92            | $\dashv$          | +        | $\dashv$          | +                              | +        | 4          | +           | +               | +            | 1700       | 790                                      | 750              | 920        | 1100   | 1100            |
| Phosphorus, Orthophosphate (As P) Total Dissolved Solids | 1000                | (3) mg/L                   | <u> </u>       | <0.50<br>1720   | 1700            | <0.50<br>1100 | <0.50<br>1070     | > 05.0>  | <0.50 <0<br>820 8 | <0.50 <0.50<br>872 <b>6000</b> | 0 <0.50  | 3500       | 3710        | 3700            | 4500         | 4580       | 2300                                     | 2400             | 2420       | 2600   | 2820            |
| Plase Range Organics (DRO)                               |                     | IL                         | -              | 5.7             | f.              | 1.4           | -                 | ╟        | ╟                 | $\ \cdot\ $                    | ╟        | <b>∤</b> ⊢ | $\parallel$ | ╟               | ╟            | ╟          | -  | 14               | +          | 12   | 34              |
| Basoline Range Organics (GRO)                            | 1.34                | (4) mg/L                   |                | 25              | 36              | 2.6           | 3.1               | ╀        | +                 | ╁                              | +        | +          | +           | ╀               | +            | $\vdash$   | -  | 4                | 43         | 34   | 46              |
| Motor Oil Range Organics (MRO)                           |                     | I/6m                       | <5.0           | <5.0            | <5.0            | <5.0          | <5.0              | <5.0     | <50 <             | <5.0 <5.0                      | Н        | $\vdash$   | Н           | Н               | <5.0         | <5.0       | $\vdash$                                 | <5.0             | <5.0       | <5.0   | <5.0            |
| thanol   |                     | mg/L                       | $\dashv$       | 1               | -               | •             | 1                 | $\dashv$ | $\dashv$          | -                              | $\dashv$ | $\dashv$   | $\dashv$    | -               | -            | $\dashv$   | 4  | ×1.0             | <1.0       | <1.0<br>   | <1.0            |

- No screening level or analytical result available

450 - bolded value exceeds screening level

(1) EPA - Regional Screening Levels (April 2009) - EPA Screening

Levels. Tap Water

(2) EPA - Regional Screening Levels (April 2009) - MCL

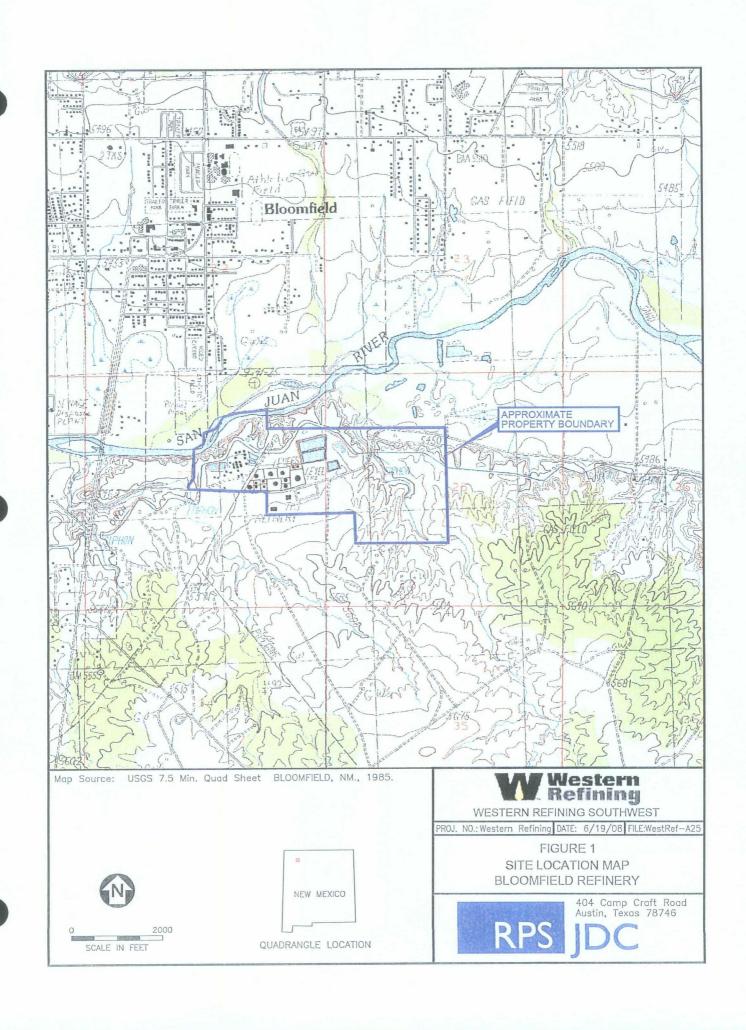
(3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101

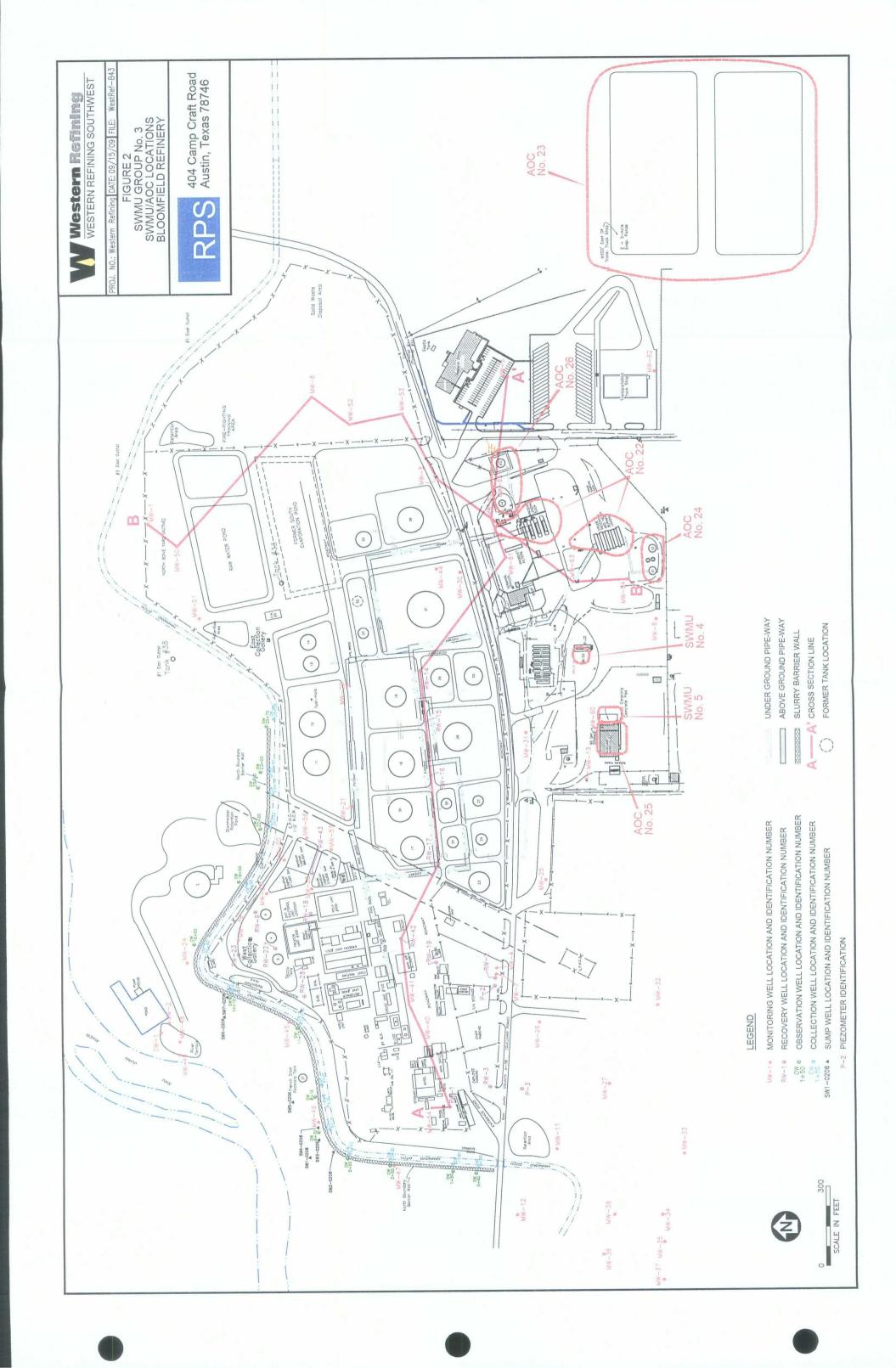
Standards for Ground Water of 10,000 mg/l TDS Concentration or less

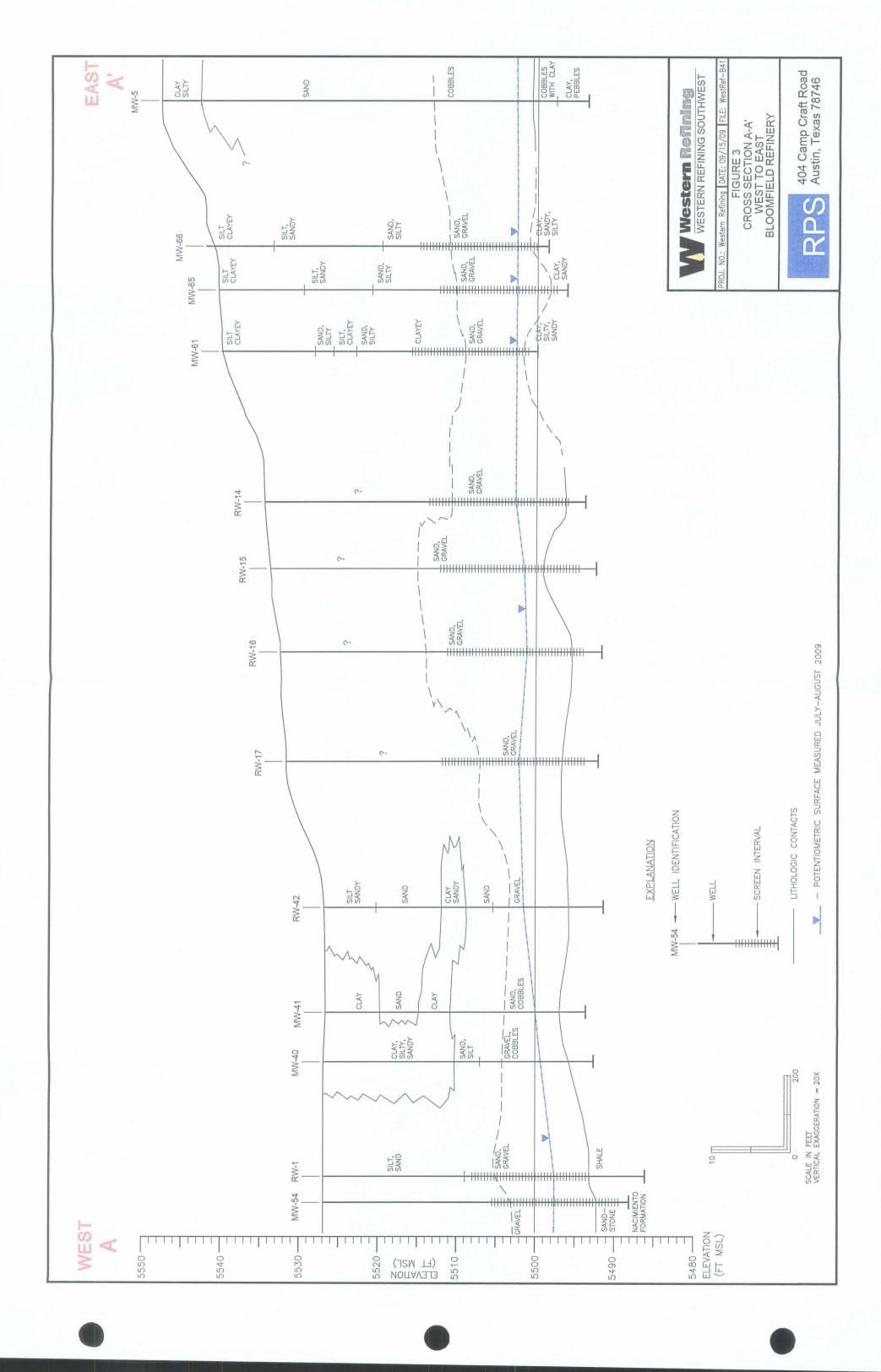
(4) NMED TPH Screening Guidelines Oct. 2006 - #3 and #6 fuel oil

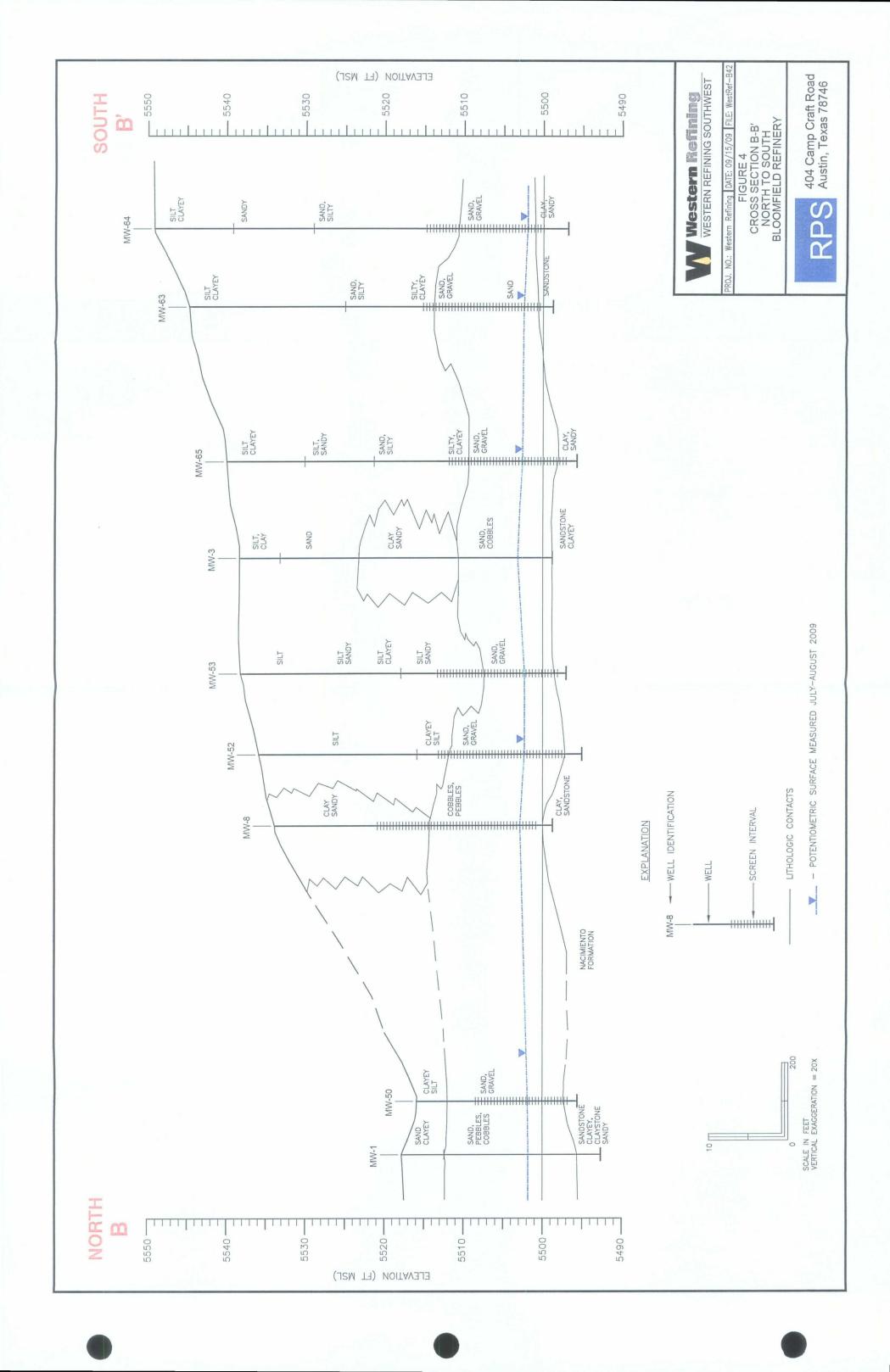
= General Chemistry analytes not required by Work Plan.

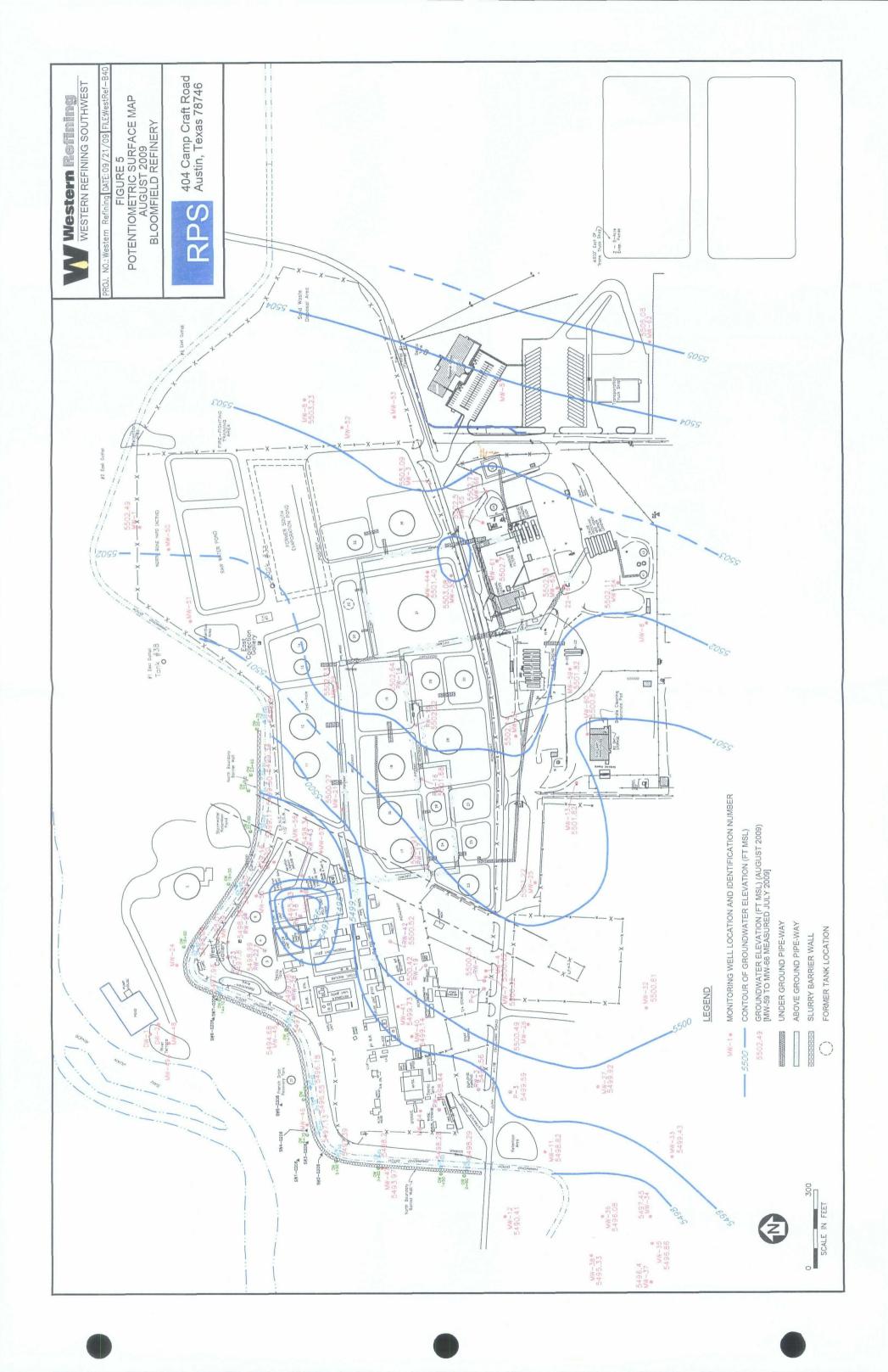
## **Figures**

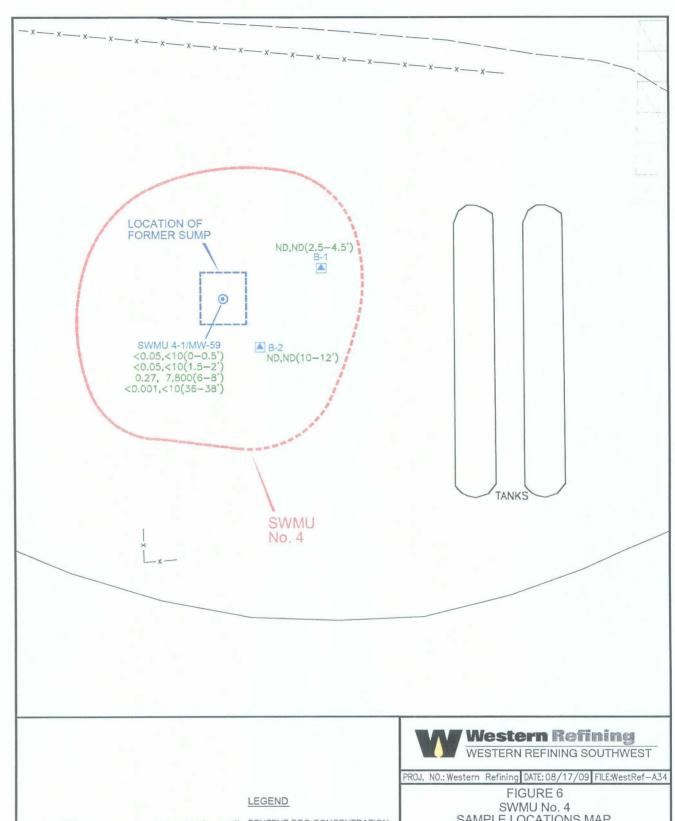












<0.05,<10(0-0.5') BENZENE,DRO CONCENTRATION mg/kg, (SAMPLE DEPTH, FT.)



APPROXIMATE SWMU No. 4 BOUNDARY

SWMU 4-1/MW-59 MONITORING WELL COMPLETION

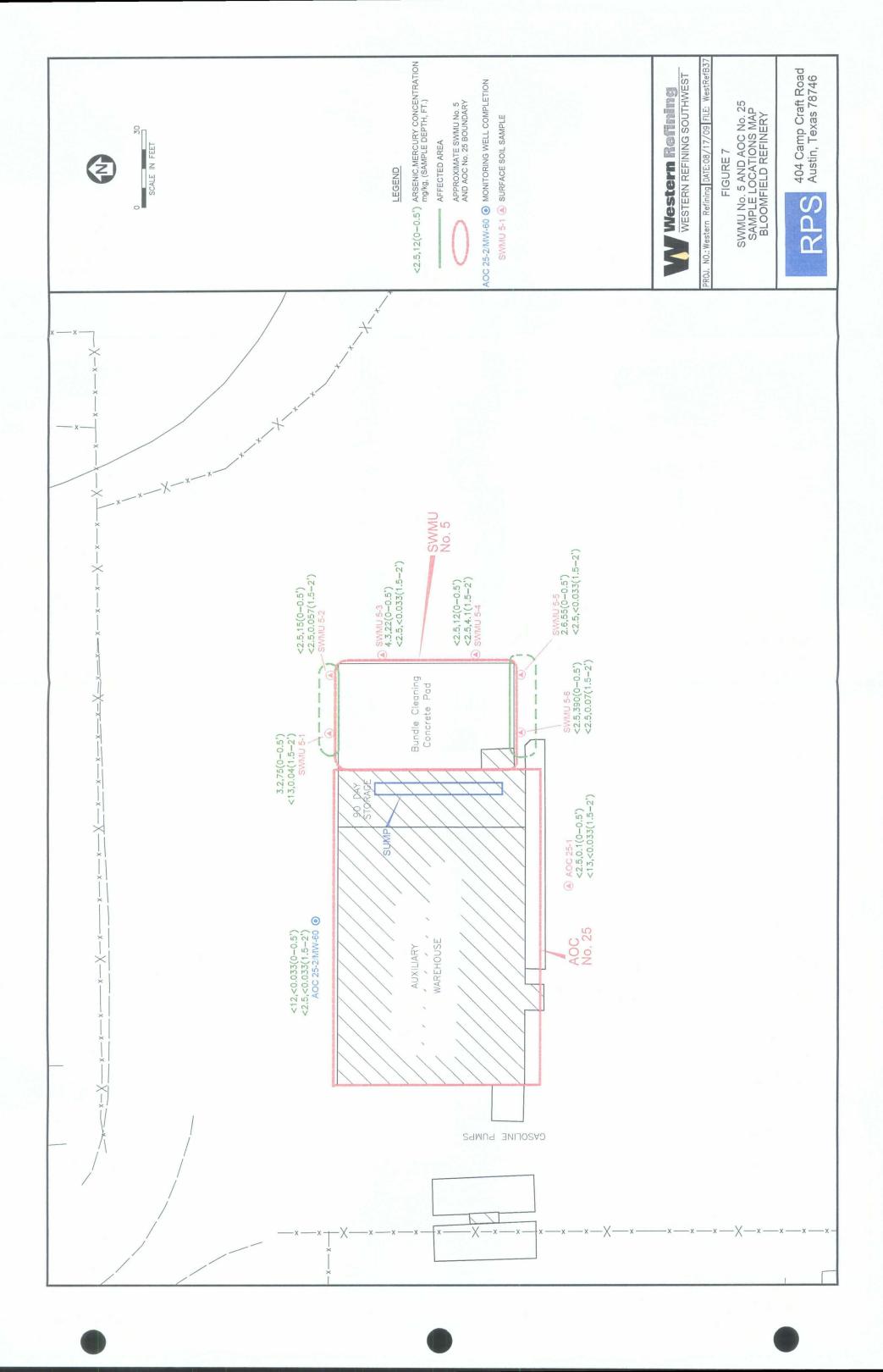
B-1 A 1994 RFI SOIL BORING

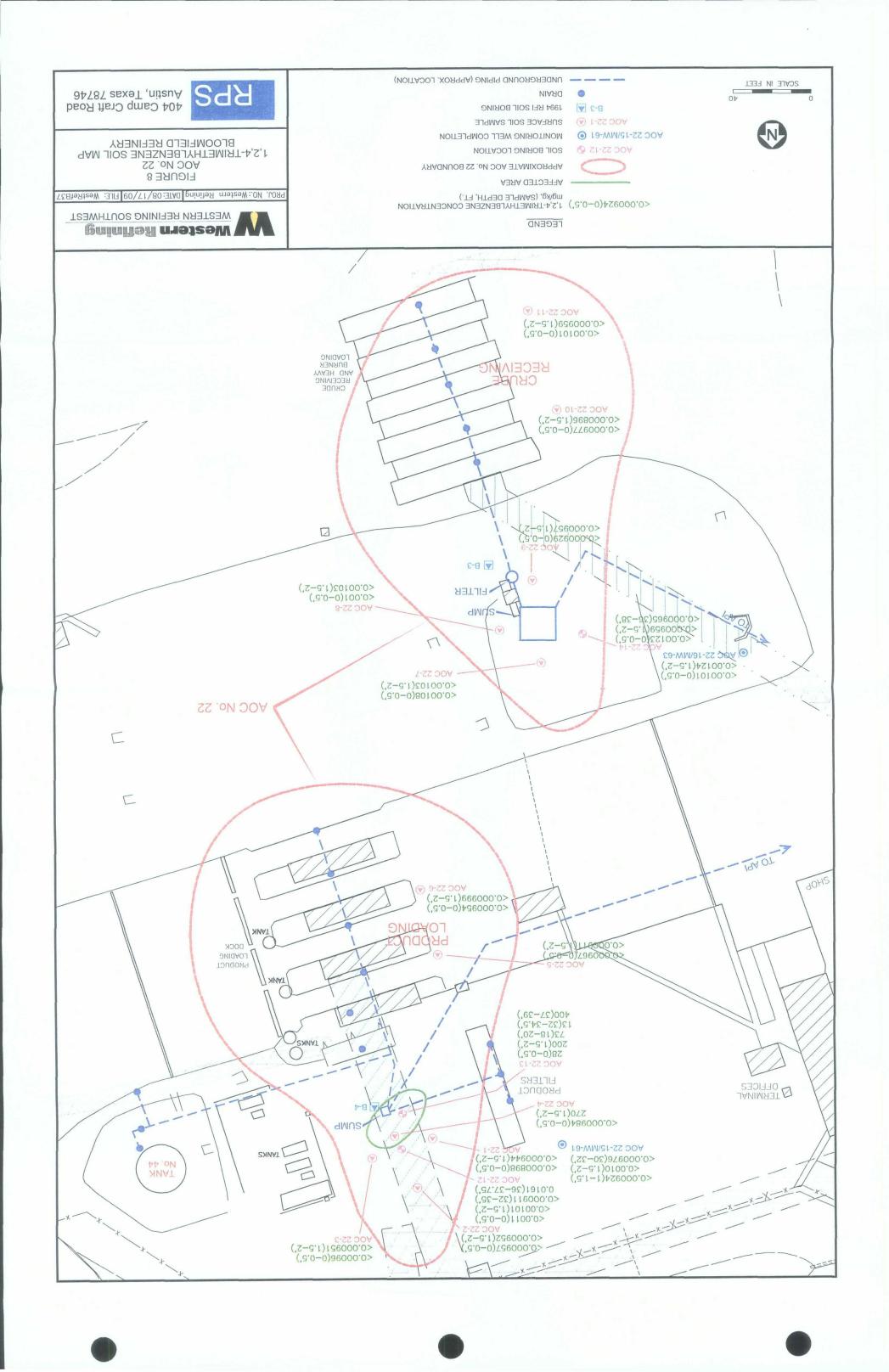
SAMPLE LOCATIONS MAP BLOOMFIELD REFINERY

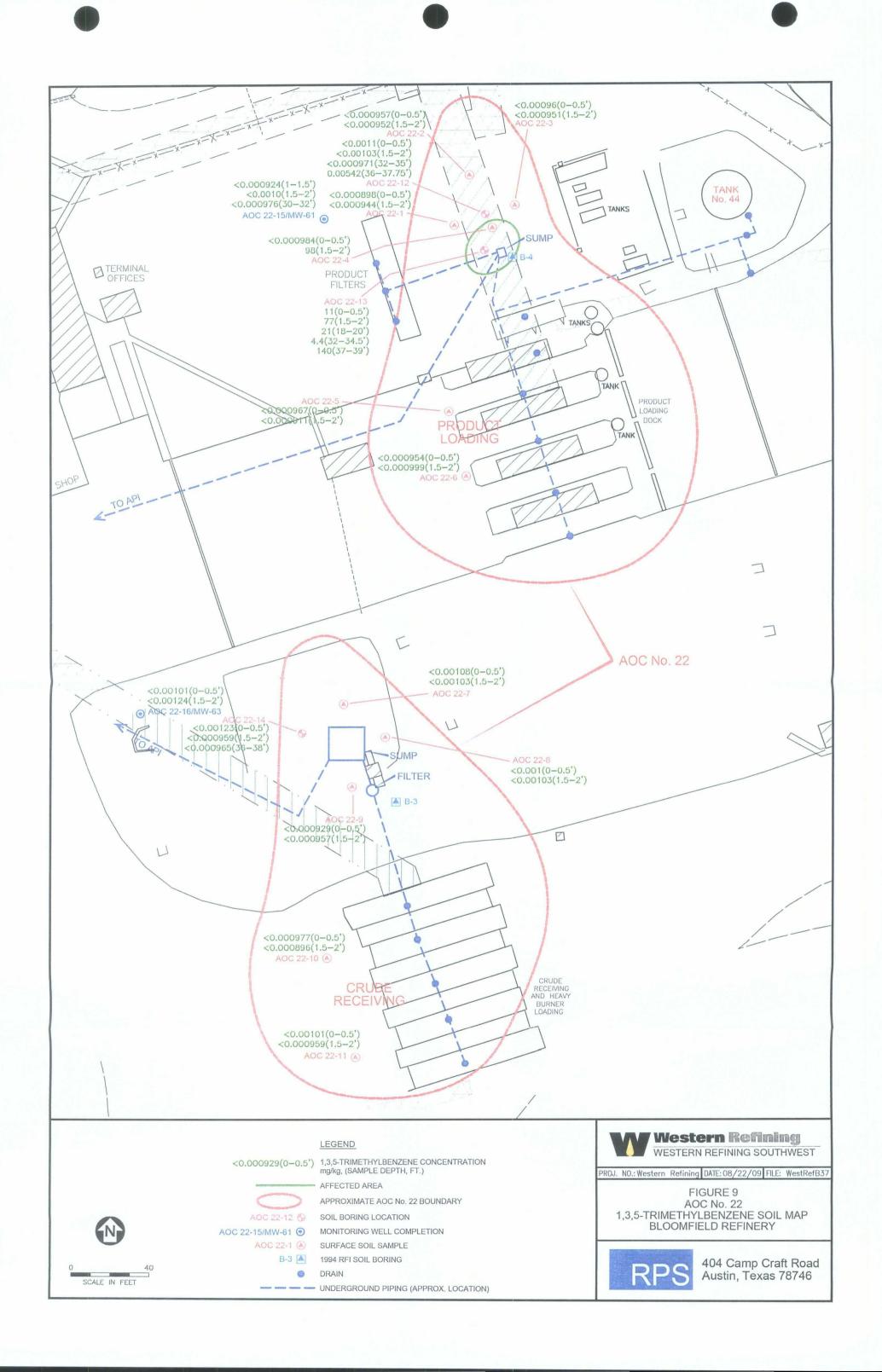


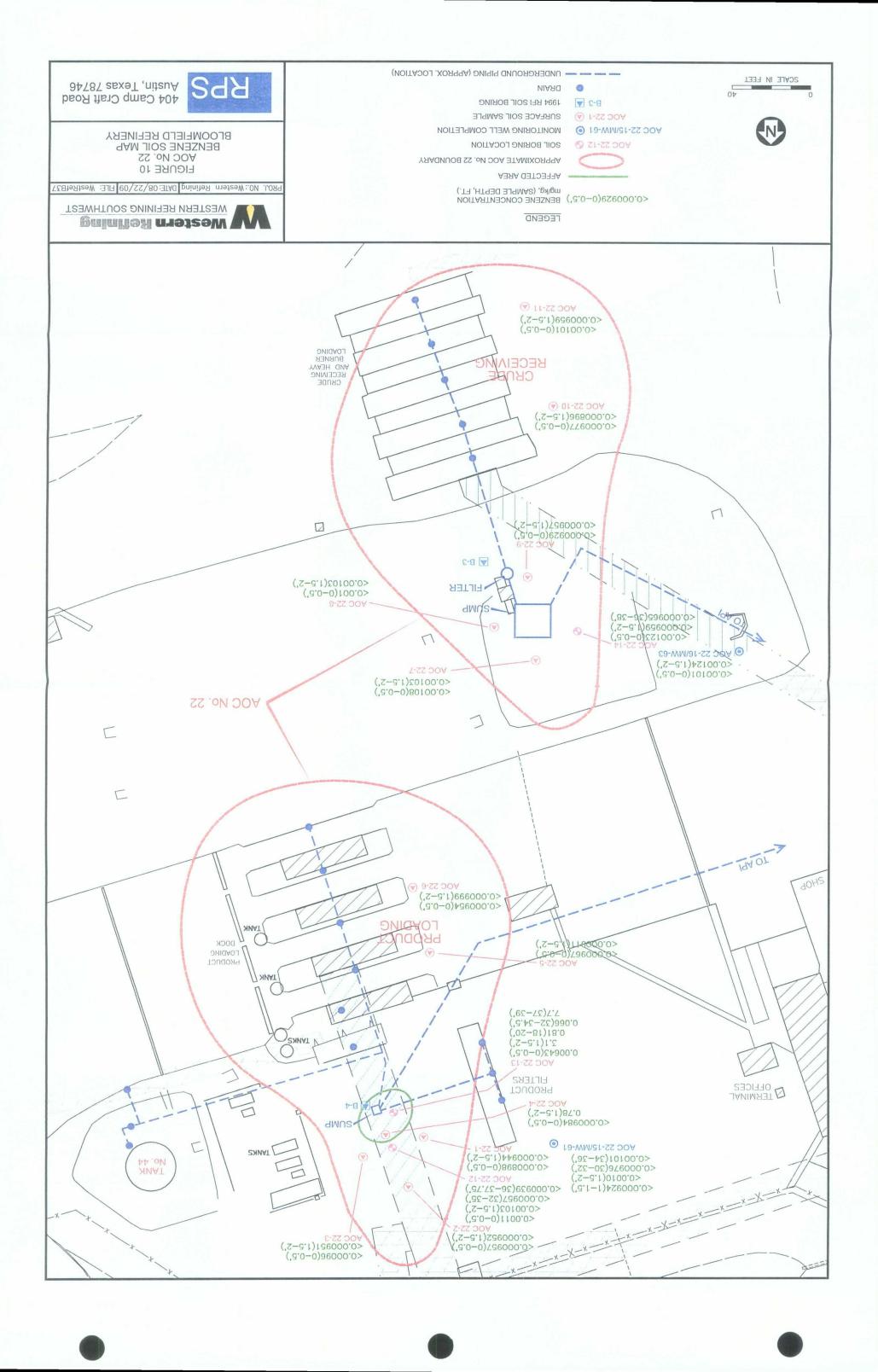
404 Camp Craft Road Austin, Texas 78746

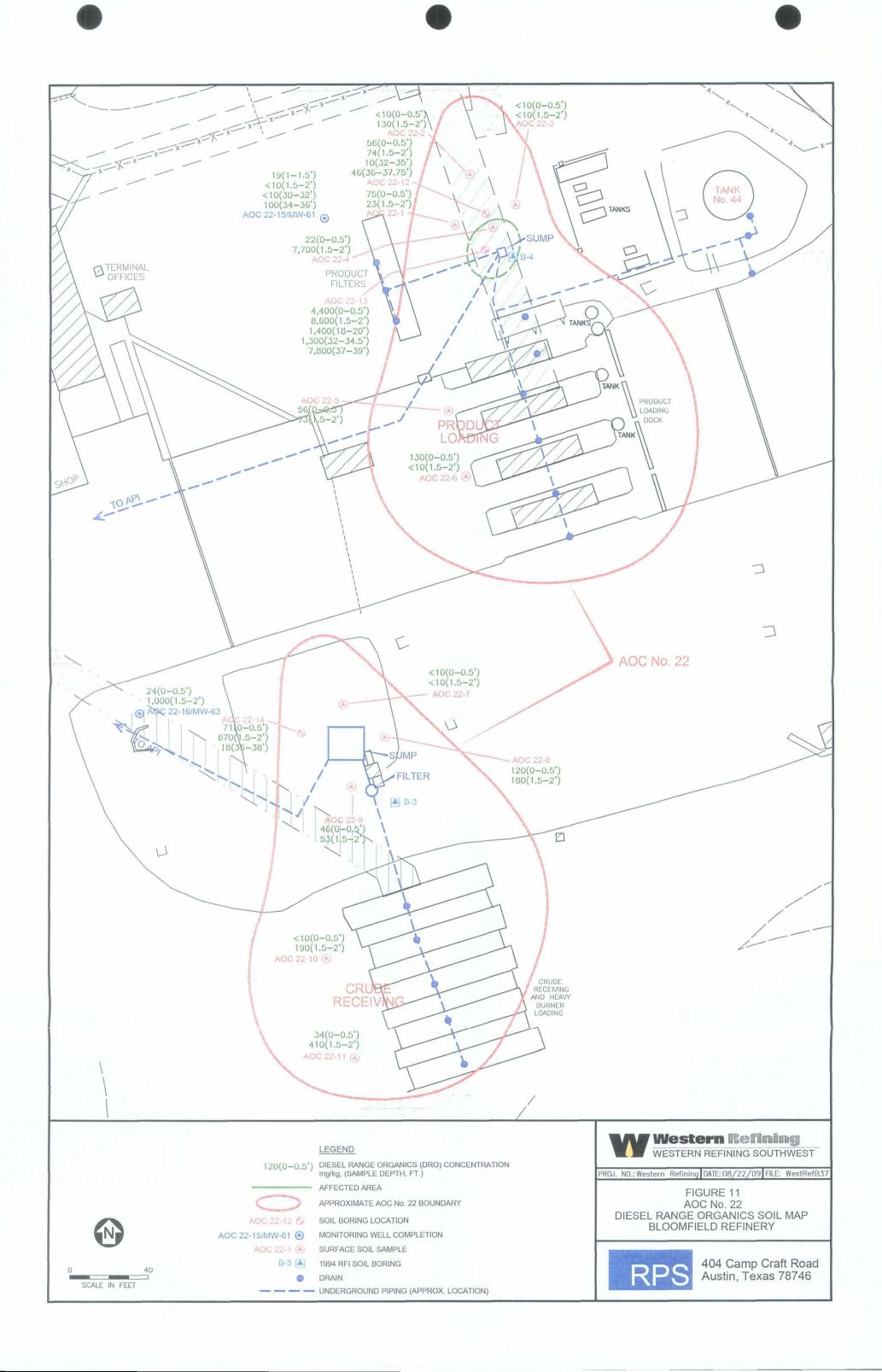


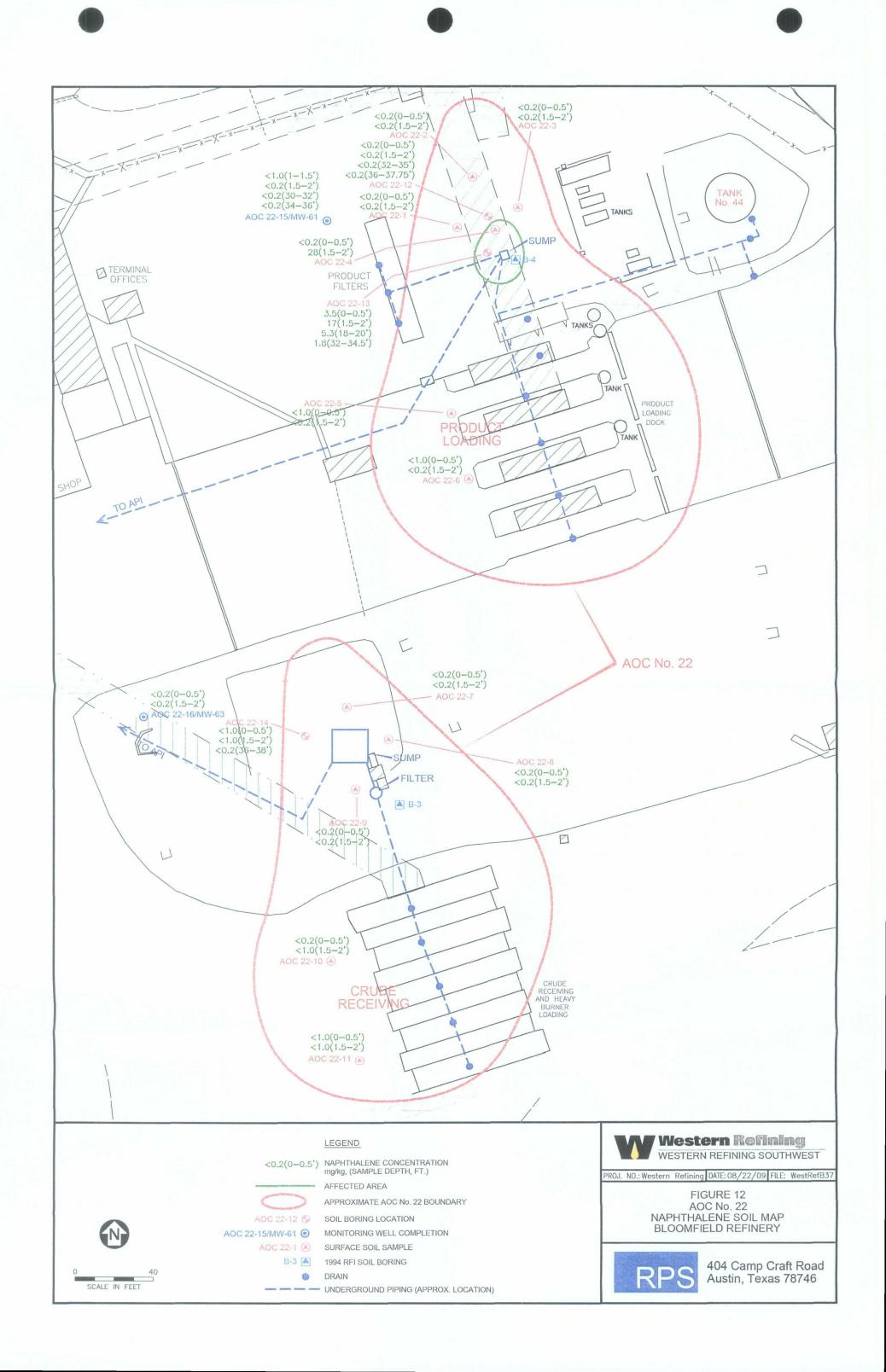


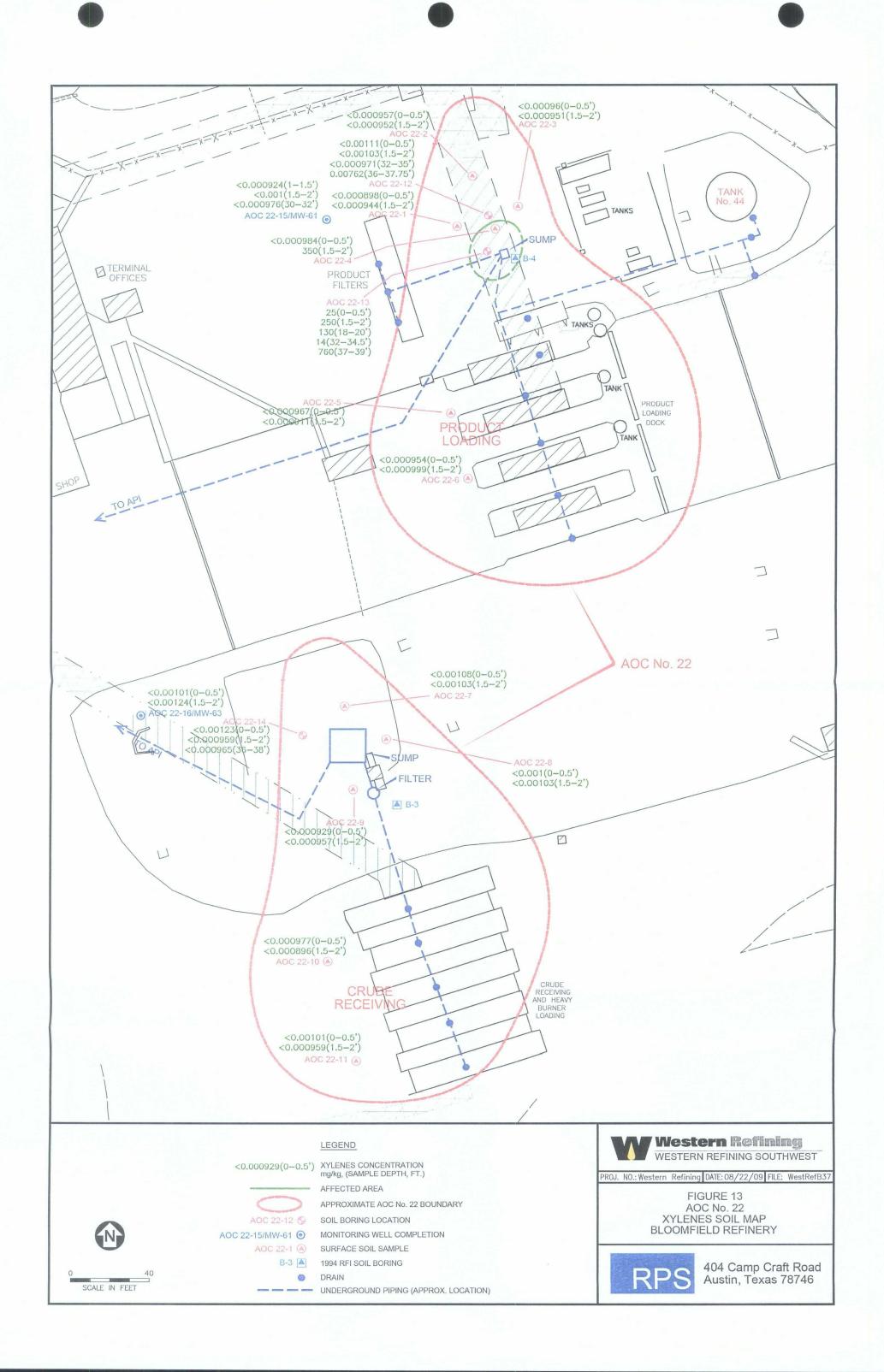


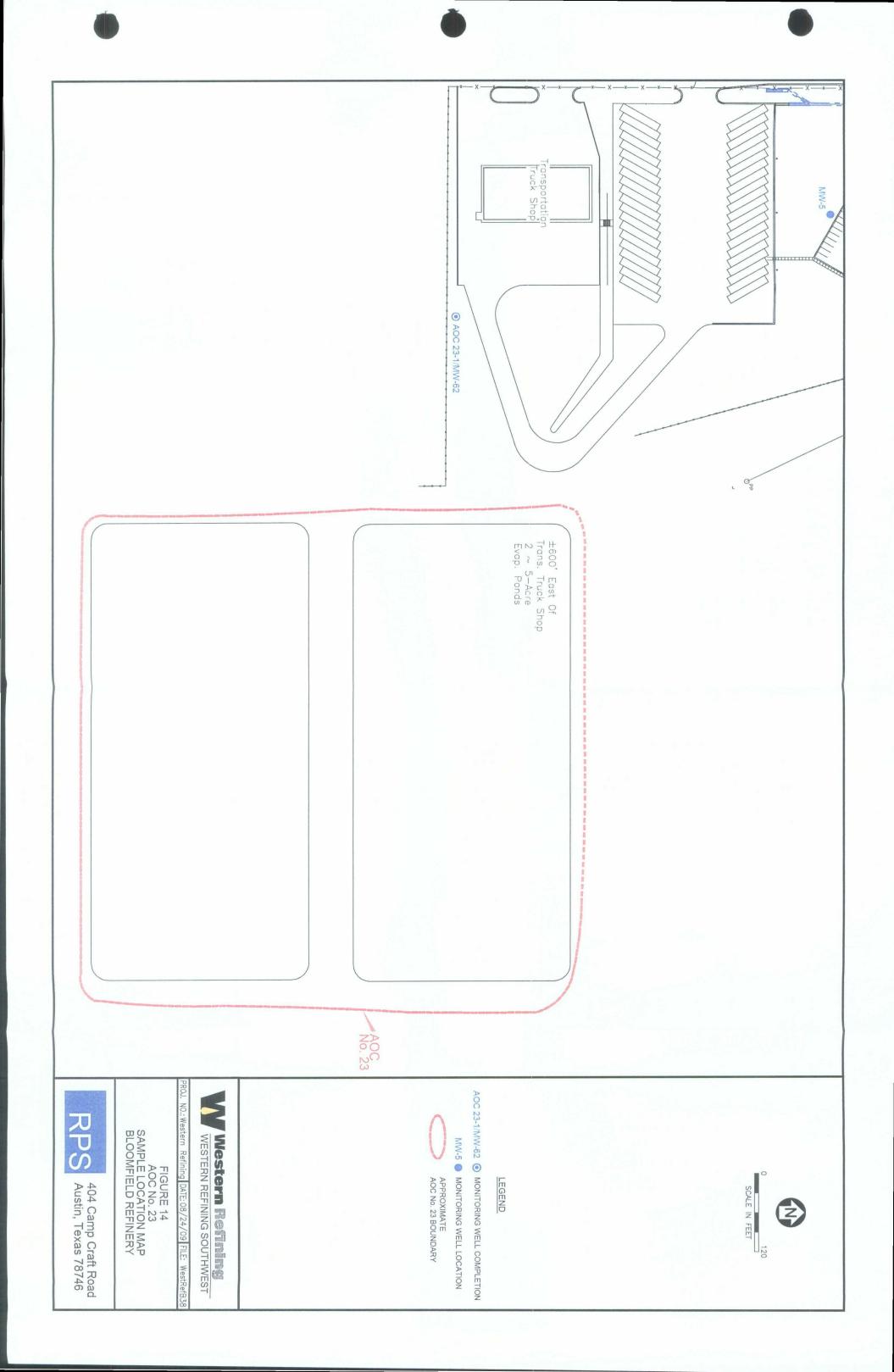


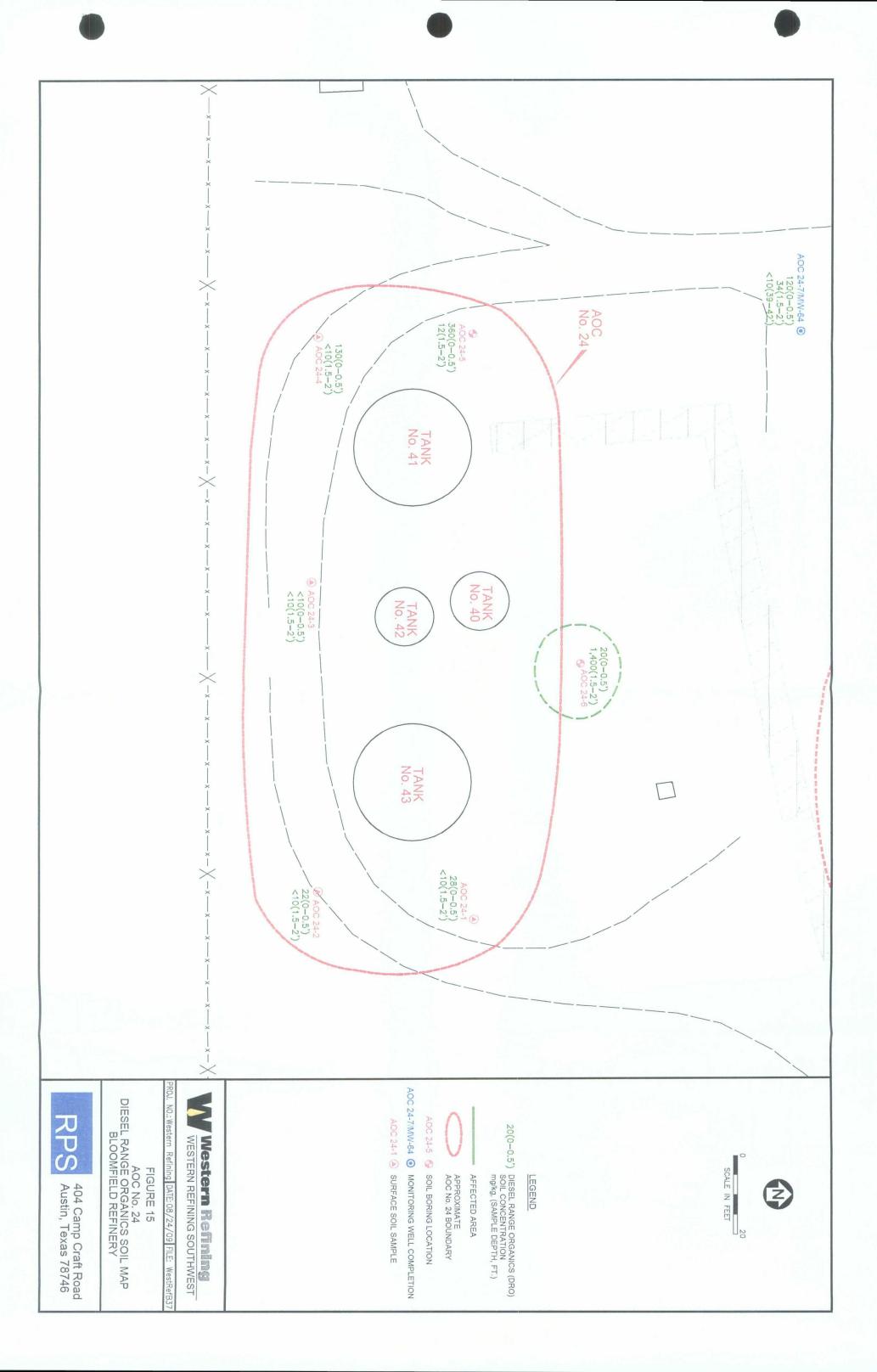


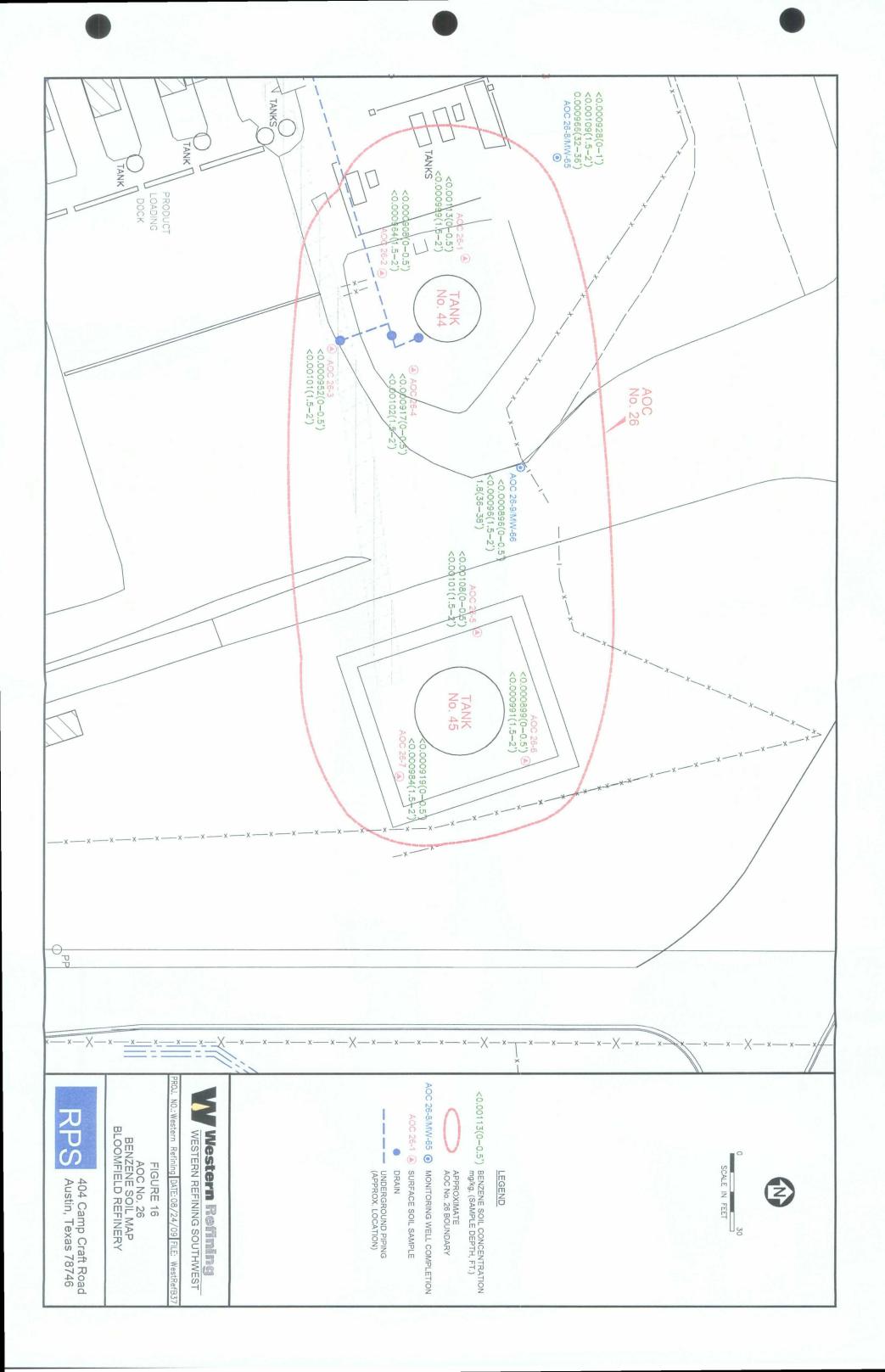


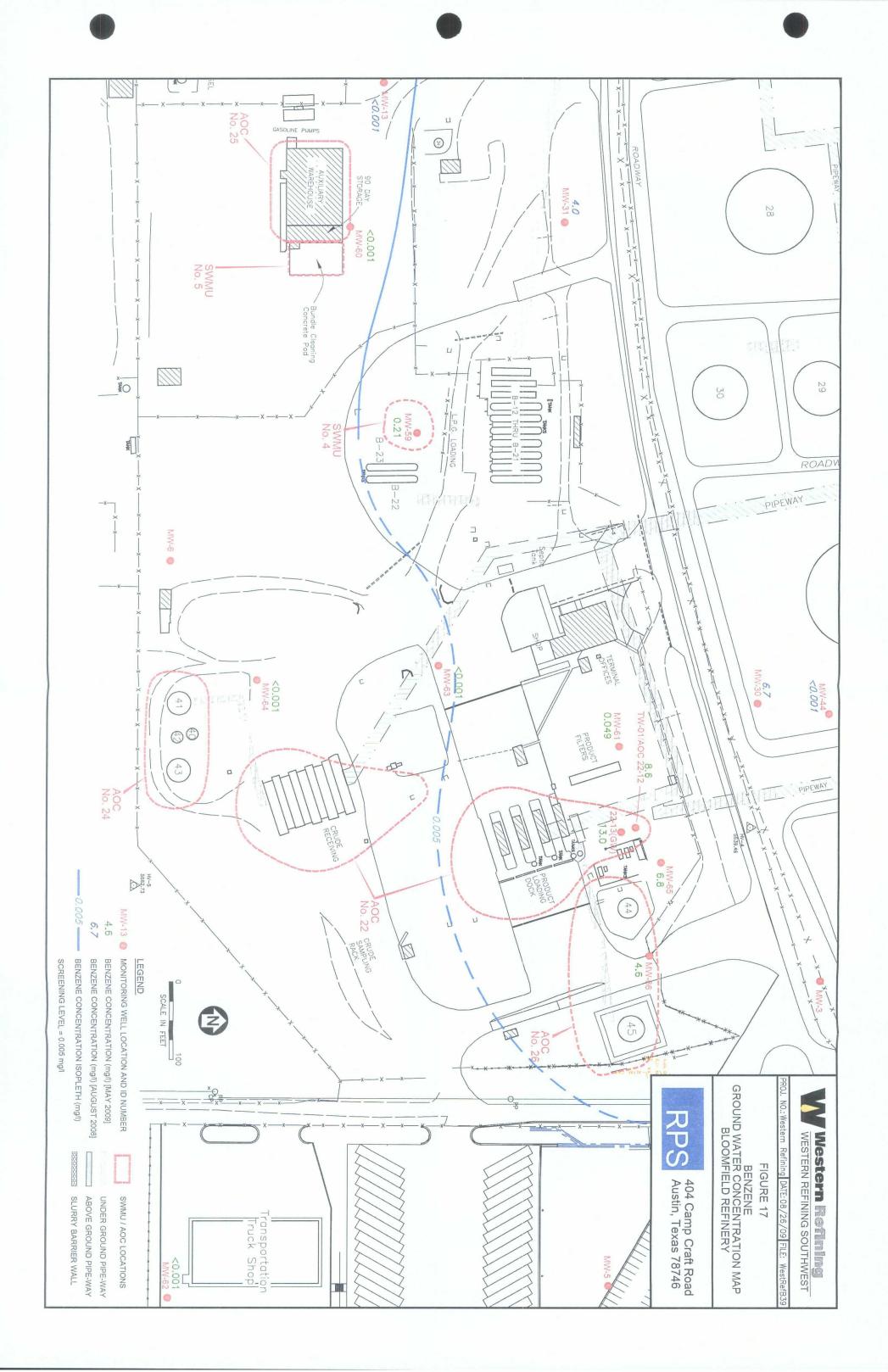


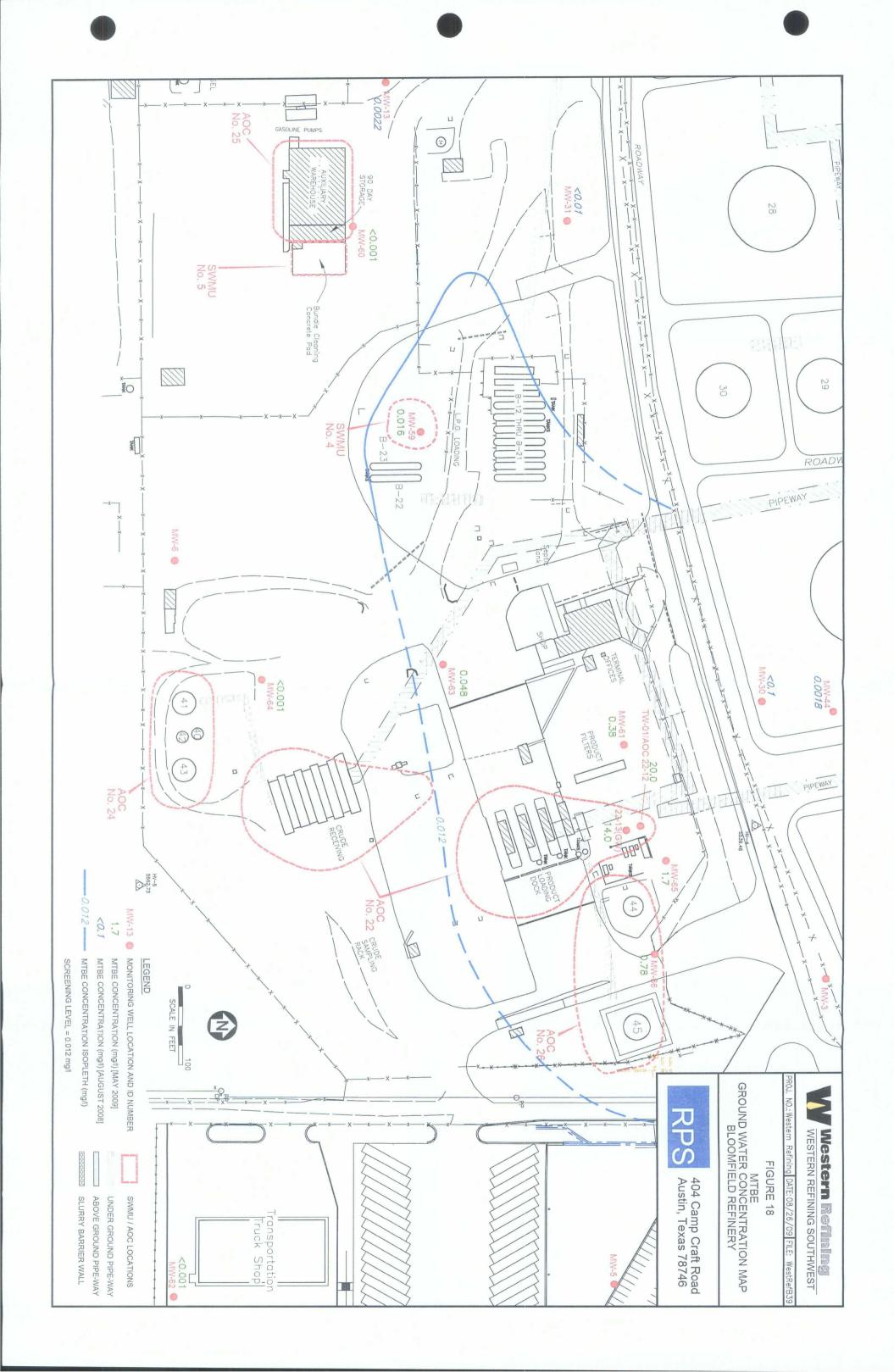


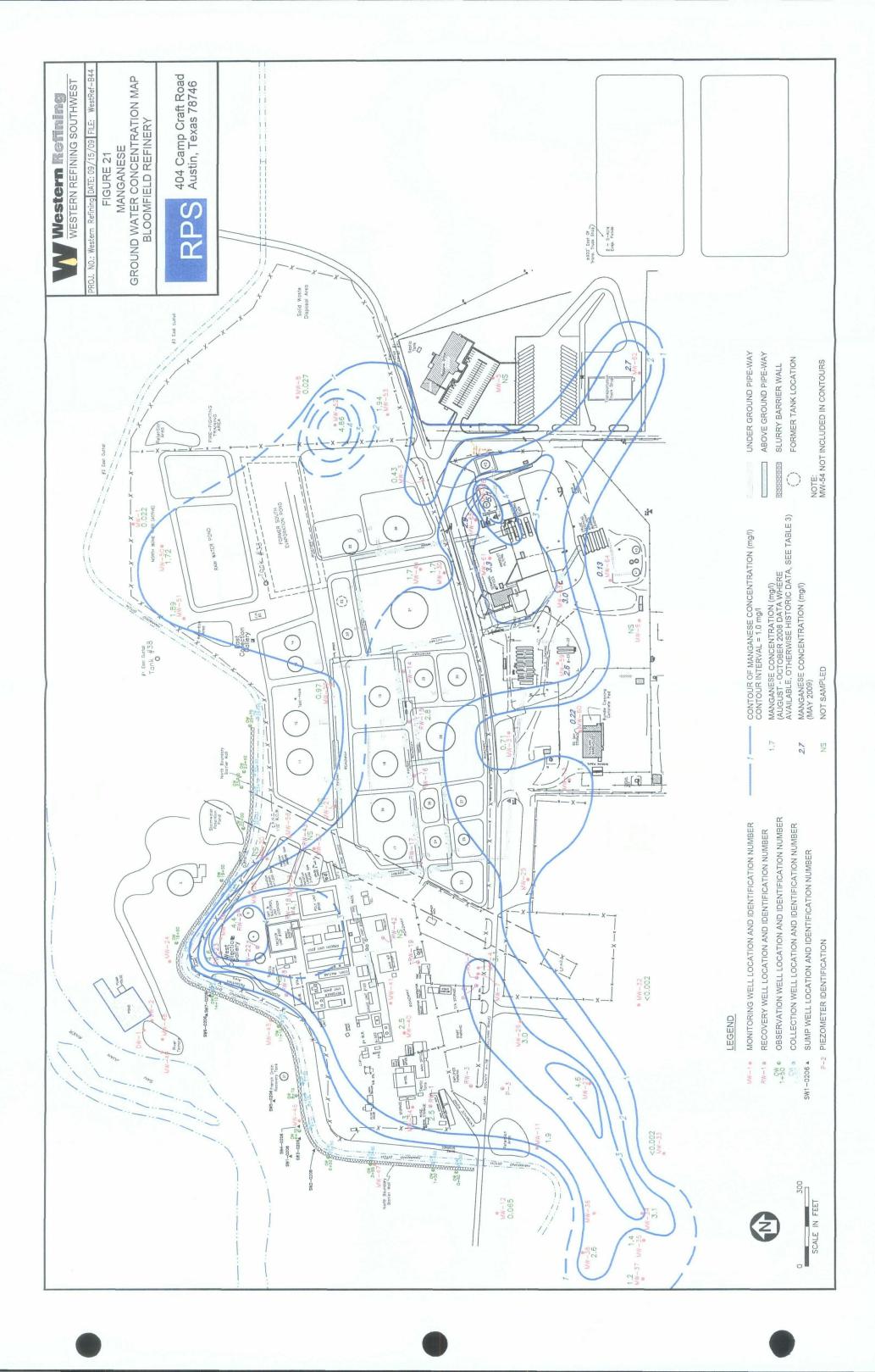












## Appendix A

**Photographs** 



Photograph 1
Solid Waste Management Unit #4, looking east across location of former sump.



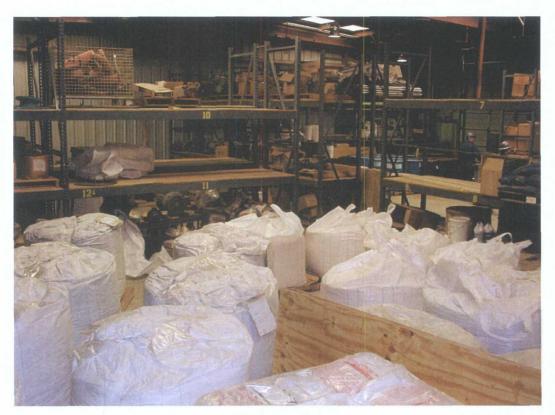
Photograph 2
Solid Waste Management Unit #5, facing west and looking across bundle cleaning pad at east end of warehouse building/90-storage area (AOC No. 25).



Photograph 3
Solid Waste Management Unit #5, looking northwest across bundle cleaing pad.



Photograph 4
Area of Concern 25. Picture taken inside warehouse buliding, looking at dry materials (e.g., catalyst) stored inside.



Photograph 5
Area of Concern 25. Picture of materials stored inside warehouse.



Photograph 6
Area of Concern 25. Picture of employee exercise area in west end of warehouse building.



Photograph 7
Area of Concern 25 Looking southwest from northeast corner of warehouse building/90-day storage area. The 90-day storage area is located inside open door way.



Photograph 8
Area of Concern 22 Looking east from west end of crude receiving rack facilities sump, location of new MW-63.



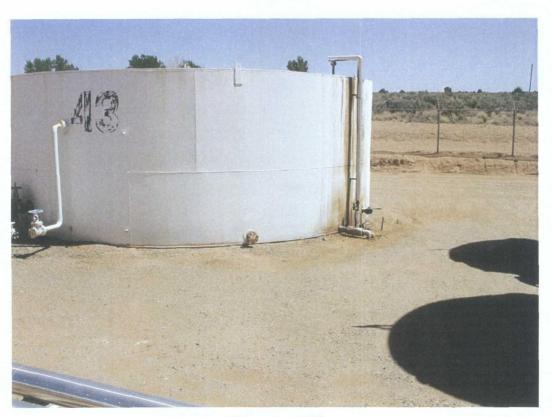
Photograph 9
Area of Concern 22 Looking south from northern portion of crude receiving rack.



Photograph 10
Area of Concern 22 Looking southeast from western portion of crude receiving rack facilities area.



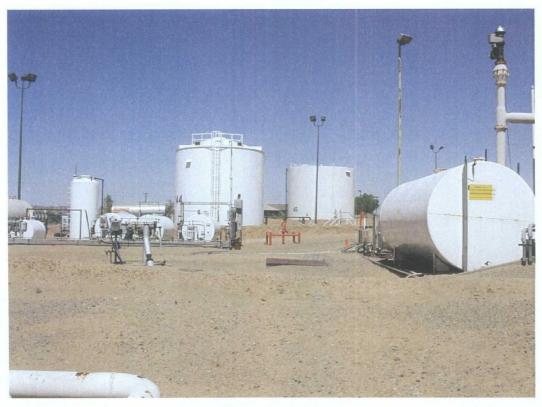
Photograph 11
Area of Concern 24 Looking southeast toward Tanks 40 and 42, Tank 43 in background.



Photograph 12
Area of Concern 24 Looking southeast at Tank 43 from northern edge of containment area.

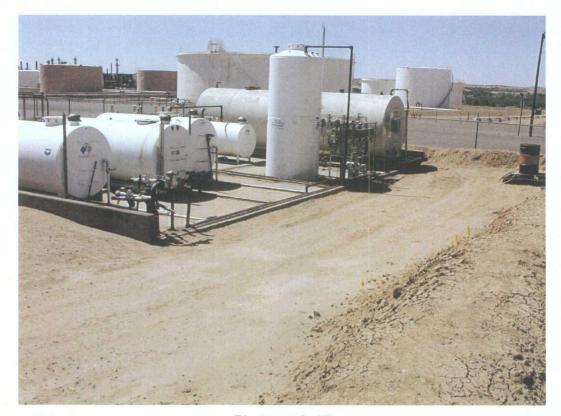


Photograph 13
Area of Concern 22 Looking east at product loading racks.

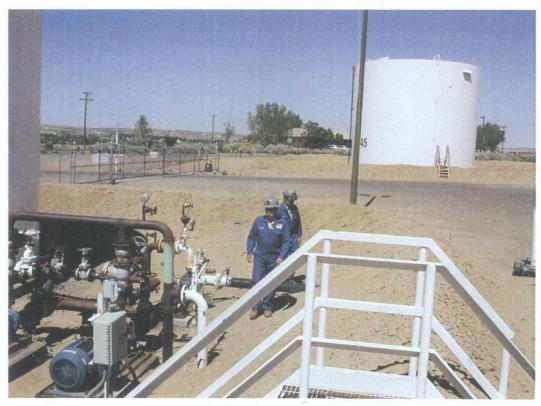


Photograph 14

Area of Concern 22 From northwest corner of product loading rack, looking east at Tanks 44 and 45 in background, center.



Photograph 15
Area of Concern 22 From northwest corner of product loading rack, looking northwest at product filters. Tanks in background are located on north side of County Rd 4990.



Photograph 16
Area of Concern 26 From south side of Tank 44, looking east at Tank 45.



Photograph 17
Area of Concern 26 From northwest corner of Tank 45, looking southeast.



Photograph 18
Area of Concern 27 From northwest corner of holding pond, looking east-southeast.



Photograph 19
Area of Concern 25 Drums stored inside 90-day storage area, concrete sump in center with metal cover.

# Appendix B

Correspondence



BILL RICHARDSON Governor

DIANE DENISH Lieutenant Governor

#### NEW MEXICO ENVIRONMENT DEPARTMENT

#### Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1 Santa Fe, New Mexico 87505-6303 Phone (505) 476-6000 Fax (505) 476-6030

www.nmenv.state.nm.us



RON CURRY Secretary

JON GOLDSTEIN Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

October 27, 2009

Mr. Randy Schmaltz
Environmental Manager
Western Refining, Bloomfield Refinery
P.O. Box 159
Bloomfield, New Mexico 87413

RE: EXTENSION REQUEST APPROVAL

FOR THE SUBMITTAL OF THE GROUP 3 INVESTIGATION REPORT WESTERN REFINING SOUTHWEST INC., BLOOMFIELD REFINERY

EPA ID# NMD089416416 HWB-GRCB-08-004

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) received Western Refining Southwest Inc., Bloomfield Refinery's (Western) *Group 3 Investigation Report Extension Request* letter, dated October 15, 2009. Western is requesting a sixty day extension from the October 19, 2009 due date for the submittal of the Group 3 Investigation Report. Western has made this request because of delays in receipt of sample analytical data from the contract laboratory. NMED hereby approves this 60 day extension; the Group 3 Investigation Report is due to NMED on or before December 21, 2009.

Mr. Schmaltz October 27, 2009 Page 2 of 2

If you have any questions regarding this letter, please contact Hope Monzeglio of my staff at (505) 476-6045.

Sincerely,

John E. Kieling

Program Manager

Permits Management Program

Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB

H. Monzeglio, NMED HWB

File: GRCB 2009 and Reading

HWB-GRCB-08-004



Fed Ex Priority Overnight #8709 9688 0454

October 15, 2009

Ms. Hope Monzeglio State of New Mexico Environmental Department Hazardous Waste Bureau 2905 Rodeo Park Drive East, Building 1 Santa Fe, New Mexico 87505-6303

Re: Giant Refining Company, Bloomfield Refinery (currently known as Western Refining Southwest, Inc. – Bloomfield Refinery) Order No. HWB 07-34 (CO) Group 3 Investigation Report Submittal Extension Request

Dear Ms. Monzeglio:

During review Western Refining Southwest, Inc. – Bloomfield Refining discovered that we had not received all the analytical data from the contract laboratory for sampling that had taken place during the Group 3 Investigation. Western has been working with the lab and the missing reporting is forth coming. As of Wednesday October 14, 2009 there is still some outstanding data which Western is anticipating by weeks end.

Given this information and the need to process this information, Western requests a sixty day extension of the October 19, 2009 deadline for submittal of the Group 3 Investigation Report.

Your consideration in this matter is greatly appreciated!

Sincerely,

Vames R. Schmaltz

Environmental Manager

#### **Scott Crouch**

From: Monzeglio, Hope, NMENV [hope.monzeglio@state.nm.us]

**Sent:** Friday, March 27, 2009 12:26 PM

To: Robinson, Kelly

Cc: Schmaltz, Randy; Scott Crouch; Cobrain, Dave, NMENV

Subject: RE: RCRA Investigation Group 3- Proposed Revised Boring Locations

Kelly

The proposed locations are fine.

Hope

From: Robinson, Kelly [mailto:Kelly.Robinson@wnr.com]

Sent: Friday, March 27, 2009 10:34 AM

**To:** Monzeglio, Hope, NMENV **Cc:** Schmaltz, Randy; Scott Crouch

Subject: RCRA Investigation Group 3- Proposed Revised Boring Locations

Good Morning Hope,

Thank you for talking with Randy and I yesterday afternoon. As we had briefly mentioned to you during our phone discussion yesterday, we would like to propose slightly adjusted locations for two monitoring wells and one soil boring that pertain to the Group 3 Investigation activities at the Bloomfield Refinery.

Over the past few days, we have conducted extensive efforts to identify underground utility and process piping within all proposed drilling locations for Group 3. As a result of those efforts, we have identified three areas in particular where we would like to modify the location of the respective borings to avoid damaging underground piping and provide safer clearance from exiting underground utilities.

The attached map is a mark-up of the original Figure 8 included in the approved Group 3 Work Plan. The originally approved boring locations shaded in yellow are areas where underground utility and process piping has been identified. The adjacent yellow circles represent Western's proposed "alternative" drilling location for each area.

We would like NMED's approval of the proposed modified locations. If you have any questions or need any additional information, please don't hesitate to contact either Randy or myself at your convenience.

Thank you for your time!

Sincerely,

Kelly R. Robinson

**Environmental Engineer** 

Western Refining Southwest, Inc. - Bloomfield Refinery

P.O. Box 159 50 Road 4990 Bloomfield, NM87413

office: (505) 632-4166 cell: (602) 908-6617 fax: (505) 632-3911





Appendix C

**Analytical Data Reports** 

Air Bubbles (Y or N) ewild **ANALYSIS LABORATORY** HALL ENVIRONMENTAL # See affactual analyte as 4901 Hawkins NE - Albuquerque, NM 87109 serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic Fax 505-345-4107 (AOV-Ime2) 07S8 www.hallenvironmental.com Analysis Request (AOV) 809S8 COC 182 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) SisteM & ASSE Tel. 505-345-3975 (HA9 10 AN9) 01E8 EDB (Method 504.1) कुछ छुप एक छुप × TPH Method 8015B (Gas/Diesel) Remarks: BTEX + MTBE + TPH (Gas only) (1208) s'8MT **HIBE+** 7 RCRA hurshydran-Gays  $\mathcal{M}$ Ņ 3 l Time Parine Date Kelly Lobinson y, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories 🗆 Rush Preservative Nove Now HO'Z といれ Nove 当以 #X6 None び出 Sampler: I raun Tum-Around Time texter of email or Fax#: Kelly, Robinston www.comproject Manager. (2) Eren Project Name: Client: Western Petiming Softway IN 10/ Standard 2) Encor Type and # Aol. 25-2 (0-0.5')-bup (3)/aus (Z)VOQ) (2) Vials Container 1(3) Jan (12) Vals (Z) Vials (I) Poly (IRILY 3 VORS (1) VOA Received by: Project #: DOC 25-2 (0-0.5") Level 4 (Full Validation) Sample Request ID Bloomfield, NM 87413 Chain-of-Custody Record EBS-040509 1 Patriens MCOH Blank Spin アワイ Trip Blank 50 Read 4990 ちゃく よっち Bloomfield Fxce Matrix 3 **2** 3 R Soi Sos Mailing Address: N QA/QC Package: 15.FS S 区 005 SYEDD (Type) Time 17 □ Standard lime: lf ne Phone #: □ Other 6/S/h Date 4/5/9 4/5/9

| 7,60,000 | TAINING CONNECTION      |                                      | ente          | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request | O <sub>4</sub> )                                       | o sso)<br>ealOles<br>or conc | 10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085<br>10085 | 11+<br>1210<br>1210<br>1210<br>1210<br>1210<br>1210<br>1210<br>1   | BEE de 80  | BTEX + MT BTEX + MT BTEX + MT TPH (Methorer TPH (Methorer BDB (Methorer BDB (Methorer BOB10 (PNA BOB10 (F,C BOB10 (Semi | ×                                 |                    | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ |                                    | X | ×                          | · · · · · · · · · · · · · · · · · · · | ×        | ×            | X .      |       | * See afterlud analyte list, | >                           | ves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical      |
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| Tim-Argund Time |                           | Standard 🗆 Rush                        | ame: | RCRA Investigation - Grap 3 | Project #:           |          | Project Manager: | Lukobusar  | Sampler:   |  |  | Container Preservative Type and # Type   | (S) vor Hci -6   |   | <u> </u> |   | (i)paly NaOH - 0 | F)VORS HCI             | CIVOR Nove -7 | \$   | Cistaly HND2 | 1) Poly Nath -7  |  | y: Date                                 | Received by: Day of Time 00    | her accredited laboratories.  |
|                 | Citalit-oi-custody Record | Clienti Western Petring Stoffment Inc. | L\   | וא                          | Bloomfield, NM 87413 | 24/10/0  | obinson Currien  | QA/QC Package:     Ostandard  | DEDD (Type) Exce)  |  | Date Time Matrix Sample Request ID   | 4/6/9 1200 Ay FB-040609  |   |          |   | 7 7 7            | 46/ 1215 By EBS-040609 |               |  |              | → <del>→</del> →   |  | Time:<br>ISDO                           | Dáte: Time: Relinquished by: I | if necessary, samples submitted to Hall Environmental may be subcontracted to of                                |

|  | ANALYSIS LABORATORY | com                       | NM 87109                | 5-4107             | ol        |                  | tn             | 204                       | 2<br>2<br>10       | 100<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00 |      | 8250 (Sen<br>8270 (Sen<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Coch<br>Co |                    | X         | XX       |                         | X         | ×  |                      | \\        | X<br>X   |               |            |   | Carl   |                  | on the analytica  |
|--|---------------------|---------------------------|-------------------------|--------------------|-----------|------------------|----------------|---------------------------|--------------------|---|------|--|--------------------|-----------|----------|-------------------------|-----------|--|----------------------|-----------|----------|---------------|------------|---|--|------------------|---|
| ALC: TENT  |                     | www.hallenvironmental.com | - Albuquerque, NM 87109 | ax 505-345         | sis Reque |                  |                |                           |                    | / səp   | oloi | (न) enoinA<br>tee9 1808  | χ                  |           |          | X                       |           |  | •                    |           |          | <u> </u>      |            | - | maly   |                  | clearly notated   |
| Ũ  |                     | hallen.                   | E - Alb                 | 75 F               | ⊵ Anal)   |                  |                |                           |                    |   |      | (NG) 0168<br><u>AR AROR</u>  |                    |           | X        |                         |           | X  |                      |           | X        |               |            |   | - P7   |                  | data will be  |
| ď  |                     | www                       | ins N                   | 45-39              |           | ادط<br>ک         | Not.           | m                         | (17                | 70 <u>5</u> (   | טסכ  | EDE (Met   |                    |           |          |                         |           |  |                      |           |          |               |            |   | ತ್ಯ  |                  | irracted  |
|  |                     | l<br>                     | 1901 Hawkins NE         | 505-345-3975       |           |                  |                |                           |                    |   |      | #₽M) H9T   |                    |           | X        |                         |           | X  |                      |           | $\geq$   |               |            |   | athach   |                  | sub-con   |
| 100 to 10 |                     |                           | 1901                    | Tel. 5             |           |                  |                |                           |                    |   |      | M + X3T8<br>rth Meth   |                    |           |          |                         |           |  |                      |           |          |               |            |   | 1  | 1                | y. Any  |
|  |                     |                           | 7                       | ·                  |           |                  |                |                           |                    |   |      | BTEX + M   |                    |           |          |                         |           |  |                      |           |          |               |            |   | Remarks:   |                  | ossibilit   |
|  |                     | 1                         | 5 graps >               |                    |           |                  | ζ              |                           | 775                |   |      |  | -                  | 7         | 1-       | -2                      | 2-        | 2-   | -3                   | . N.      | ~        | 5-            | 5          |   |  | ) 4/7/69 (0C0)   | ies.  |
| Turn-Around Time:  | Standard C Rush     | Project Name:             | KCKA Invotational Gray  | Project #:         |           | Project Manager: | Kell Kobinso   |                           | Sampler: I racy Pa | On location of the second   |      | Container Preservative Type and # Type   | 0-0.5) (2) Encores | (2) VIALS | (3) Jans | (Z)                     | (2)VIA(2) | (g) Jan  | (2) Evac             | (A) VIALS | (2) Jan  | MEOH          | (Z)VOA3    |   | Received by: Fig. 1.   | Recorded by:     | ontracted to other accredited laboratori  |
| C), n-of-Custody Record  | 7                   | heu                       | So Rose                 | Bloomfeld um 87413 | વવા       | 0                | _              | Level 4 (Full Validation) |                    | TXCE)   |      | Matrix Sample Request ID   | ) 1-4 mms 1-1      |           | →<br>→   | Soil Swm 4-1 (1.5-2.01) |           | <del>-&gt;</del>                                 | Spil Swmu 4-1 (6-8") |           |          | Ag MeoH Blank | Tris Blank |   | Relinduisped on Charles of Charle | Rélinquished by: | If necessity is amples submitted to Hall Environmental may be subcontracted to of |
| 31,510.  | 1/2st               | 12 PO                     | Mailing Address:        | A                  |           | email or Fax#:   | QA/QC Package; | ndard                     | ler                | ☑ EDD (Type)_   |      | Time   | 845                |           | -        | 930                     |           | <b>→</b>   | <u>=</u>             |           | >        | )             | <i>J</i>   |   | Time:   (500   | Time:            | If nece   |
|  | Client:             |                           | Mailinc                 |                    | Phone #:  | email (          | QA/QC          | □ Standard                |                    | ĭZ/ED!  |      | Date   | 2/6/2              | -         | ->       | 4/0/2                   |           | <del>                                     </del> | 6/01/4               |           | <b>→</b> |               |            |   | 4/0/9  | Date:            |   |

#### **METALS ANALYSES**

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

## GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

Most M

| E 1, 9                  | CONMENIAL<br>ABORATORY      | com<br>NM 87109                                       | 505-345-4107  |               |                         |                              | (N              | (AOV)  | 8250 (Semi-<br>8270 (Semi-<br>MO <sub>2</sub> / N<br>Cycus<br>Ethau  | X                |              |           | X                | ×        | 6         | X                 |                    |          |           |        | ×                | analyte Dist.                         |                      | on the analytice (   |
|-------------------------|-----------------------------|---|---------------|---------------|-------------------------|------------------------------|-----------------|--|--|------------------|--------------|-----------|------------------|----------|-----------|-------------------|--------------------|----------|-----------|--------|------------------|---------------------------------------|----------------------|--|
|                         | HALL ENVIKO<br>ANALYSIS LAI | allenvironments - Albuquerque                         | 10            | T TANANSISTEM | (†OS                    | s, <sub>4</sub> 09,          | NO <sup>s</sup> | -1ΑΥ 1 <sub>0</sub><br>-4κ sls:<br>1,εΟΝ,<br>3 \ səb | 6710 (PNA O 1885)<br>1885) O PNA O 1895<br>1895) O PO 1895<br>1895) O Pestici  | X                | <u> </u>     | <b>X</b>  | X                |          |           | ×                 | \frac{1}{\sqrt{2}} |          |           |        |                  | \$                                    | ,                    | of this possibility. Any sub-contracted data will be clearly notated on the analytical |
| *<br>**                 |                             | www.h   | Tel. 505-345- |               | only)                   | (Gas                         | на.<br>В (С     | 9E + 1   | BTEX + MTE<br>BTEX + MTE<br>POH Methoo<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAMPH<br>DAM | X                |              |           | ×                |          |           | ×                 |                    |          |           | ×      |                  | * Refer to attached                   |                      | ossibility. Any sub-contract   |
|                         |                             | INVESTIGATION - GOOD 3                                |               |               |                         | Jos                          | ine             |  |  |                  | 1            | 1         | 2                | 2        | 2         | 5                 | Υ                  | γ        | t         | Н      | 'n               |                                       | Date Time            | s. The ves as notice of this p   |
| Turn-Around Time:       | dard 🗆 Rush                 | ! =   | 1 1           |               |                         | Mytobinso                    | Tracy lay       |  | ner Preservative   | 1 Nove           | De Nove      | 13 Medy   |                  | se None  | 1 MeDH    | Nove              | J                  | Is MeDH  | PHC!      | 4 Nove |                  | "<br>K                                | 1 1/2 N              | ther accredited laboratorie  |
| Turn-Aro                | (De Standard                | Project Name:   | Project #:    |               | ا Project Manage المرين | *                            |                 |  | Container<br>Type and #  | (S) (a)          |              | (e) Vials | cup(E)           | (2) Euco | (E) Vials | 二                 | (2) Euco           | (2) Vod  | S) VORS   | () YOY | (I) HIMBER       | Received by: Fed $\mathcal{E}_{\chi}$ | Received by:         | ocontracted to o   |
| Chain-of-Custody Record | wing Southwest Inc          | Bloomfield Orefriend<br>Mailing Address: 50 Road 4990 | J NM 87413    |               | 4. Robinson Cum.c       | Prevel 4 (Full Validation)   |                 |  | Sample Request ID  | Swmu 4-1(36-381) |              | <b>→</b>  | ADC 24-7 (0-0.5" |          |           | ADC 24-7(1.5-2.0) |                    | >        | FB-040709 |        | <del>-&gt;</del> | Il de la son                          | d byt∤               | If nece  |
| ain-of-Cu               | stan Refin                  | Mon field   | برائح         |               | Kell                    | kage:<br>d                   | 3               | ype) Exce  | Time Matrix  | 1700 Soil        | ٠ <u>ـــ</u> |           | 1130 Soil        |          | 1         | 1145 20:1         |                    | <b>→</b> | 1200 Ag   | -      |                  | 0                                     | le: Relinquished by: | amples subm  |
| Š                       | Client: Use                 | Bloom<br>Mailing Address:                             |               | Phone #:      | email or Fax#:          | QA/QC Package:<br>□ Standard | □ Other □       | ©∕EDD (Type)   | Date   | 1 6/9/4          |              |           | 11 6/4/4         | ~        |           | 4/4/9/11          |                    | →<br>    | 21 6H/h   |        | ~                | 4/7/9 [SD]                            | Date: Time:          | If nece  |

Air Bubbles (Y or N) **ANALYSIS LABORATORY** \* Ret to attached for another list. HALL ENVIRONMENTAL If necessary, samples submitted to Hall Environmental may be subcontracted to office appredited laborationes. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. 4901 Hawkins NE - Albuquerque, NM 87109 Chewist CDC 292 Fax 505-345-4107  $\overline{\mathbf{X}}$ www.hallenvironmental.com · Analysis Request X (AOV) 809S8 X Anions (F,CI,NO3,NO2,PO4,SO4) Tel. 505-345-3975 (HA9 to AN9) 01:E8 Remarks: (Vino ese) HTT + 38TM (1508) s'BMT + 38TM 3 Time Time -se Q RCRA Investigation - Group 8 Lelle Kobinson i Date Date F Sampler: Tracin Payor □ Rush Preservative 362 2 362 MEDH 48 HOOZ H097 Type HNOS HNOZ ゴビ T T Turn-Around Time: Project Manager Project Name: **Electandard** (1) Aleska HC) I'I'D Fed Ex Type and # G)VOAD (1) Poly (1) POLY Container 2) VOAS (1) Poly (1.) Poly C) YOA Received by: Project #: Received by: email or Fax#: Kelly, Robinson@wn.com Level 4 (Full Validation) Client: Western Refining Sasthurst Inc Sample Request ID Chain-of-Custody Record Bloomfield NAM BAYIB Bloomfield Of finery MeDH Blank Trip Blawil EBS-040309 FB-040769 Mailing Address: So Road 4990 Phone #: ( Soc. ) 633-4166 Relinquished by Relinguished by Exce! ぞみ Matrix F \$ A A 1500 17,00 Time QA/QC Package: CEDD (Type) 1215 Time: □ Standard Time: □ Other □ Date 14/14 6/±/

### METALS ANALYSES

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

### GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis/Request | TEX + MTBE + TPH (Gas only)  TPH Method 8015B (Gas/Diesel)  TPH Method 8015B (Gas/Diesel)  TPH Method 504.1)  TOBA Pesticides / 8082 PCB's  Minons (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  Most Pesticides / 8082 PCB's  Most Post Most Post Most Post Most Post Most Post Post Post Post Post Post Post P   |  | < X  | X                              | X<br>X<br>X<br>X                |                          |   | ate Time Remarks:  A Petyrto attactud aualyth serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic port. |
|--|--|--|--|--------------------------------|---------------------------------|--------------------------|---|---|
| Turn-Around Time:  Turn-Around Time:  Project Name:  RCRA Investration - Group  Project #:   | A Project Manager:  A Project Manager:  Sampler: Tracy Ruy Continer: Tracy Ruy Container Preservative Container Preservative Container Preservative Container Preservative Container Preservative Container Preservative Container Preservative Container Contai | 42/)(3) Jaus / - 1                       | (2) VIRLS - 1  | s') (3) $tu$ ) $-2$            | (2) Via l                       | 20 (3) Jan               |   | D A G Schedited laboratdric is  |
| Chain-of-Custody Record Client: Western Refining Soothwet Bloomfield Refinent Mailing Address: So Read 4990 Bloomfield NM 87413 Phone #: (505) (632-4166     | ckage: Type) Ex  | 4/3/9 1815 Soil AOC 24-7(37-42")(3) Jaus | \rightarrow \right | 4/8/9 1100 Spil AOC 24-5 Co-0. | 4/8/1 1/80 Soil 1/8CZ4-5(0-0,5' | 4/8/9 1260 ADC 24-5 (65- | 7 | Date: Time: Relinquished by:    1500   H.   |

|  |   | www.hallenvironmental.com | 2 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 |     | O4)  | o ssə))<br>SəlOləsi<br>المرور<br>المراج                   | 1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>100 | 8015<br>418<br>1504<br>1604<br>1604<br>1604<br>1604<br>1604<br>1604<br>1604<br>16   | TTE AO A A A A A A A A A A A A A A A A A A | BTEX + A BTE | X                                      | , X                 | X         | 7  | $\gamma$                  | X                       |  |  | Remarks:                    | Ó  | - Orex         | this possibility. Any sub-contracted data will be clearly notated on the analytic                           |
|--|---|---------------------------|---|------------------------------------|-----|--|---|---|---|--|--|--|---------------------|-----------|--|---------------------------|-------------------------|--|--|-----------------------------|--|----------------|---|
| Chain-of-Custody Record Tum-Around Time: | Client: Western Refinite Southwat he Waterdard   Rush | Refluen Project Name:     |   | Sloanfield NM Project #: 0         | o's | email or Fax#: Kelly, robin Sone was groject Manager | OA/OC Package: Defevel 4 (Full Validation) (KullyCobinso) |   | GVEDD (Type) EXc. Ontice Tyou Exc. Search |  | Date Time Matrix Sample Request ID Container Preservative Trype and # Type   | 4/8/9 - Ag MEDH Blank (E)VIal) MEDH -5 | 1 AOC 24-6 (0-6.5") | (2) Every | <br>1 1315 501/ ADC 24-6/1.5-2.0 ) (2) EMOR NOVE | 1 1 1 1 (2) VIAU MUDH - 7 | 1 2 2 V (3) Jan None -7 |  |  | 46/9 IDD Hull O(USD) Fed Co | Date: Time: Relinquished bi: Received by Date Time | 1 4 9 100 VOIS | If necessary samples submitted to Hall Environmental may be subcontracted toothay accredited laberatories ( |

|   |                         | HALL ENVIRONMENTAL ANALYSIS LABORATORY | www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request   | ( <sup>†</sup> C                |             | ()<br>()<br>()<br>()<br>() |            | or it of the property of the p | HQT (Methoday) HQT (Methoday) GE8 Methoday (P.Q.) Anoina (P.Q.) Georgian (Senical Methoday) GEORGIAN (Senical Meth | X                          | × | ×                | XXX                       | X         | X         | ×                  | ×         | ×      | X        | X            | ×               | atteched anolyter West        | Time: Received by: Date Time |
|---|-------------------------|--|---------------------------|---|------------------------------------|--|---------------------------------|-------------|----------------------------|------------|--|--|----------------------------|---|------------------|---------------------------|-----------|-----------|--------------------|-----------|--------|----------|--------------|-----------------|-------------------------------|------------------------------|
|   |                         |  |                           |   | Tel. 5                             | College of the Colleg | (ΛĮυ                            | 988 01      | ) Hc                       | <u>I</u> + | 38.  | BTEX + MT  |                            |   | ٥                | -2                        | 2 -       | -2        | 13                 | ر \<br>ال | 7      | n        | 3            | h-              | Time Remarks:                 | Time                         |
|   | round Time:             | ndard 🗆 Rush                           |                           | , investigation                         | <b>&gt;</b>                        |  | Manager:                        | all Lebizar | 12                         |            |  | iner Preservative  | us Nove                    |   | Lac Nove         | None L                    |           | ALS Medy  |                    | A Nove    | =      | st Natif | be Now       | With Me OH      | 14:40 H                       | by: Date                     |
|   | tody Record Tum-Around  | Killin Softwarth Bestandard            | Strinery                  | 4996                                    | NM 87413 Project #:                | しまスート いかい  | Robinson Chur. Los Project Mana | D           | Sampler Sampler            |            | SHUE   | Sample Request ID Type and #   | Aoc 22-14 (15-2.01)(3) Jas |   | \$\( \( \( \) \) | Ax 22-14 (0-0,5") (3) Jan | (Z) Eucos | (2) VARLS | FB 040809 (S) VOA, | (i) Von   | CA BLY | (E) (B)  | J (1) Ausber | Jedit Blank (2) | Poblusor                      | y: Received by:              |
| Salar | Chain-of-Custody Record | Client: Western Ret                    | Bloomfield                | Manifild Address: SO Road               | Blomfield N                        | Phone #: (505) 632   | =                               | :eßi        |                            | (Type)     |  | Date Time Matrix (   | H/99 PHZD Soil 1           |   | →<br>→           | 4/8/9 MID Soil A          |           | 7         | 4/8/9 /840 Ag F    |           |        |          | →<br>→<br>→  | T               | H 9/9 (Zab + Wellindvished by | Dafe: Time: Relinquished by. |

Air Bubbles (Y or M) ANALYSIS LABORATORY HALL ENVIRONMENTAL If ner many mples submitted to Hall Environmental may be subcontracted to other accredited laboratories as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic 4901 Hawkins NE - Albuquerque, NM 87109 see prevan Kemanle, Fax 505-345-4107 (AOV-imac) 07S8 × www.hallenvironmental.com 8560B (<del>VOA)</del> × 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 % AN9) 01:58 EDB (Method 504.1) × X [PH Method 8015B (Gas/Diesel) Remarks: (Vino sso) H9T + B8TM + X3T8 (1208) s'AMT BLEX + WLBE + RCRA Investigation-Gap 3 5 Time Jakziae, Sampler. I toly faying □ Rush Preservative Nowe HON HNO. Nove T T Turn-Around Time: Lelly, Robinson Curricol Project Manage Project Name: Client: Western Leting Sorthwat la restandard Type and # Container CHON (3) HCN (1) (I) Amalada (3) Poly (1) Poly Project #: Received by " THINGS Level 4 (Full Validation) Sample Request ID Chain-of-Custody Record とのではなり E63-040809 ineu Mailing Address: Sto Boad U4990 Bloomfield MM B7413 Phone #: (505) (523-4)160 Relinquished by: Bloomfield FEDD (Type) Excel Matrix \$ email or Fax#: 1200 Time 63 QA/QC Package: Time: Time: □ Standard □ Other 4/8/9 Date

### METALS ANALYSES

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

## GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

Air Bubbles (Y or M) ANALYSIS LABORATORY CDC 1 & 3 HALL ENVIRONMENTAL 4909 # See Alached Much to List If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. 4901 Hawkins NE - Albuquerque, NM 87109 Menishy Fax 505-345-4107 (AOV-ime2) 07S8 www.hallenvironmental.com (ACM) 809S8 8081 Pesticides / 8082 PCB's + Work Plan. Anions (F,CI,NO<sub>2</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (Gas/Diesel) Remarks: MTBE + TPH (Gas only) BTEX + MTBE + TMB's (8021) ROCA Lunationhar-Goods .7 4 3 4 M  $\mathcal{I}$ ļ ) 14:50 C Date Sampler: Tray fayor Rush 🗆 Preservative Tum-Around Time: ... Robins on EunchBroject Manage Project Name: (TyStandard Ce) Encor (ने एंटम्) (2) Exces (Z) EMCAY (3) V (1) 22-13 (32-34,51) (3) bus Type and # (3) Jans (2) VIBU 22-13 (15-2,01) (3) Jans Container Acc 22-12 (37-37) (2) VIALS (Z) Vorg (!) Jal Received by NM 87413 Project #: Received by Ly Phurattu Lotinery (Full Validation Lobrado Sample Request ID ADC 22-13 (18-20) Chain-of-Custody Record MeOH Blaule 066F 3914-259(20 Aoc. Poc Bloomfield Client: 1/ Esteu Refinius Bloomfield Mailing Address: So Read Relinquished by TRCC Matrix 7.3 Ŕ 50. ۔ کم RVEDD (Type)\_\_ 1200 18CC QA/QC Package: 14/8/4/1040 email or Fax#: Time: □ Standard Phone #: □ Other h/8/4 Date 4/8/9 149/9

| LAIL ENVIDONMENTAL          | YSIS LAB                                 | www.hallenvironmėntal.com | 4901 Hawkins NE - Albuquerque, NM 87109 | 505-345-3975 Fax 505-345-4107 | Analysis Request        | (*O:                                     | 2000<br>2000<br>2000<br>2000<br>2000<br>2000 | 2808<br>2808<br>2808<br>2808<br>2808<br>2808<br>2808<br>2808 | 149 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ethooethoo  Material  F,CI,TF, | ######################################                   | X                          | X |                 | X | × | × | × | × | ×                                | × | ×         |              | . Attached andy to list | gor Metals.                  | sub-contracted data will be clearly notated on the analytic " - bort.  |
|-----------------------------|--|---------------------------|---|-------------------------------|-------------------------|--|--|--|---|--|--|----------------------------|---|-----------------|---|---|---|---|---|----------------------------------|---|-----------|--------------|-------------------------|------------------------------|--|
| Tum-Around Time:            | © Standard □ Rush                        | VIESTIGATION - Cana       | 200                                     | Project #:                    |                         | 1)                                       | ) 28ව  | Hd   | 1 + 3                                   | T M M M M M M M M M M M M M M M M M M M  | Container Preservative HERMES + + + Type and # Type Type |                            |   | (1) NOW NOWE -6 |   |   |   |   |   |                                  |   |           | HC -8        | 14.50                   | Received by: Date Time       | If ner respr., samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic " root." |
| <br>Chain-of-Custody Record | Client (1) estern Petining Sathwest Inc. | reld Refinery             | 49970 '                                 | Bloomfield, NM 87413          | Phone #: (505) (23-4166 | email or Fax#: Kelly, Radivesor Curvican | QA/QC Package: 1 Colored 4 (Full Validation) |  | CLEDD (Type) Excel                      |  | Date Time Matrix Sample Request ID                       | 4/9/9 6810 Ag Agc ZZ-逼(Gw) |   |                 |   |   |   |   |   | 4/8/9 1540 Soil Acc 22-13(0-0,5) |   | 7 - 7 - 7 | Rg Tro Blank | Menson                  | Date: Time: Relinquished by: | If nerrasary, samples submitted to Hall Environmental may be subco   |

Air Bubbles (Y or N) ANALYSIS LABORATORY COC 3 35 HALL ENVIRONMENTAL If necessary amples submitted to Hall Environmental may be subcontracted to other accredited laboratories. 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 www.hallenvironmental.com 8Seob <del>(VOV)</del> 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) slatsM & ASTOF Tel. 505-345-3975 (HA9 10 AN9) 01E8 EDB (Method 504.1) X (GasəiO\ssÐ) 82108 bodtəM H91 Remarks: (Klno ese) H9T + 38TM + X3T8 (1208) a'8MT + 38TM + X3T8 RCRA Imestration-Grays 6 4 G Q  $\mathcal{Q}$ Time ١ 2 2 Sampler: Though Haying <u>U</u>h:h| Preservative □ Rush Norn Nov Nach 362 H,554 HNOZ Poly HNO HC Turn-Around Time email or Fax#: Kelly, Kobindon C. Whr. Con Project Manage Project Name: Client: Western Lefiliary Southwest har Extandend Type and # Container E) VOAS Oftween (5) Safe C) Palu O) Poly 1) Poly 202 Received by Project #: © Level 4 (Full Validation) Sample Request ID 10 Refine Bloomfield NM 87413 Chain-of-Custody Record FB-040909 Mailing Address: 50 Real 4940 Phone #: (SDS\*) 633 ~ イレレ であった Bloomthel Relinquished by: □ Other Relinquished Matrix 7 128 Time QA/QC Package: EEDD (Type) Time: Time: Accreditation □ Standard O NELAP Date 49/9

Air Bubbles (Y or N) **ANALYSIS LABORATORY** HALL ENVIRONMENTAL if necessary, samples submitted to Hall Environmental may be subcontracted to difter aboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report Work Plan for anodyt 4901 Hawkins NE - Albuquerque, NM 87109 ころしての子母に Fax 505-345-4107 (AOV-imac) 0YS8 www.hallenvironmental.com Analysis Request 8560B <del>(404</del>) 8081 Pesticides / 8082 PCB's Anions (F,CI, NO3, NO2, PO4, SO4) - دا ادالها Tel. 505-345-3975 (HA9 to AN9) 01:E8 EDB (Method 504.1) PH Method 8015B (Gas/Diesel) Remarks: (Gas only) (1208) s'BMT + 38TM + X3T8 Project Name: INVESTIGATION 50 Ī į iğ. Time DAKN KELLY ROBINSON Date Date GROUP 3 □ Rush Preservative TRACY MeDH MeOH MEGH Nave 2012 Neck T None 2 Nave Tum-Around Time DUMPHE email or Fax#: KELLY . ROBINSON@ WNR.COMProject Manager: (3) Jay (Z) V (A) 3 Erre Standard Container 83 Jas (2) Eucorg Type and # C) VARY BY VIALS (B) Vlas (2) Encor (3) Jan 2) Eucol (3) Jay Received by: Sampler: Project #: ADC 22 - 12 (0-0.5') app WESTERN REFINING SOUTHWEST IN ADC 22-12 (37-35) Level 4 (Full Validation) AOC 22-12 (1,5-2,0) Acc 22-12 10-0.5' Sample Request ID Chan f-Custody Record BLOOMETELD, NM 87413 BLOOM FIED REFINERY Phone # 505.632.4166 **3efinquished by:** Mailing Address: 4990 N. S. C. Matrix Soll 1300 S Time MEDD (Type) QA/QC Package: 4) 13/9/0915 8 6911× 2 38 ☐ Standard 6 □ Other Date 13

| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109<br>Tel. 505-345-3975 Fax 505-345-4107<br>Anallysis Request | 1,404,504,504,504,504,504,504,504,504,504  | EDB (Methor<br>ANG) 01:88<br>B310 (PNB<br>BARDS<br>D,RIOINA | ×                                     | ×.                | X           | X                    | ×.               | X      |      | × ×                |             |           | Time Constant of the Constant |
|--|--|--|---|---------------------------------------|-------------------|-------------|----------------------|------------------|--------|------|--------------------|-------------|-----------|---|
| Tum-Around Time:  W Standard                                     | GROUP 3         4901           Project #:         Tel.   | Kelly Kobinson Sampler: TRAY PAYNE  Sampler: TRAY P | Preservative Type BTE   | -1) (ZVIP) MEDIA -5                   | (2) Eucon None -5 | War Nove -5 | CENIALS MEDH - 6     | (3) VOM.) Hel -7 | HC)    | Nove | (2) Pals HND2/Nant |             | 18 Allaba | Date  |
| Symmest Inc.   | BLOOMFIELD, NM B7413 Phone #: 505-632-4166   | ax#:Kellx.Robinson@WINR.loH :kage: rd  | Date Time Matrix Sample Request ID                          | 4/13/9 1210 Soil Acc 22-12 (36-37,75) |                   |             | - 1- By Medy Blank ( | A Trio Blank     | 041309 |      |                    | T\$-54130-7 | Burne     | Date: Time: Relinquished by: Received by 1   1  |

| COC 4 4 6 80           | ANAL ENVIRONMENTAL                      | www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request      | O <sub>4</sub> )                                       | o esd<br>o esd | 10 <sup>2,</sup> F<br>(G <sub>2</sub> ,F<br>(G <sub>2</sub> | + TI<br>1004:1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1- | 4 86 50 10 10 10 10 10 10 10 10 10 10 10 10 10   | TM + X=TB TM + X=TB TM + Methor TPH (Methor BOB (Methor BOB (A) BOB (A) BOB (B) BOB (A) BOB (B) BOB (A) BOB (B)                           | ×                | X              | X               |                |                                     | ×                  | ×                  | ×××                                | ×              | ×     |                  | Remarks:                        |                              | is serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analyti   |
|------------------------|---|---------------------------|---|------------------------------------|-----------------------|--|---|---|---|--|--|--------------------------|------------------|----------------|-----------------|----------------|-------------------------------------|--------------------|--------------------|------------------------------------|----------------|-------|------------------|---------------------------------|------------------------------|---|
| Turn-Around Time:      | ☑ Standard □ Rush                       | H                         | ,                                       | Project #:                         |                       | roject Manager:  | Key Darmery   | Sample: TRACY PAYNE   |   | sample heigher aftires as a second of the second | Container Preservative Type Type   | (S) vogs HCJ             | (1) VOA Nove - 1 | O Poly Nach -1 | (1) Poly HND2 - | White Nove - 1 | (3) Jaw Nova - 2                    | (3) Eucer Nove - 2 | (2) VIALS MEDH - 2 | (3) Jan Novie - 3                  | (2) Eucor 1 -3 | MedH  | ) HC             | Received by: UNIV (C) Date Time | Received by:  Date Time      |   |
| Chair f-Custody Record | Clent:<br>WESTERN REFINING SAITHMEST IN |                           |   | M 87413                            | Phone #: 505.632.4166 | email or Fax#: KELLY, ROBINSON@WNR.COMProject Manager: | QA/QC Package:  |   | EDD (Type) EXCEL                                    |  | Date Time Matrix Sample Request ID   | 4/13/9 1250 Ag FB-041309 |                  |                |                 | →<br>→<br>→    | 4/13/9 1325-Soil AOC 22-10 (0-0.5") |                    | →                  | 4/13/9 1335 Sqil Noc 22-16 (15-20) | =              | → → → | 1 Ag, Trip Bland | Medicasi                        | Date: Time: Rélinquished by: | If nr sary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories |

| HALL ENVIRONMENTAL HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 | Metals<br>(F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )<br>seticides / 8082 PCB's<br>(VOA)<br>emi-VOA) | Anions 8081 Pc 808 6 8081 Pc 8 |  | Ottached analyte let  |
|--|---|--|--|---|
| Tum-Around Time:  Standard   Rush Project Name: RCRA INVESTIGATION GROUP 3  Tel. 505-345-3975  | KELLY ROBINSON Sampler: TRACY PAYNE MTBE + TPH (Gas only) MTBE + TPH (Gas only) ethod 418.1) ethod 418.1) ethod 418.1)              | + X3T8<br>5M H9T<br>M) H9T   |  | Date Time Remarks:    O   O   Date Time   |
| Chair, of-Custody Record  Client:  MESTERN REFINITION SOUTHWEST INC.  BLOOMFIELD REFINERY  Mailing Address:  BLOOMFIELD, NM 87415  Phone #: 505.620.470.4166                             | ax#:KELLY. ROBINSON @ WNR. COM kage:  If Level 4 (Full Validation) ype) EXCEL   | Date Time Matrix Sample Request ID  Med History  |  | 4/5/191500 Relinquished by:  Date: Time: Refinquished by:  Received by:  Received by:  Received by: |

| COC TOP OF CANADONIMENTAL | IS LABOR                                  | www.hallenvironmental.com        | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis | (VIr  | Gas of         | 2885<br>02,1        | HT + HE HE HE HE HE HE HE HE HE HE HE HE HE | BE out by a solution of the so | TEX + MT TEX | H H H H H H H H H H H H H H H H H H H | ×            | ×            | X                 | X | X                   | X              | X      | X              |                 | - X          | X  | Remarks:           |                           | iccredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic-' ~port. |
|---------------------------|---|----------------------------------|---|------------------------------------|----------|-------|----------------|---------------------|---|--|--|---------------------------------------|--------------|--------------|-------------------|---|---------------------|----------------|--------|----------------|-----------------|--------------|----|--------------------|---------------------------|--|
| Turn-Around Time:         | ☑ Standard □ Rush                         | Project Name: RCRA INVESTIGATION | GROUP 3                                 | Project #:                         |          |       |                | Provide Contraction |   | Sample Memberature // or from the contract of  | Container Preservative Container Type and # Type   | (5) VOAC HC   -1                      | (1) VOA NOWE | Withhel Nave | (1) Poly Na 04 -1 |   | A Poly   MNO3   - ( | (UPOL, HND2 -1 | The Me | 3) VOR, HC/ -2 | 281/3) Jan -3   | (2) Euroc 73 | 73 | Posts Time         | Received by: O Date Tinhe | itracted to other accredited laboratories. This serves as notice of this pos   |
| Chain_f-Custody Record    | Client:<br>WESTERN REFINING SOUTHWEST INC | BLOOMETED REFINERY               |   | R COMETED NA 97413                 |          | l col | QA/QC Package: |                     | Type) EXCEL                                 |  | Date Time Matrix Sample Request ID   | 4/14/9 8.35 -Ag Acc 22-12 (6W)        |              |              |                   |   |                     |                |        | The Trap Blank | 1 AC 22-14 (36- | ,            | ÷  | 1500 Kelly Clussel | Date: Relinquished by:    | if ner-sary, samples submitted to Hall Environmental may be subcontracted to other a   |

| HALL ENVIRONMENTAL HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 | TPH (Method 418.1)  EDB (Method 504.1)  8310 (PNA or PAH)  Anions (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  8081 Pesticides / 8082 PCB's  8260B (VOA)  8270 (Semi-VOA) | 3 X 3 X 3 3 X 3 3 3 3 3 3 3 3 3 3 3 3 3 |  |  | gerves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytice that the sub-contracted data will be clearly notated on the analytice that it is not the sub-contracted data will be clearly notated on the analytic that it is not the sub-contracted data will be clearly notated on the analytic that it is not the sub-contracted data will be clearly notated on the analytic that it is not the sub-contracted data will be clearly notated on the analytic that it is not the sub-contracted data will be clearly notated on the sub-contracted data will be clearly notated on the sub-contracted data will be clearly notated on the sub-contracted data. |
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| Turn-Around Time:  Standard  | Project Manager.  KELLY COBTNSON Sampler: TRACY RANE Office Sample Tripe and # Type and # Type TPH Method 8015B (Gas/Diesel)   |   |  |  |   |
| Ch., A. J-Custody Record Client: WESTERN REFINING SOUTHWEST INC. BLOOMFIELD REFINERY Mailing Address SO ROAD 4990 BLOOMFIELD NM 87413 Phone # 505-632-4166     | ax#: Kelly, Roemson @ WNR.com kage:  Intervet 4 (Full Validation) ype) IEXCEL  Time Matrix Sample Request ID   | - Le Mecri Blank (2) VIA                |  | Date: A Time: Relinquished by: All LSb0 All LSb0 Date: Time: Relinquished by | If necession is samples submitted to Hall Environmental may be subcontracted to other accredited laboratories,  |

| A     |                   | TORY                              | ;<br>                            |                       |                      | State of the State | The state of the s |                      |                           | (N               | (Y or                           | Air Bubbles   |                          |             |                |                            |            |            |                      |         |           |                   |                          |                             | eport.  |
|-------|-------------------|-----------------------------------|----------------------------------|-----------------------|----------------------|--|--|----------------------|---------------------------|------------------|---------------------------------|---|--------------------------|-------------|----------------|----------------------------|------------|------------|----------------------|---------|-----------|-------------------|--------------------------|-----------------------------|---|
|       | DE DE             | ENVIKONMENTAL<br>YSIS LABORATOR   | -                                | Albuquerque, NM 87109 | Fax 505-345-4107     | /sis/Reguest   | (†C  | )S'*C                | )d' <sup>z</sup> (        | 308<br>"MO       | ides /                          | O,7) anoinA<br>1808<br>1808 <del>(VO)</del><br>1806 (Semi-                          |                          | X           | X              | X                          | X          | X          | X                    | X       | X         | X                 |                          | rched                       | clearly notated on the analytical r   |
| ,-    | ].<br>[]          | ANALYSIS                          | www.hallen                       | 4901 Hawkins NE - Alk | Tel. 505-345-3975    | Anai   | Ko<br>(les   | :-<br>  0 0<br>  8 0 | Gea<br>Sq.                | 58 (H)           | 4 801<br>4 448<br>4 50<br>AG 10 | oorlieM H9T<br>e <del>rlieM</del> ) H9T<br>orlieM) B03<br>o AN9) 0168<br>eM-8-A7167 |                          |             |                | $X \mid X \mid X \mid X$   |            |            | X                    |         |           |                   | 7                        | * See Athao                 | Any sub-contracted data will be   |
| Br. V |                   |                                   | CATTON                           |                       |                      | The state of the s |  | 802                  | ) s,8                     |                  |                                 | 10 10 10 10 10 10 10 10 10 10 10 10 10 1  | -                        | ļ           | 1 -            | -2                         | -2         | 2-         | 3                    | 13      | -3        | 7                 | Date Ime Remarks:        | _ a                         | accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. |
|       | Turn-Around Time: | © Standard □ Rush                 | Project Name: RCRA INVESTIGATION | GROUP 3               | Project #:           |  | ect Manager:   | _                    | MELLY KOBINSON            | pler:   RACY FAY | Sample Temperatures             | Container Preservative Type and # Type  | IARS None                | 2) Encore 1 | (2) VIALS MEDH | 3)JARS NONE                | 2)ENCORE 1 | WINTH MEOH | 3) JARS NONE         | NCORE \ | のはある MeOH | IALS MEOH         | Received by:             | Received by:                |   |
|       | Jf-Custody Record | WESTERN REFININGSOUTHWEST INC INS |                                  | Q                     |                      | 12-4166  | email or Fax#: KELLY. ROBINSON@WINR.COM Project Man  |                      | Tevel 4 (Full Validation) | Sampler          |                                 | Sample Request ID Type  | ACC 22-8(1.5-20)(3) JARS | (Z) El      | V (2)          | ACC 22-8(15-2.0) DUP (3) 3 | (Z)        | <b>♦</b>   | ADCZZ-9(0-0.5) (3) 1 | 8(3)    | ₹ Ø       | MEDH BLANK BYIALS | My HOUDU                 |                             | I<br>If necessary, samples submitted to Hall Environmental may be subcontracted to other  |
|       | Charl J-Cus       | Client:<br>WESTERN REFIN          | BLOOMFIELD REFINERY              | Mailing Address: 50 R | BLOOMFIELD. NM 87413 | Phone #: 505 - 632 - 4166  | email or Fax#: KELLY. R  | QA/QC Package:       | ard                       |                  | d EUO (Type)                    | Date Time Matrix  | 4/3/69 1630 5011 1       |             | →<br>→         | 4/13/64 1630 GILL          | ,          | ><br>>     | 1/13/01 [655 SOIL]   |         | →         | 1                 | Pate: Time: Relinguished | Date: Time: Relinquished by | If necessary, samples submit  |

| - CO- B- OF -    | HALL ENVIRONMENTAL | ANALYSIS LABORATORY            | www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Last.                  | (*(<br>  &       | Selo<br>Selo   | 1/262<br>1/262<br>5/71<br>5/71   | Hd (1) (1) (2) (1) (2) (2) (1) (2) (2) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2 | T +               | BE BE | TM<br>etho<br>etho<br>etho<br>MA<br>Me<br>(F,C) | TEX + | 1<br>1<br>8<br>8<br>8<br>8                | × | ×                 | X   X   X   X                                | X  | X        |                                     | ×                | ×        | X                             | ×  |           | Remarks:                  | de Hitched Ust               | lies as antitio of this possibility. Any suft-contracted data will be clearly notated on the anothic | possioniny. Any succonfidence data will be deany inclaid on the arkayling  |
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| Tum-Around Time: |                    | E Standar                      | RCRA INVESTIGATION        | GROUP 3                                 |                                    | Last.                  | Project Manager: | 0021           | MELLY KOBINSON   | PACY PAYNE MB P   |                   | 38.   | TM  | Container Preservative + + + Type and # Type  | 日日の一大                                     |   | CAVIALS MOOH -5 - |  | ha | $\sim$   |                                     | E)ENCORE 1 -1 -3 | MeOH     | -0.5') (3) JARS NONE -8 -4    | h4 | MeON -8-9 | Received by   Time   Time | Received by: Date ' Time     | according laboratories   | acciented taboratorio  |
|                  | Clart Clart        | WESTERN KETATAG SOTHWEST, LAC. | BLOOMFIELD REFINERY       | Mailing Address: 50 ROAD 4990           | BONETELD NM 87413                  | Phone # 101.040 - 4100 | ) š              | OA/OC Package: | ☐ Standard ☐ ☐ Standard ☐ ☐ Standard ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ | □ Other   | MEDD (Type) EXCEL |       |   | Date Time Matrix Sample Request ID  | 4/19/9/1705 Soul Dr. 27-9 (15-20)(2) lave |   | ><br>>            | 4/13/01 1535 GOTL ACC 22-7 (1.5-2.0)(3) JARS |    | <b>→</b> | 4/13/69 1525   Gozy   Acc 22-7 (0-0 |                  | <i>→</i> | 4/13/01615 BOIL BOC 22-8(0-0. |    |           | Time:                     | Date: Time: Refinquished by: | if no females enhanted to Hall Environmental may be enhanted to when                                 | I II THE TRANSPORTER OF THE PROPERTY OF THE PR |

| The state of the s | 1                       | ANALYSIS LABORATORY                    | www.hallenvironmental.com        | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis | (les  | Pies<br>And<br>DS.4 | \ss5\<br>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | ().<br>().<br>().<br>(). | 2108<br>814<br>1504<br>1 208<br>1 20 | borbod<br>borbod<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stall<br>Stal | ### Bubble ################################### |                                  | ×                    | ×             | X                                   | \times \t | X         | スメ                                 | X               | ×                | XX                                     |                | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | X Co attraction Analyte last   | 40                           | 's carvae as mytro of this meethlith. Any enth-order of the calculation and an about a short of the carbon of the |
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|  | Turn-Around Time:       | de Standard □ Rush                     | Project Name: RCRA INVESTIGATION | GROUP                                   | Project #:                         |          | ()  | 1208                |  | RACY PAYNE               |   | MTB  | Container Preservative + Type and # Type       | (3) Jan Nove -1                  | (2) VIALS MEDIF   -1 | (2) Encor Nau |                                     | (2) VIALS MEDH - 2   | @ None -2 |                                    | (2) VMS MEOH -3 | (2) Euge Nove -3 | (3) ben Nowe4                          | COVIND MEDH -4 | Nove                                  | Date Time   R                  | Received by Date Time        | (   |
|  | Chail Jf-Custody Record | Client: Western Refining Southwest Inc | ERY                              | Mailing Address: 50 ROAD 4990           | 74 13                              |          | email or Fax#: Keny. ROBINSON@WINR.COM Project Mana | QAVQC Package:      | ☐ Standard (Full Validation)               |                          | (a EDD (Type) + XCH   |  | Date Time Matrix Sample Request ID .           | 4/4/9 1410 Soil Acczz-1060-0,51) |                      |               | 4/4/9 1425 Soil ACC 22-10 (1.5-2.0) |  |           | 4/14/ 1440 Soil Acc 22-11 (0-0,5') |                 | 7                | 1/4/4 1445 Sout Act 22-11 (1.5-2.0') C | _              | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | U/15/9 150 Kellingwished by: R | Date: Time: Relinquished by: | If n 17 samples submitted to Hall Environmental may be subcontracted to other accredited laboratories   |

| - 1                   | - is                | www.hallenvironmental.com        | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request      | O <sub>4</sub> )   | 0 ssə))<br>المرفود<br>المرفود<br>المرفود<br>المرفود | B (C 1) | T + ≡<br>13108<br>1814<br>1408<br>1408<br>1408<br>1408<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>1609<br>160 | bo<br>bo<br>od<br>objective                                      | BTEX + MT BTEX + MT BTEX + MT TPH Methory TPH (Methory B310 (PNA Anions (F, C) R081 Pestic R081 Pestic R081 Pestic R081 Pestic | X                           | X             |   | X | ×               |                           | ,<br>X           | ***              | ×                | ** | ×            | ×               | Remarks:<br>* See Attached ROST For | Mak 0,                        | Moun march 18. | If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. Received this possibility. Any sub-contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated on the analytical contracted data will be clearly notated by the contracted data will be clearly notated by the contracted data will be clearly notated by the contracted data will be clearly notated by the contracted data will be clearly notated by the contracted data will be clearly notated by the contracted data will be contracted by the contracted by |
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| Turn-Around Time:     | M Standard □ Rush · | Project Name: RCRA INVESTIGATION | GROUP 3                                 | Project #:                         |                       | roject Manager:  | KELY ROSINSON                                       |         |   | Sample reminerative (see 5 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / | Container Preservative The Type Transfer Type  | (S) VO(4) HCJ -5            | CIVOR None -5 | 4 | 3 | C) Poly NooH -5 | 651 vors HCl -6           | (1) VOIA Nove -6 | (1) Awba Nove -6 | (1) Poly HNO3 -6 | 4  | GIVER HC/ -7 | H               | 1 4/10/09 9                         | Received/by Date Time         |                | racted to other accredited laboratories. Karin ves as notice of thi  |
| C. A. ACustody Record | 13                  | B. DOMFTELD REFINERY             | Q                                       | 5                                  | Phone #: 505.632.4166 | email or Fax#: KELY, ROBINSON @ WNR.COM Project Manager: | QA/QC Package:<br>☐ Standard                        | Other S | Type) EXCEL   |  | Date Time Matrix Sample Request ID   | 4/4/4/335 Ag   FR-041409 (B |               |   |   |                 | 4/14/9 Neus Na EBS-841409 |                  |                  |                  | 7  | PLP BLANK    | - Ag Medy Blawk | 1 ISTO Helly Lolling                | Date: Time: \Relinquished by: |                | If neces samples submitted to Hall Environmental may be subcon   |

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

# GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020 .              |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

DISSITUTED Fe per AF 4/16/09

| ANALYSIS LABORATORY  Www.hallenvironmental.com  4901 Hawkins NE - Albuquerque, NM 87109  Tel. 505-345-3975 Fax 505-345-4107  | BTEX + MTBE + TMB's (8021)  BTEX + MTBE + TPH (Gas only)  TPH Method 8015B (Gas\Diesel)  TPH (Method 504.1)  EDB (Method 504.1)  8310 (PNA or PAH)  ROB1 Pesticides \ 8082 PCB's  8081 Pesticides \ 8082 PCB's  8260B (¥OA)  8260B (¥OA)  CLUMAL | X X                                       | X | X           |  | X             | X              | XX                                      | X         | X             | X                       | Remarks: * See Attached Prudyte Art                            |                        | coredited laboratorir   |
|--|--|---|---|-------------|--|---------------|----------------|---|-----------|---------------|-------------------------|--|------------------------|---|
| Chain J-Custody Record  WESTERN REFINITING SOUTHWEST INC Fraiget Name:  RECOMPTED REFINERY  Mailing Address: 50 ROAD 4990  BLOONFIELD, NM 87413  Project #: 505.632.4166 | email or Fax#:Keux. Rosnascal@ WNR.00M Project Manager:  OA/QC Package:  Standard  Other  Calculation  Standard  Coher  Date Time Matrix Sample Request ID Type and # Type   | 19 1135 Soil Acc 22-15 (1.0-1.51) (3) Jan |   | - (E) VIALS | 4/15/9 1155   Soil (AOC 22-15(1.5-2.0) [3) Jan | 2- (2) Eucore | 2 - (2) VIALS2 | 1155 Soul AOC 22-15(1.5-20) Dup (3) Jau | (2) Eucor | 1 V (2) VIAL) | - As MeOH Blank (DVING) | Date: Time: Relinquished by Received by Received by 1/10/09938 | Time: Relinquished by: | If remains submitted to Hall Environmental may be subcontracted to other accredited laboratorir |

|   |                   | AALL ENVIRONMENIAL<br>ANALYSIS LABORATORY | www.hallenvironmental.com | : - Albuquerque, NM 87109 |                   | Analysis      |  |                          |                             | √ (\psi \ \psi \psi | slate<br>Sebi<br>(A<br>\OV- | AN9) 01:88  BABDA (A.C.)  Anions (A.C.)  BOS1 Pestlo  S260B (VO)  S260B (VO)  TO (C)  Cycul  Cycul  Anir Bubbles | XX                             | ×       | /<br>X     |                |           | X           | X          | ××       | ×             | ×                | X          | ×            | ed for Metals            | te Dist,           | This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. |
|---|-------------------|---|---------------------------|---------------------------|-------------------|---------------|--|--------------------------|-----------------------------|---|-----------------------------|--|--------------------------------|---------|------------|----------------|-----------|-------------|------------|----------|---------------|------------------|------------|--------------|--------------------------|--------------------|--|
| 7 | 727               | AA  | AAAAA                     | 4901 Hawkins NE           | Tel. 505-345-3975 |               | sel)<br>uly)                                 | 388 01                   | ,<br>30<br>30)<br>H         | 9T -<br>831<br>(1.84  | 98 P                        | BTEX + MT<br>BTEX + MT<br>TPH Method<br>TPH-( <del>Worth</del><br>TPH-(Method                                    | X                              |         |            |                | ×         |             |            |          | *             | X                |            |              | Remarks:<br>Spe Attached | _                  | possibility. Any sub-contracted  |
|   | 6                 | □ Rush                                    | INVESTIGATION             | GROUP 3                   |                   |               |  |                          | NOSINSON                    | ACY FANE  | 0.00                        | Preservative Type  | Nowe -5                        | Nave -5 | Medy -5    | HC) -6         | None 6    | Jone        | HNO,       | Na OH -6 | HC/ -1        | Nove ~ (8        | Meot 8     |              | 1) (1) (2) (3)           | Date Time          | caredited laboratories. This serves as notice of this  |
|   | Turn-Around Time: | CIN Standard                              | مهرن                      |                           | Project #:        |               | Project Manager:                             | 77                       | 1                           | Sampler: IX   | Sample Temper               | Container Pre<br>Type and #  |                                | ×       | (2) Vinguz | (S) MBS        | () VOV () | (1) Awber N | (i) Poly H | Poly     | (3) VOAs      | 3) Jan N         | 2) VICAD M | (2) Euros N  |                          | Received by:       |  |
|   | of-Custody Record | Client: VESTATING SOUTHWEST INCOMMENDED   | BLOWEIELD REFINERY        | O ROAD 4990               |                   | r. 4          | ELLY. KORTINSON @ WINR. COM Project Manager. | Town A (Eull Volldeffor) | E LOVEI 4 (Full Validation) | EXCE  |                             | Matrix Sample Request ID   | x1 HEC 22-15 (30-321) (31) ans |         | 7          | FB-641509      |           |             |            |          | Ho Trip Blank | 10c 22-15(34-36) |            | <del>)</del> | Clush                    | Relinquished by:   | If necessary, samples submitted to Hall Environmental may be subcontracted to other a                                |
|   | Chall             | Ollent: VESTERN RE                        | Boweres                   | Mailing Address: 50       | BLOOMFTELD        | Phone #: 505- | email or Fax#: KEL                           | QA/QC Package:           |                             | EDD (Type)  | 1-15-X                      | Date Time Ma   | 1/15/9 1245 Soil               | ( )     | 7          | F/15/9 1315 Ra |           |             |            | \<br>\   | )             | 1/15/9 1340 Soil |            | >            | Time:<br>9 (δδο          | Date: Time: Relind | If necessary, sample   |

| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis/Request     | 1 504.1)<br>10 504.1)<br>10 5, NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )<br>10 6 8082 PCB's<br>10 6 7<br>10 6 7<br>10 7<br>10 8082 PCB's<br>10 7<br>10 8082 PCB's   |   | ×                         | ×   | ×                | X                |  |  | Remarks: Attached anothy L list | or recorded.                  | b-contracted data will be clearly notated on the analytir  |
|--|---|---|---------------------------|-----|------------------|------------------|--|--|---------------------------------|-------------------------------|--|
| Tum-Around Time:  The Standard   Rush Project Name: RCRA LINVESTICATION CROUP 5 Project #:   | Kelly Robinson Sampler: TRACY PAYNE  Sampler: TRACY PAYNE  Sampler: TRACY PAYNE  Sampler: TRACY PAYNE  Sampler: TRACY PAYNE  Sampler: TRACY PAYNE  Sample Helpersture   Preservative Type Type Type Type Type Type Type Typ | (5) Vorte HCl -9          | HNO | (1) Bey Nator -9 | (1) Almber (Nove |  |  | 7. \ 4/10/28 33                 |                               | If ner samples submitted to Hall Environmental may be subcontracted to other accredited laboratories ( |
| Chair of-Custody Record  Client: Nestern Refining Southwest Inc.  BLOOMETELD REFINERY  Mailing Address: 50 ROND 4990  BLOOMETELD NM 87413  Phone #: 505.632-4160 | ax#: Kelly. Rockyson @ WINR. Com kage:  Td  | Date Time Matrix Sample Request ID                  | 4/15/9/1355 Ag EBS-041589 |     |                  | 7 7 7            |  |  | Mulg 1500 Kill Clubs            | Date: Time: (Relinquished by: | If new samples submitted to Hall Environmental may be subco  |

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte ·              | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium `            | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

|  | es (Y or N)  | Air Bubble             |                  |                     |                         |                   |              |               |                    |                                       |             |   |   |   |
|--|--|------------------------|------------------|---------------------|-------------------------|-------------------|--------------|---------------|--------------------|---------------------------------------|-------------|---|---|---|
| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com kins NE - Albuquerque, NM 87109 45-3975 Fax 505-345-4107  | Jenno  | £ 2+60                 | ×                |                     |                         | ×                 |              |               | X                  |                                       |             |   | - <del>L</del>                          |   |
| ENVIRONME<br>YSIS LABOR<br>environmental.com<br>Albuquerque, NM 87109<br>Fax 505-345-4107  | يزطف   | 100,000                | $\preceq$        |                     |                         | 呇                 |              |               |                    | _                                     | _           |   |   | analytic  |
| IALL ENVIRONN INALYSIS LABO www.hallenvironmental.com ns NE - Albuquerque, NM 87: 5-3975 Fax 505-345-4107  |  | V) 80928<br>98270 (Set | ×                | $\overline{\times}$ | $\overline{\mathbf{x}}$ | 7                 |              | X             | 7                  | $\langle 1 \rangle$                   | / ×         |   | Attached for Metals                     | d on the  |
| IRO<br>IENTAL<br>Inental.c<br>rque, N<br>305-345   | ticides / 8082 PCB's   |                        |                  |                     |                         |                   | $\widehat{}$ |               |                    | 7                                     |             |   |   | notate  |
| SIS<br>SIS<br>vironme<br>buquerc<br>Fax 50   | (*OS'*DO4'ZON'EON'IO'  | ∃) snoinA              |                  |                     |                         |                   |              |               |                    |                                       |             |   |   | clearly   |
| Alb  | Wetals 3-c. Altachad   | и <del>е ∨чэ</del> н ) | ×                |                     |                         | X                 | ,            |               | X                  |                                       |             |   |   | will be   |
| w.ha   | (HA9 10 A  |                        |                  |                     |                         |                   |              |               |                    |                                       |             |   | -0                                      | ed data   |
| ##LI ##LI ##LI ###LI ##################  | (1.403 bod)  |                        | _                |                     |                         | _                 |              |               | 1                  | $\perp$                               | -           | - | - 3                                     | ontracte  |
| Haw (505-  | (Gas/Diesel) Dre, M/Rv.  |                        | $\preceq$        |                     |                         | ~                 | _            |               | X                  | -                                     | - -         |   | - \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | sub-a   |
| 4901   | VTBE + TPH (Gas only)  |                        | $\dashv$         |                     | $\dashv$                |                   |              |               |                    | -                                     | +           | - | arks:                                   | \$<br>\$  |
|  | (1208) s'BMT + 38TN  |                        |                  |                     |                         |                   |              |               | _                  |                                       | +           |   | Remarks:                                | iligisso  |
| - Rush - INVESTIEATION GROYP 3   | ZOBINSON<br>CY PAYNE   | e Harring              | 1                | 1                   | 7                       | -2                | 7-           | 2-            | \( \int \)         | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1           | η | Date Time                               | ories. Comment of this possibility. Any sub-contracted data will be clearly notated on the analytic |
| Rush CROYP   |  | Preservative<br>Type   | Nove             | ز                   | MeoH                    | Nove              | <del></del>  | Me OH         | None               | <u>=</u><br>عرب                       | 1 /         |   | 7                                       | redited laborate  |
| Turn-Around Time:  Troject Name:  RCRA  Project #:   | Project Manager.   | <u>.</u> #             |                  | 0,1                 | (2) VIACS               | (4) Jan           | (z) Ence     | _             |                    | S.                                    | 2) (I. g. ) |   | Received by: Received by:               | ontracted to other acci   |
| Chair Jf-Custody Record  Client: Western Reference Southwest Inc.  BLOOMETELD REFENERS  Mailing Address: 50 ROAD 4990  BLOOMETELD, NM 87413  Phone #: 505-632-4166 | @WINR.COM  |                        | AOC 26-8(0-1.0') |                     | <del>-&gt;</del>        | Ac 76-8(0-10) DUP |              | >             | ACC 26-5 (1.5-2.0) |                                       | M.OH Biggs  |   | ll Element                              | samples submitted to Hall Erwironmental may be subcontracted to other accredited laboratories.      |
| A REINER SEON SEON SEON SEON SEON SEON SEON SEON   | GLA.ROB.  EXCEL  | Matrix                 | Ŗ                |                     | 7                       | Soil              |              | $\rightarrow$ | $-i\hat{g}$        |                                       |             | 2 | Relinquished by Relinquished by         | samples subr  |
| Chain f-C<br>Client: NESTERN REP<br>BLOOMETELD<br>Mailing Address: 50<br>BLOOMETELD,<br>Phone #: 505-67  | email or Fax#: K QA/QC Package:  □ Standard □ Other □ CEDD (Type)_ | Time                   | 900              |                     | 7                       | 1 6900            | , <u>.</u>   | <del>`</del>  | 2752               |                                       | <b>&gt;</b> |   | Time:                                   | If neo  |
| Client: Or Mailing Ac Mailing Ac Phone #:  | email or F<br>QA/QC Pa<br>C Standa<br>C Other<br>C EDD (           | Date                   | 6/31/            | -                   | ->                      | 4/16/9            |              | >             |                    |                                       | *           |   | Date:                                   |   |

| HALL ENVIDONMENTAL     | S  | lenvironmenta                    | 4901 Hawkins NE - Albuquerque, NM 87109 | 505-345-3975 Fax 505-345-4107 | Analysis Request      | (*0  |       | ਰ 28<br>ਰ 28          | (HA<br>** ON,e(   | or P. | HTPH (Methors 1908) ANG (PNA 8310 (PNA 8-Methors (F.C. 8081 Pestic (NO) 8260B (VO) (Semi Character) Character (Semi Character) And No Character (Semi Character) (Semi Character) (Semi Character) And No Character (Semi Character) (Semi Character | X                       | X            |  | × | ×                  | ×                | X | X   |                          |                            | W. J. J. J. D. | outyt or metal        | is serves as notice of this cossibility. Any sub-contracted data will be clearly notated on the analysis your |
|------------------------|--|----------------------------------|---|-------------------------------|-----------------------|--|-------|-----------------------|-------------------|-------|--|-------------------------|--------------|--|---|--------------------|------------------|---|-----|--------------------------|----------------------------|----------------|-----------------------|---|
| Turn-Around Time:      | ® Standard □ Rush                        | Project Name: RCRA INVESTIGATION | GROUP 3                                 | Tel.                          |                       | (Aju   | (802° | TY (AOBINSON S (G     | RACY (-AYNE   P P |       | Container Preservative Type and # Type APPH APPH APPH APPH APPH APPH APPH APP  | (S)VOAs Hq -6           | Brons Nau -6 |  |   | (5) MON HCI -7     | (3) VOAS Nove -7 | 2 | 구 . | Z -                      | Deuco Nono                 |                | Date Time             |   |
| Chail J-Custody Record | Client: WESTERN REFINING SOUTHWEST, INC. | -                                | Mailing Address: 50 ROAD 4990           |                               | Phone #: 505.632.4166 | email or Fax#: KELLY. ROBENSON @ WINR.COM Project Manager: | æge:  | ard (Full Validation) | THOUSE TYPE       |       | Date Time Matrix Sample Request ID   | 4/14/90945 By FB-041609 |              |  |   | 1245 Ag EBS-041609 |                  |   |     | Ulliela Incar alas Incar | 1130 mi HULLO CION 32-36') |                | Time: Relinquished by | in the second second is the Hall Environmental may be as broaded to other according laboratorial laboratorial |

(4) (4)

| HALL EN ANALYS www.hallenvi 01 Hawkins NE - Albu | TEX + MTBE + TPH (Gas only PH Method 8015B (Gas/Diese PH Method 418.1)  DB (Method 418.1)  DR (Method 418.1)  ORA 8 Metals  Tions (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  SR 8 Metals  Tions (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  SR 8 Metals  TO (Semi-VOA)   | іт<br>ід<br>ід<br>(8)<br>Я<br>(8)<br>(2)<br>(3)<br>(3)<br>(3) |  |  |  |  | marks:  | culy)                                     | ty. Any sub-contracted data will be clearly notated on the analytica   |
|--|---|---|--|--|--|--|---|---|--|
| Time:  Rush  TNVESTIGATION  GROUP 3              | Card Package:   Card   |  |  |  |  | Pate: Time: Relinquished by Received by: Date Time Remarks: 1/2/9   1500 Act. | Date: Time: Relinquished by: Received by: | If necessity and it is possibility. Any sub-contracted to the analytical properties of this possibility. Any sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the analytical sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly notated on the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data will be dearly not the sub-contracted data w |

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| rd Turn-Around Time:  LINC W Standard C Rush Project Name: RARAL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis Redulest Analysis Redulest  | COSTNSON  TEXT PAYNE  THE + THB's (8021)  TO FAH)  TO FORM  TO FOR | Container Preservative Type and # Type BTEX + MT BTEX + MT BTEX + MT BTEX + M BTEX + | (2) Eucae J - X X X    | (2) VIAGO ME OH -1 X X X X X X X X X X X X X X X X X X | (2) Euca J -2<br>(2) VIAG MeDH -2 | 100                                   | (2) Jans (2) (2) (2) VIPUS       | Received by U1159                         | nay be subcontracted to other accredited laboratorie res as notice of this possibility. Any sub-contracted data will be clearly notated on the analyti |
|--|--|--|------------------------|--|-----------------------------------|---------------------------------------|----------------------------------|---|--|
| Turn-Around Time Standard Project Name: RCRA Project #:  | Sobra<br>Acy P   | Container Type and #   | (2) Eucoc              |  | <del>  </del>                     | 2 2                                   | (2) Saus (2) Euror (2) ViPus (1) |   | ubcontracted to other accredited laboratorie   |
| Chain of-Custody Record Client:  Alestern Refinition Suthwest Inc.  BLOMETELD REFINERY Mailing Address: 50 ROAD 4990  BLOMETELD, NM 87413  Phone #: 505-632-4166   | email or Fax#: Kelly.Rosmison@WINR.@M  QA/QC Package:  Sampler:   Relly.Rosmison@WINR.@M    Sampler:   Relly.Relly   | San  | 1C ACC 22-1 (1.5-2.0') | 1 Acc 22-1(0-0,51)                                     |                                   | 1 Acc 22-2 (0-0.5-1)(3) Jans (2) Emon | 1 Acc 22-2 (1.5-2.0)             | Relinquished by Chu W                     | amples submitted to Hall Environmental may be subcontracted to other ac  |
| Chain of-Custody Folient:  Client:  Cli | email or Fax#: <b>KELL</b> :  QA/QC Package:  Standard  Otther  E EDD (Type)   | Time   | 715/9 16/5 501         | 4/15/9 1600 Sail                                       | →<br>→                            | 1630 50,1                             | 1640 Soil                        | Date: 7 Time: Relinqu Date: Time: Relinqu | If ne.   |

Air Bubbles (Y or N) **ANALYSIS LABORATORY** HALL ENVIRONMENTAL If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. 4901 Hawkins NE - Albuquerque, NM 87109 Methanol Blank - 9 + 8200/640 \* See Attached Analyte List 200 K OF 2 www.hallenvironmental.com Analysis Request Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 10 AN9) 01:E8 EDB (Method 504.1) PH Method 8015B (Gas/Diesel) Remarks: (Gas only) (1208) s'BMT INVESTIGATION QUIS 5 , Time RACY PAYNE KELLY ROBINSON Date GROUP 3 8 Preservative O Rush NONE 22-4 (0-05)(3) TARS | NONE HOPH (2) VIALS MEDIT Res. Acc 22-3(1.5'-2,d)(3) Jan Nove (2) I ME OH Me OH Turn-Around Time: email or Fax#: KELLY. ROBINSON @ WNR, CON Project Manager: Project Name:
RCRA 6 VIALS 2/EUC0-7 (2) ENCORE Ty Standard (DEWORK Type and # (2) Ences हि एषा इ 6) TARS Container MeOH Daw ( Asyring Ing (3) Jan Project #: Sampler: Client: Western Refining Southwest, Inc. Dr. Level 4 (Full Validation) Sample Request ID Acc 22-3(0-0,5' Chain\_f-Custody Record ADC 22-4 Mailing Address: 50 ROAD 4990 BOCMETELD, NM 87413 ō 505.632-4166 BLOOM FIELD REFINERY 3 Relinquished by: 5021 562L Matrix 页 -ig <del>ب</del> کی nes! QA/QC Package: CEDD (Type) Time 4/15/9 1710 1700 1700 ime: □ Standard Phone #: 16/01 4/15/A Date Q 4/IS/

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| . •                                   | . *  |   |                           |                       |                   |                                       |   |                                 |                    |                 |            |                          | ,               |           |                  |                            |           |           |                              | — т                            | <del> r</del> |                  |             | · ·           |              |  |
|---------------------------------------|--|---|---------------------------|-----------------------|-------------------|---------------------------------------|---|---------------------------------|--------------------|-----------------|------------|--------------------------|-----------------|-----------|------------------|----------------------------|-----------|-----------|------------------------------|--------------------------------|---------------|------------------|-------------|---------------|--------------|--|
|                                       |  |   | ı                         |                       |                   |                                       |   |                                 | (                  | M 10            | <u>(Y)</u> | Pir Bubbles              | <u> </u>        |           |                  |                            | -         |           |                              |                                | _             |                  |             |               |              | 25   |
|                                       |  | 1 2                                       | <br>                      |                       |                   | 4                                     |   |                                 |                    |                 |            |                          |                 | <u>`</u>  |                  |                            |           |           |                              | $\dashv$                       |               |                  |             |               |              | colect list  |
|                                       | E  | <u> </u>                                  |                           |                       |                   | da <sub>l</sub>                       |   |                                 |                    | -               | দ্         | mh                       | -               |           |                  | $\bigvee$                  |           |           | اخز                          |                                |               |                  |             |               |              | 7  |
|                                       |  |   |                           | <u>ق</u>              |                   |                                       |   |                                 |                    |                 | 1          |                          | 长               |           |                  | X                          |           | [         | 7                            |                                | [             |                  |             |               |              | 3  |
| _                                     | 12   |   | !<br>!                    | 8710                  | 07                |                                       |   |                                 |                    | <u> </u>        |            | ime2) 0728               |                 |           |                  | $\frac{1}{2}$              |           |           | 7                            |                                |               |                  | _           |               |              | 3  |
| 1                                     | 43   | 5 0                                       | COM                       | Σ                     | 541               | st                                    |   |                                 |                    |                 |            | (OV) 80928               | - \             |           |                  | X                          | メ         |           |                              | Z                              | <u>.</u>      | $\Box$           |             | 9             | ٢            | 0  |
|                                       | ENVIDORMENT                                  | HALL ENVINCHEN AL<br>ANALYSIS LABORATORY  | www.hallenvironmental.com | Albuquerque, NM 87109 | 505-345-4107      | . Analysis Request                    |   |                                 | 700                | 0/5             |            | SOS1 Pestic              | <del> </del> ,  | X         | ~                |                            | ^         |           | _                            | $\stackrel{\sim}{\rightarrow}$ |               |                  | ×           |               | to Work-Plan | 0  |
|                                       | 05   | 2   | ume                       | Inerc                 | × 50              | IS Re                                 |   |                                 |                    |                 |            | O,∃) anoinA<br>          |                 |           |                  |                            | $\dashv$  |           | $\dashv$                     |                                | -             |                  |             |               | 4            | 2  |
|                                       | 2  | S   | nviro                     | \lpuc                 | Fax               | alysi                                 |   | 5 0                             |                    |                 |            | M & AAAA<br>Q ay sqoiq ( | <del> </del>    |           |                  | $\overline{}$              |           |           | X                            | $\dashv$                       | _             | _                |             |               | ٦            | Je love  |
| -                                     | 7  | בַּוּ                                     | ralle                     | 1                     | 5                 | Ang                                   |   |                                 |                    | <u> </u>        |            | AN9) 0158                | <del>+</del>    |           |                  | X                          |           |           | 싀                            |                                | _             | <u> </u>         |             |               |              | 3  |
| •                                     |  | 1 S                                       | ww.                       | S NE                  | -397              |                                       |   |                                 |                    |                 |            | EDB (Metho               | 1               |           | •                |                            | $\dashv$  |           | -                            | _                              |               | $\dashv$         | $\dashv$    |               | <br>^        | 7-   |
| <b>~</b>                              |  | Ì   | . ≯                       | vkin                  | -345              | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 07                                      | ZMZ                             |                    |                 |            | TPH (Methe               |                 |           |                  |                            |           |           | X                            | $\dashv$                       |               | 귌                | _           |               | ¥            | 3  |
| `                                     |  | - r                                       | T.                        | 4901 Hawkins NE -     | Tel. 505-345-3975 |                                       |   |                                 |                    |                 |            | rPH Methor               |                 |           |                  |                            | $\dashv$  |           |                              | $\dashv$                       | _             |                  | $\dashv$    | $\dashv$      | ۵,           | mag  |
|                                       |  |   |                           | 4901                  | Tel.              | 712 4 31                              |   |                                 |                    |                 |            | TM + X3TE                | <del> </del>    |           |                  |                            |           | $\dashv$  |                              | 1                              |               | $\dashv$         | _           | $\dashv$      | ii j         | <i>व</i>   |
|                                       | 1.   | J Ļ                                       |                           |                       |                   |                                       |   |                                 |                    |                 |            | TM + X3TE                |                 |           |                  |                            |           |           |                              |                                |               | _                |             |               | Remarks      |  |
|                                       |  | ı   |                           |                       |                   | SEE ST.                               |   |                                 | Ţ-                 |                 |            |                          |                 |           |                  |                            |           |           | $\dashv$                     |                                | 7             |                  |             | $\dashv$      | <u>ц</u>     |  |
|                                       | ·  |   | Z                         |                       |                   |                                       |   |                                 |                    |                 |            |                          | _               | _         | _                | 2                          | 7         | 7         | M                            | $\omega$                       | 0             | 7                | 7           | 7             | Time Time    | . jije   |
|                                       |  |   | NVESTIGATION              |                       |                   |                                       |   |                                 |                    |                 |            |                          | 1               | ,         | '                | 1.                         | 1         | ,         | 1                            | 1                              | 1             | 1                | Į.          | 4             | <u> </u>     |  |
|                                       |  |   | FA                        |                       |                   |                                       |   | •                               | يا إ               | y M             |            |                          |                 |           |                  |                            |           |           |                              |                                |               |                  |             |               | ogte<br>C    | ate  |
|                                       | )  | ĺ   | -B                        | 7                     |                   |                                       |   | í                               | NOCHTOO<br>NOCHTOO |                 |            |                          |                 |           |                  |                            |           |           | ļ                            | ł                              |               |                  | ļ           |               | ב י          |  |
|                                       | 1  | Rush                                      | 15                        | N                     |                   |                                       |   | į                               | 30                 | -               |            | Ze Ze                    | 1               |           | -                | ر ،                        |           | <u> </u>  |                              |                                | <b>~</b>      |                  |             |               | 12           | <b>-</b> ].  |
|                                       |  | <u>~</u>                                  | Z                         | Ž                     |                   |                                       |   | İ                               | 3 5                |                 | 9          | servat<br>Type           | 2               |           | , 0              | 2<br>Dave                  |           | 0         | 207                          | ۷                              | le04          | 3000             | اد          | る             | 7            |  |
|                                       | Time:  | _   | 1 1-4                     | GROUP                 |                   | `                                     | er:                                     | С,                              | 图台                 | do l            |            | Preservative<br>Type     | 2               |           | Med              | 2                          | ٠. ا      | Medi      | 2                            |                                | Š             | 2                |             | MeDH          | ·            |  |
|                                       |  | ard                                       | E .                       | ď                     |                   |                                       | ınag                                    |                                 | 7                  |                 | jour.      |                          |                 | 2         |                  |                            | ہو        |           |                              | 8                              | 2             |                  | 0           | -             |              |  |
|                                       | Aron   | anda                                      | N. N.                     |                       | #<br>#            |                                       | x Me                                    | ;                               |                    |                 | CO.        | Container<br>Fype and #  | इ               | 3         | 2                | 3                          | 3         | _₹        | Jan                          | 3                              | 25            | 3                | 5           | ¥ 2           | à p          | g p  |
|                                       | Ę,   | ☑ Standard                                | Project Name:<br>RCRA     |                       | Project #:        |                                       | Project Manager:                        | $\geq$                          | Sampler            | 001100          | Sample lem | Container<br>Type and #  | (g) Jans        | (2) Eucoe | G) VVALS         | 1/6                        | (2) Eucoe | (Z) Vuncs | 3                            | (2) Eucore                     | (Z) VIMCS     | حسارك            | (2) ELLEONS | (2) VIALS     | Received by: | Received by  |
|                                       | <u>                                     </u> | J   | <u>-</u>                  | $\dashv$              | <u>-</u>          |                                       | <u> </u>                                |                                 |                    | )   ( <u>@)</u> | igO.       | •                        | 1               |           | <u>ල</u>         | AOC 26-3 (1.5.2.0) (4) Jan | (2)       | לא        | AOCZ6-3(1.5-2.0) Dup (4) Jan | 쒸                              |               |                  |             |               | <u>«</u>     | <u>«</u>   |
|                                       | ָ<br>ס                                       | H   |                           |                       | 13                |                                       | MO;                                     | A Control of Control of Control |                    | 1 1             |            | Sample Request ID        | ACC 26-3(0-0.5) |           |                  | 7.7.                       |           |           | (e.                          |                                | ł             | DOC Z6-4 (0-0.5' |             |               |              | .  |
|                                       | Ö  | .21                                       |                           | Δ                     |                   |                                       | IR.C                                    | /- I: 4.                        | g<br>Z             |                 |            | sent                     | 0               |           |                  | 15                         |           | l         | .S-2                         | ł                              | -             | Ó                |             |               | 3            |  |
|                                       | Ş  | ME  |                           | 8                     | 7                 | n                                     | NMa                                     |                                 | <u> </u>           |                 |            | Rec                      | -3(             |           | <del>-&gt;</del> | 36                         |           |           | 3(1)                         | .                              |               | 7                |             | $\Rightarrow$ | Seem         |  |
|                                       | V  | 15  | H                         | 7                     | ()                | 99                                    | SAG                                     | 7                               | ‡<br>-             |                 |            | ple                      | 126             |           |                  | ج ا                        |           | _         | Ġ                            |                                | 7             | ٤                |             |               | ol<br>Ol     |  |
|                                       | po   | တို                                       | Ä                         |                       | NM 874            | 117                                   | NS                                      |                                 | ນ<br>ວັ            |                 |            | òam                      | کر              |           |                  | ညွ                         |           |           | 77                           |                                |               | ڒ                |             | 9             | $-\chi$      |  |
|                                       | ıst  | N.  | 出                         | Ş                     | Z                 | 2                                     | 083                                     | Ž                               | <u>-</u><br>E      | 日日              |            | 0,                       | <del></del>     | -         |                  | 4                          |           |           | 100                          |                                |               |                  |             |               |              | ed by  |
|                                       | <u>ت</u>                                     |   | M                         | 50 ROAD 4990          | A                 | 0                                     | K                                       |                                 |                    | 1 10 21         |            | Matrix                   | 1.08<br>1.08    |           | 7                | اتِ ا                      |           |           | _                            |                                | اح            | Sac              |             | 7             | Relinquish   | Relinquished by:   |
|                                       | 4  |   | 9                         |                       | <u>u</u>          | ) : (                                 | ELL                                     |                                 |                    | X<br>山          |            | . Ma                     | 1               |           |                  | jā.                        |           |           |                              |                                |               | X                |             | 0             | Relin        | <b>자</b><br>를  |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Chail, of-Custody Record & Tum-Around        | LY.                                       | H                         | ress.                 |                   | Õ                                     | #: <b>K</b>                             | age:                            |                    | )<br>(e)        |            | Тіте                     | 1250            |           |                  | 138                        |           |           |                              |                                | $\supset$     | 325              |             | 5             | 2            | Time: Relinquished by: 1 Received by W. Pate Time Sumuy te box Queolly |
|                                       | ha   | ER  | 为                         | Add                   | I                 | ੌτ)                                   | Fax                                     | Jack.                           | ב<br>ב             | Ę               |            | <u> </u>                 | 1               |           |                  | 12                         |           |           |                              |                                |               | 13,              |             | 0             | Time:        | iji e:   |
|                                       | ٥  | Clent:<br>Western Refining Southwest Inc. | BLOOMETELD REFINERY       | Mailing Address:      | q                 | Phone #: 505.632.4166                 | email or Fax#: Keux. Robinson @WNR. LOM | QA/QC Package:                  | Standard           | TEDD (Type)     |            | Date                     | 9/9             |           | ->               | 9/4                        |           |           |                              |                                |               | 99               |             | 7             | 7/25/g       |  |
|                                       |  | <b>2</b>                                  | M:                        | Σ                     | 团                 | 띺                                     | em                                      | o [                             |                    | <b>7</b>        |            | ۵                        | 4/10/9          |           | , }              | 2/2                        |           |           |                              |                                | 7             | 3                |             |               |              | Date   |
|                                       |  |   |                           |                       |                   |                                       |   |                                 |                    |                 |            |                          | <b>-</b>        |           |                  |                            |           |           |                              |                                |               | 7                |             |               |              |  |

Air Bubbles (Y or N) ANALYSIS LABORATORY HALL ENVIRONMENTAL If no examples submitted to Hall Environmental may be subcontracted to other accredited laboratorier examples as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic examples 4901 Hawkins NE - Albuquerque, NM 87109 W × Refa to Work Pren Sw tables for audit Fax 505-345-4107 (AOV-imac) 07S8 www.hallenvironmental.com 2 30 Z 707 (AOV) 809S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 to AN9) 01E8 EDB (Method 504.1) PH Method 8015B 81EX + MTBE + TPH (Gas only) (1508) s'8MT + 38TM  $\mathcal{D}$ 1 Time Time Project Name:
RCRA INVESTIGATION 8 Date Date RACY PAYNE KELLY ROBINSON GROVE 3 Preservative □ Rush 3 エのゴン NON M CH NOOH NOOH びエ Turn-Around Time: email or Fax#: KELLY, ROSINSON@ WINR. LOM Project Manager: Client: NESTERN REFINING SOUTHWEST IN PStandard Container C) Cuca (1) Amber Type and # A (J) ADC 26-4(4.5-2.0)(4) Jay 2) Volts 2MALJ EsV rab (1) Poly 3)/04 Sampler: () Poly Project #: Ercevel 4 (Full Validation) Sample Request ID MOH Blauk BLOOMFIELD, NM 87413 Chain\_f-Custody Record EBS-04200 SLOOMFIELD KEFINERY Mailing Address: 50 ROAD 4990 Blank Phone #: 505-632-4166 Jrip - Adoles Relinquished by: Matrix Soil 1335 82 Time QA/QC Package: EDD (Type) <u>T</u> □ Standard □ Other 12/9 1299 Date

| Analyte    | Analytical Method             |
|------------|-------------------------------|
| Antimony   | SW-846 method 6010/6020       |
| Arsenic    | SW-846 method 6010/6020       |
| Barium     | SW-846 method 6010/6020       |
| Beryllium  | SW-846 method 6010/6020       |
| Cadmium    | SW-846 method 6010/6020       |
| Chromium_  | SW-846 method 6010/6020       |
| Cobalt     | SW-846 method 6010/6020       |
| Cyanide    | SW-846 method 335.3/335.2 mod |
| Lead       | SW-846 method 6010/6020       |
| Mercury    | SW-846 method 7470/7471       |
| Nickel     | SW-846 method 6010/6020       |
| Selenium   | SW-846 method 6010/6020       |
| Silver     | SW-846 method 6010/6020       |
| Vanadium . | SW-846 method 6010/6020       |
| Zinc       | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

Air Bubbles (Y or N) ANALYSIS LABORATORY ... HALL ENVIRONMENTAL samples submitted to Hall Environmental may be subcontracted to other accredited laboratorier reseas notice of this possibility. Any sub-contracted data will be clearly notated on the analytic 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 See Work Plew Grune www.hallenvironmental.com XX DEO Pesticides / 8082 PCB's Anions (F,Cl,NO3,NO2,PO4,SO4) Jable 1 Tel. 505-345-3975 (HA9 to AN9) 01E8 EDB (Method 504.1) X Remarks: (Vlno ese) HTT + 38TM + X3T8 \* (1208) s'BMT + 38TM Project Name:
RCRA INVESTIGATION かー 3 3 N 000 Time Date KELLY ROBINSON Sampler: TRACY FAYNE GROVE 3 □ Rush Preservative 11011 MeDH 362 2 MOH MUSH Done TYU() FOX Tum-Around Time: email or Fax#: | SEL x. ROBINSON@ WNR.LDM Project Manager: (2) Eucord (2) UNAU M Standard 2)Eucre Type and # (4) Jans (2) (mare 3 VM/LS 1(4) ALLIEN (E)VIALS Container Acc 26-9 (1.5-20) (4) bu (2) VAGLS 4 /m Project #: WESTERN REFINENCE SUTHWEST INC (45-26) TrLevel 4 (Full Validation) Sample Request ID (2-0.5) (0-0) Chak of-Custody Record sale of the BLONGTELD, NM 87413 Mailing Address: 50 ROAD 4990 505.632.4166 SLOOM FIELD KEFINERY Acc 26-9 -d/ MOC 26-1 Pot elinguished by EDD (Type) EXCE Relinquehed So: 1 Matrix S. B Ŕ 8 **B2**2 955 1217 QA/QC Package: Time 8 Time: Time: □ Standard Phone #: □ Other Mode 4/20/9 Date 4/25/9 海流

| 4       |                        | KONMENIAL<br>LABORATORY                | :<br>                     |                       |                   |                       |  |      |                                  | (N       |                    | səldduB ir                         | 4                       |           |          |        |               |                              |            |           |                                  |          |         |                   | ·            | 4                            |  |
|---------|------------------------|--|---------------------------|-----------------------|-------------------|-----------------------|--|------|----------------------------------|----------|--------------------|------------------------------------|-------------------------|-----------|----------|--------|---------------|------------------------------|------------|-----------|----------------------------------|----------|---------|-------------------|--------------|------------------------------|--|
| T       |                        | ENVIKONMEN I<br>ISIS LABORATO          |                           | 60                    |                   |                       |  |      |                                  |          | 100                | Mary d                             | 1                       |           | ×        |        |               | X                            |            |           | <i>X</i>                         |          |         | }                 |              | 3                            | ۱۲   |
| ſ       |                        |  | E                         | Albuquerque, NM 87109 | 4107              |                       | _  |      |                                  | (        | (AOV               | -imə2) 072                         | 8 🔀                     |           |          |        |               | X                            |            |           | 文                                |          |         |                   | _            | 201                          | }  |
|         |                        | 2 2                                    | www.hallenvironmental.com | ue, N                 | 505-345-4107      | Request               |  |      |                                  |          |                    | ₹OV) 8092                          |                         | X         |          |        |               |                              | X          | ×         |                                  | X        | X       | $\langle \rangle$ | •            | -3 3                         | $\left\{ \left[ \right] \right.$   |
|         | P                      |  | nme                       | dnerd                 |                   | is Re                 | _  |      |                                  |          |                    | O,7) anoin                         |                         |           |          |        |               |                              |            |           |                                  | _        |         | $\mathbb{H}$      | خ            | م<br>م                       | ,  |
| i       | 1                      |  | enviro                    | Albuc                 | Fax               | nalys                 |  |      |                                  |          | <del>.</del>       | ek e Ano                           |                         |           | -        | X      |               | X                            | _          |           | X                                |          |         | +                 |              | آ- کی                        | $\hat{T}$  |
|         | \ .                    | HALL                                   | w.hall                    | 빚                     | 975               | Ψ.                    |  |      |                                  |          |                    | ANG) 018                           |                         |           |          | _      |               |                              |            |           |                                  |          |         |                   | ı            | Worl Pla                     | 3  |
|         | K                      | V Z<br>L V                             | <b>**</b>                 | /kins                 | 345-3             |                       |  | 07   |                                  |          |                    | DB (Metho                          | ,                       |           |          |        |               | 4 /                          | _          |           | 5.7                              |          |         | $\perp$           |              |                              | <u>}</u>   |
| 1       | J.                     | 7 _                                    | d'                        | 4901 Hawkins NE -     | Tel. 505-345-3975 | a a                   |  |      |                                  |          |                    | PH Methoo                          |                         |           | X        |        |               | X                            |            |           | X                                |          |         | +                 |              | 20                           |  |
|         | 3                      |  |                           | 490                   | H<br>T            |                       |  |      |                                  |          |                    | TM + X3T                           |                         |           |          |        |               |                              |            |           |                                  |          |         |                   | Remarks      | /0                           |  |
|         |                        |  |                           | _                     |                   |                       | (1   | 805  | ) s'8                            | IMT      | . + 38<br>Walker   | TEX + MT                           | 8                       |           |          |        |               |                              |            |           |                                  |          |         |                   | Ren          |                              | _  |
| Canada. |                        |  | LINVESTIGATION            | 7                     | -                 |                       |  |      | NOSNI                            | AYNE     |                    | 0.4743                             | 5                       | 5         | 5-       | 5      | 5-            | 7-                           | 9-         | 9 -       | 7-7                              | 1        | 7       | 90                | Date Time    | Date Time                    |  |
|         | Time:                  | I 🗆 Rush                               | e:<br>Invest              | GROUP 3               |                   |                       | ager:  | C    | XOB.                             | RACY F   |                    | Preservative<br>Type               | Bork                    | 77        | None     | HNOS   |               | Neve                         | <b>→</b>   | MedH      | Nove                             | <b>→</b> | MEDIT   | TWEST             | 4/1/12       |                              |  |
|         | Turn-Around            | 12 Standard                            | Project Name:             |                       | Project #:        |                       | Project Mana   |      | KELLY                            | Sampler: | Sample Feat        | Container<br>Type and #            | (1) Ausber              | (E) NOARS | (3) VOAS | CAPOLY | albery        | مسمار بال                    | (2) Encore | (2) VARUS |                                  | (2) Euch | Celvine | 2 VAI. 5          | Received by: | Received by:                 | <b>3</b>   |
|         | Chail f-Custody Record | Client: Western Refining Southwest Inc |                           |                       |                   | Phone #: 505.652.4166 | email or Fax#: KELLY. KOBINSON @ WNR. COM Project Manager: | ige: | ard IV Level 4 (Full Validation) |          | (Jedd (Lybe) ボメCドー | Date Time Matrix Sample Request ID | 4/20/9 MS Ag FB -042009 |           |          |        | *   *   *   * | 149 1230 Soil BOCZU-210-0.51 |            |           | 4/12/9 1240 Sor NOC 20-2(15-2.0) |          |         | MeoH Blank        | àce          | Date: Time: Refinquished by: | and before the contract of the |

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |  |  |  |  |  |  |  |
|------------------------|--|--|--|--|--|--|--|--|
| Total Dissolved Solids | SM-2540C                               |  |  |  |  |  |  |  |
| Bicarbonate            | SW-846 method 310.1                    |  |  |  |  |  |  |  |
| Chloride               | EPA method 300.0                       |  |  |  |  |  |  |  |
| Sulfate                | EPA method 300.0                       |  |  |  |  |  |  |  |
| Calcium                | SW-846 method 7140                     |  |  |  |  |  |  |  |
| Magnesium              | SW-846 method 7450                     |  |  |  |  |  |  |  |
| Sodium                 | SW-846 method 7770                     |  |  |  |  |  |  |  |
| Potassium`_            | SW-846 method 7610                     |  |  |  |  |  |  |  |
| Manganese              | SW-846 method 6010/6020                |  |  |  |  |  |  |  |
| Nitrate/nitrite        | EPA method 300.0                       |  |  |  |  |  |  |  |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |  |  |  |  |  |  |  |

(N no Y) selddu8 niA Table **ANALYSIS LABORATORY** HALL ENVIRONMENTAL Refer to Work Plan Summi or matal analyte first 4901 Hawkins NE - Albuquerque, NM 87109 X Fax 505-345-4107 X (AOV-ima2) 9270 www.hallenvironmental.com Coc 1 K X × 8081 Pesticides / 8082 PCB's Anions (F,CI,NO3,NO2,PO4,SO4) \* slats Metals \* X Tel. 505-345-3975 (HAY 10 ANY) 01E8 (1.408 bodieM) X ≻ + 38TM 4/4/01,035 RCRA humotraphon-broup 3 1 d 7 3 ú 7 ١ ١ j □ Rush Preservative Narch Sake 302 2 2002 Me OH tracer MeDH MeDH Medy Turn-Around Time: . Rebinson C. Wing com Project Manager. Project Name: Blomfield Refinery 1000 B College Container Type and # いめろくら Co Encore (Z) VIALS 2) Euros (2) Encos (3) Joseph Received by: (E) 2) VIBUS EVIALS. 3) Jans (3) Jan Sampler: Project #: AOC 24-1 (1.5-2.0) ACC 24-2(1,5-2,0) Litevel 4 (Full Validation) AOC 24-1 (0-0,5" 8748 Sample Request ID AOC 24-2 (0-0,5' Chain-of-Custody Record Mailing Address: So Road 4990 2011P-ユ ス Cllent Mestern Re Girily 2elfnquished by. (032 Bloomfield Excel Relinquished □ Other Matrix Soil T. Seil Ŝ QA/QC Package: 00s1 Time 930 email or Fax#: (Type 949 ğ Accreditation Time: Time: ☐ Standard O NELAP Phone #: Date 123/9 9/64/6 C 4.123/ 153

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com kins NE - Albuquerque, NM 87109 45-3975 Fax 505-345-4107                   | Air Bubbles (Y or N)  |                  |          |                 |                     |  |  | mm   |
|---|---|------------------|----------|-----------------|---------------------|--|--|--|
| NMENT<br>SORAT<br>om<br>M 87109<br>4107   | Cyanide   |                  | X        |                 | X                   | 120                                    |  |  |
| M 87  | (AOV-ime2) 07S8   |                  | X        |                 | X                   | X                                      | T X  | 1 3 E  |
| TRONNS<br>TRONNS<br>ELABO<br>mental.com<br>erque, NM 87<br>505-345-4107   | (AOV) 8260B   | XX               |          | XX              | 次                   | XX                                     | 18   | Refer Smith  |
| S L   | 8081 Pesticides / 8082 PCB's  |                  |          |                 |                     |  |  | 1 Row 8  |
| ENVIRONME<br>YSIS LABOR<br>environmental.com<br>Albuquerque, NM 87109<br>Fax 505-345-4107   | Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )   |                  |          |                 |                     |  |  |  |
|   | ★ slasteM <del>8 ASIO</del>   | ·<br>            | ベ        |                 | X                   |  | X  | Des des miles  |
| HALL ENVIROR ANALYSIS LABG www.hallenvironmental.com Hawkins NE - Albuquerque, NM 8 505-345-3975 Fax 505-345-41                             | EDB (Method 504.1)<br>8310 (PNA or PAH)   |                  | -        |                 |                     | +                                      |  | 2 3 1  |
| HAL<br>ANL<br>www.<br>wkins NE<br>-345-39'  | COW (1:01+ DOLLDIN) 1111  |                  |          |                 |                     |  | 1  | T T Town   |
|   | (Gas/Diesel) HPT Method 8015B (Gas/Diesel)  |                  |          | $\dashv$        |                     |  | <del>   X</del>                                  |  |
| 490.  | BTEX + MTBE + TPH (Gas only)  |                  |          |                 |                     |  | <del>                                     </del> | arks:  |
|   | BTEX + MTBE + TMB's (8021)  |                  |          |                 |                     |  |  | Remarks:   |
| Grap 3  | 1   | かか               | 2        | 9-1-            | 1-1                 |  | 000  | 7 1035 Kemarks: 7 1035 Kemarks |
| 6   | Permis  |                  |          |                 |                     |  |  | Date Date  |
| ne:   | 2 Se P  | MeD#             | 7        | Nove Nove       | Medik               | None                                   | Marie  | Mos. L   |
| und Ti  | der der der P   |                  | $\vdash$ |                 |                     | 9 7 5                                  | 3 9 0  |  |
| Turn-Around Ti<br>To Standard<br>Project Name:<br>RCRA- WY<br>Project #:  | Project Mana<br>Sampler:  | (Z) (MC)         | wa (     | (2) Encor       | 3) Jaw<br>(2) VIALS | (3) Jan                                | (2) Luck   | Received by: Received by:  |
|   |   |                  | 9        | $\overline{}$   | 63                  |  |  | Abcontra   |
| Chain-of-Custody Record Western Refinity Sections Inc. Bloow Hold Refinery 18 Address: 50 Road 4990 Bloomfield NM 87415 ## (505) 1032-41166 | Kelly, RobinsonCwnr. cor Project Manager  DLevel 4 (Full Validation) Sampler: Troc  Excel  Matrix Sample Request ID Container Pre | 74-5(0-0,5'      |          | (1.5-2.0        | Aoc 24-4 (0-0,5'    | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |  | Received by:  Refinquished by: Received by: Received by: Received by: Received by: Received by:  |
| dy R<br>Refuglier   | MSON (FL (FL mple F   |                  |          | Acc 24-3        | 1-42                | D 04 700                               |  | 20 C   |
| Hain-of-Custody  Lesten Refinity Ser  Bloow/Hold R  Address: 50 Road  Bloomfield NM # (505) [032-41]  | Sar   | <b>₹</b>         |          | <del>J</del> QC |                     | 1 3                                    |  | ääääääääääääääääääääääääääääääääääääää   |
| Sign de la la la la la la la la la la la la la  | Colly, R  | <del> </del>     | ╁┈╢      | $\overline{}$   |                     |  |  | Relinquished by: Refinquished by: lamples submitted  |
| 5 3 5 G   | Matrix Matrix   | -<br>R           |          | 3               | ) Kg                | 7                                      | 17   | Selinqu<br>Selinqu<br>Imples   |
| hain-of<br>Esten Reserved Bloom   |   | <del>-   -</del> |          | 2               | 1030                | 75                                     |  | 2  |
| # (2) B (2) B   | Hation Tir  | 1600             |          | 99              | (8)                 |  |  | Time:  |
| Chain-of-Cus Client Westen Pekiliu Blood Hisk Mailing Address: 50 R   | email or-Fax#:  QA/QC Package:  Compared Accreditation  Compared NELAP  Government Time  Date Time                                | 6/62/4           |          | 2/9             | 36                  | 200                                    |  | 9  |
| O    ∑    ā   | 5   G   Q   Q   Q   | **               | 1 1      | 67/h            | Who was             | 4/3                                    | [   -  | V C3   |

Air Bubbles (Y or N) **ANALYSIS LABORATORY** HALL ENVIRONMENTAL If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as potice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. Tables for Metado 1 is COC 3 2 \* Refurb Wark PlanSum 4901 Hawkins NE - Albuquerque, NM 87109 × Fax 505-345-4107 www.hallenvironmental.com Analysis Request X 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (1.403 bod9eM) 8G∃ (GaseiQ\zso) 83108 bodteM H91 Remarks BTEX + MT8E + TPH (Gas only) + TMB's (8021) RCRG Investigation - Goys 9 Time Haulog 1038 Chinator □ Rush Preservative MedH A CAMP OF THE PROPERTY OF THE PARTY OF THE P (2) Ewal None イところ AC 24-4 (1.5-2.0) DUP (ENVIRU) MEDY -{3-i-Turn-Around Time: 20 bins on Charid Project Manager Project Name: 山**Standard** (2) Vices Container Type and # (3) Jan Project #: Sampler Sextampt / 10 MeDH Blank Level 4 (Full Validation) NM 87413 Sample Request ID Chain-of-Custody Record 41166 Client: Western Keffun Bloowfiel d EXCE □ Other Matrix Bloomfor Mailing Address: 585 QA/QC Package: Time ₹0 ₹0 (Type) email or Fax# Accreditation ☐ Standard O NELAP Phone #: मिट्यीन Date 4/2/4

| Analyte   | Analytical Method             |
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| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium  | SW-846 method 6010/6020       |
| Beryllium   | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt  | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead  | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel  | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver  | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc  | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| . : |  | AL<br>XX                                 |                           |                               |              |                   |   |                              | (N   | V Or           | Air Bubbles                           |           |      |           |          |                  |           |        |           |          |             |          |              |                     |                 |   |
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| r   | N                                      | Ĵ Ō                                      | ·<br>E                    | 1871                          | 1107         |                   |   |                              |  |                | -imə2) 0728                           | -         |      | ×         |          |                  | -         |        |           |          | $\dashv$    | $\dashv$ | ┪            | ્રક્                | ø               | he ans  |
| •   | " ] [                                  | LABOR                                    | <u>8</u>                  | ΣŽ                            | 345-4        | lest              |   |                              |  | (              | 4OV) 80928                            | ~         |      | -         |          |                  |           |        |           |          |             |          | 1            | 3                   | 13              | ed on t   |
|     | Ó                                      | <u>ال</u> كا<br>ح الم                    | www.hallenvironmental.com | Albuquerque, NM 87109         | 505-345-4107 | Request           | ,                                       | PCB:                         | 3808   | / səp          | 8081 Pestici                          | ļ,        |      |           |          |                  |           |        |           |          |             |          |              | et to Work Plan Sum | - Giraleyse     | y notat   |
| `   |  |  | iron                      | mbno                          | Fax          | lysis             | (†O                                     | S,509,                       | SON,   | εOΝ'           | IO,7) anoinA                          |           |      |           |          |                  |           |        |           |          |             |          | <u> </u>     | 7                   | \ <             | clear   |
|     | L                                      | <u>י</u> ג                               | llenv                     | - AB                          |              | \nal              |   |                              |  |                | RCRAS Me                              |           |      |           | X        |                  |           |        |           |          |             |          |              |                     | 35              | will be   |
|     | K                                      | į  | w.ha                      |                               | 3975         |                   |   |                              |  |                | AN9) 0188                             |           |      |           |          |                  |           |        |           |          |             | $\perp$  | 4            | کـ<br>0             | toble to        | ed data   |
| 7   | ij                                     | A S                                      |                           | kins                          | 345-3        |                   |   | האצט                         |  |                | EDB (Metho                            | <u> </u>  |      |           |          |                  |           |        | _         |          |             | _ _      | 4            | 十                   | عم ر            | intracte  |
|     | <b>"</b>                               |  |                           | 4901 Hawkins NE               | 505-345-3975 |                   |   | _                            |  |                | TPH (M <del>otho</del>                | ļ         | ×    |           |          |                  |           |        | $\dashv$  |          |             | _        | $\dashv$     | 4                   | 4               | sup-cc  |
|     | £.                                     |  |                           | 1901                          | Tel.         |                   |   |                              |  |                | BTEX + MTE                            |           |      |           |          |                  |           |        |           | _        | {           | -        | <u> </u>     | <u> </u>            |                 | /. Any  |
|     | ************************************** |  |                           | •                             |              |                   |   | ·                            |  |                | BTEX + MTE                            |           |      |           |          | _                |           |        |           | $\dashv$ |             | ╌┼       |              |                     |                 | ssibilit  |
|     |  | 1  |                           |                               |              |                   | .,,                                     |                              | 13   |                |                                       |           |      |           |          |                  |           | _      |           | $\dashv$ | $\dashv$    |          | 19           | <u>2</u>            |                 | this po   |
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|     |  |  | H                         |                               |              |                   |   |                              | 1  |                |                                       |           |      |           | '        | 1                | ١,        | ı      |           | -/       | 1           |          | ļĒ           |                     | =               | S as no   |
|     | 1.                                     |  | ¥                         |                               |              |                   |   | -7                           | 삘  |                | 是是                                    |           |      |           |          |                  |           |        |           |          |             |          | de C         | 124/169             | Date            | serve   |
|     | ) ' )                                  |  | H                         | 3                             |              |                   |   | Ő                            | AYN  |                |                                       |           |      |           |          |                  |           |        |           |          |             |          |              | 3                   |                 | <del></del>   |
|     |  | C Rush                                   | NVESTIGATION              | GROUP                         |              |                   |   | ROBINSON                     |  |                | ative                                 |           | Ö    | 4         | <b>,</b> | 7                |           | )      | 1         | ,        | E           |          | 4            |                     |                 | accredited laboratories.  |
|     | ai                                     | 0  | Ä                         | 8                             |              |                   |   | 0                            | K  |                | Preservative<br>Type                  | HC        | Nove | Nove      | 4NC      | 101              | HC<br>HC  | 200    | KINT      | HNO      | S.          |          | 1            | - 7                 |                 | # B   |
|     | Ë                                      |  | ار<br>ا                   | J                             |              |                   | ager:                                   | P                            | N<br>X   |                |                                       |           |      |           |          | 2                | 工         | Z      | _         | 工        |             |          | $\downarrow$ | 2                   |                 | conedit   |
|     | Turn-Around Time:                      | @ Standard                               | Řď.<br>✓                  |                               | <del>#</del> |                   | Mane                                    | 7                            |  |                | Container<br>Type and #               | A         | 4    | (1) Amber | 77       | <br>لاء          | <u>-£</u> | 7      | 49        | 3        | <u>-</u> 3  | - [\     | ٤            |                     | jë              |   |
|     | n-Ār                                   | Star                                     | Project Nam<br>RCRA       |                               | Project #:   |                   | Project Man                             | Keny                         | Sampler  |                | ontai<br>pe aı                        | S)VOYS    | Vov  | Z I       | May (1)  | WPOL             | द्भावा(३) | CO VOD | (1) Amber | (1) Poly | C) ABLY     |          | Received by: |                     | seerved by:     | ted to c  |
|     |  |  |                           | •                             | Pro          |                   | F.                                      | <u>×</u>                     | Sar  | 5 8            |                                       | (S)       | (1)  | 0         | $\odot$  | $\odot$          | رط        | 9      | 9         | থ        | 2           |          | Rec          | 7                   | 80<br>Y         | contrac   |
|     |  | 13                                       | .                         | i                             |              |                   | HO,                                     | (noi                         |  |                | ₽                                     |           |      |           |          |                  |           |        |           |          |             |          |              | ۲۱                  |                 | odvs ec   |
|     | ord                                    | 1  |                           |                               |              |                   | JR.C                                    | alidat                       |  |                | lest                                  |           |      |           |          |                  | 6         |        |           |          |             |          |              | 5                   |                 | il may t  |
|     | Ö                                      | ME                                       |                           | 9                             | 3            |                   | M                                       | Tercel 4 (Full Validation)   | İ  |                | Sample Request ID                     | FB-042109 |      |           |          | $\rightarrow$    | 692240    |        |           |          | _           |          |              | 3                   | * 1             | nmenta  |
|     | <b>X</b>                               | Ę  | K                         | 49                            | 87413        | 3                 | ON O                                    | 4 (F                         |  | Ì              | e F                                   | 岁         |      |           |          | Í                | 70        |        |           |          | <b>T</b>    |          | $\downarrow$ | 9                   |                 | Enviror   |
|     | od)                                    | S  | Ä                         | A                             | 60           | 41                | NSO                                     | evel /                       |  | V              | ami                                   | 3 ~ (     |      |           | İ        |                  | 1 1       |        |           |          | - }         |          | 1            | <del>-</del>        | -               | o Hall  |
|     | Ist                                    | Ä  | 山                         | Ŕ                             | NN           | 2                 | 8                                       | Z                            | Ī  | ป              | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 江         |      |           |          |                  | FB.       |        |           |          |             |          | <u>.</u>     |                     | Sa pa           | nitted t  |
|     | J-Custody Record                       | Í  | X                         | 0                             | ~            | 6                 | \ <u>\\\</u>                            |                              |  | EACE<br>EACE   | Matrix                                | he,       |      |           |          | $\rightarrow$    |           | _      |           |          | لح          |          | Relinguishe  | 3                   | zeinduisned by: | ndus s  |
|     | 1 1                                    | 8  | 日                         | Ñ                             | 7            | Ϋ́                | J                                       |                              |  |                | <b>8</b>                              |           |      |           |          |                  | \$        |        |           |          |             |          | Rei          | J.                  |                 | sample  |
|     | Chain                                  | 3  | BLOOMFIELD REFINERY       | dress                         | H            | 505-632-4166      | x#: <b>k</b>                            | kage:<br>d                   |  | ype).          | Time                                  | isto      |      |           |          | <u>ج</u>         | 0451      |        | _         | $\dashv$ | <b>&gt;</b> |          | 60           | 38                  | ōj.             | if necessary, samples submitted to Hall Environmental may be subcontracted to other                                 |
|     | 5                                      | 35                                       | Ó                         | g Ad                          | Š            | #                 | or Fa                                   | Pad<br>Indar                 | ı eğ   | $\tilde{\Xi}$  |                                       | 19 is     |      |           |          |                  | 51 6      |        | _         | _        | $\dashv$    |          | Time         | 5                   | ë<br>           | ¥ nece  |
|     | _                                      | Client: MESTERN REFINING SOUTHWEST INC   | 囚                         | Mailing Address: 50 ROAD 4990 | BLOOMFIELD.  | Phone #:          | email or Fax#: KELLY ROBINSON@ WNR. COM | QA/QC Package:<br>□ Standard | Other  | zieru (Type) _ | Date                                  | /h/h      | _    |           |          | <del>-&gt;</del> | 12,69     | -      | _         | -        | >           |          | Date:        | 13/21               | are:            |   |
|     |  | إحس                                      |                           | _                             | -            | 14                | (a)                                     | ں ں                          | <b>∟</b> (   | ej             | ŀ                                     | 7         |      |           | <b> </b> |                  | 1         | . !    | 1         | ı        | I           | I        | ۵            | - I                 | <b>-</b>        |   |

Air Bubbles (Y or N) ANALYSIS LABORATORY HALL ENVIRONMENTAL 4901 Hawkins NE - Albuquerque, NM 87109 rves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic Fax 505-345-4107 (AOV-ima2) 07S8 www.hallenvironmental.com COC 1 0 2 2 (AOV) 809S8 Presso Cal 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) 🏃 Anal Tel. 505-345-3975 (HA9 10 AN9) 01:E8 (1.402 bodfeM) BOE g Remarks: MTBE + TPH (Gas only) \* BTEX + MTBE + TMB's (8021) 035 M  $\mathbb{N}$ 3 Time 7 Project Name:
RCRA INVESTIGATION 4/24/69 TRACY PAYNE Date KELLY ROBINSON GROUP 3 If remaining the submitted to Hall Environmental may be subcontracted to other accredited laboratoric Conference Conferen C Rush Preservative TO CAT TO N FINA ZEST 302 Now Zare コープ グラエ ロエ つば フ エ Turn-Around Time: email or Fax#: Keux. Roguson@ NNR.Cox Project Manager. Make Received by: Container Type and # Standard 25 (s) VOR3 (i) Awber (C) PAMBES Gy Vons E 10 10 12 رة المام (را s fron (13 Sampler: (1) Poly Project #: **D S** Level 4 (Full Validation) Sample Request ID Client: WESTERN REFINING SOJIHWEST INC. Chain\_f-Custody Record FBS-042209 MeOH Black EBS-04409 Tris Blank BLOOMFIELD, NM 87413 Phone #: 505.632.4166 BLOOM FIELD KEFINERY OVEDD (Type) EXCE Mailing Address 4990 Matrix St. 49 AB 1520 1520 QA/QC Package: Time <u>8</u> □ Standard □ Other 124/pg 6/67/ Date

(N no Y) selddug riA **ANALYSIS LABORATORY** 102 2 OF 3 HALL ENVIRONMENTAL This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 (AOV-ime2) QTS8 www.hallenvironmental.com (AOV) 808S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 10 AN9) 01:68 EDB (Method 504.1) (PH Method 8015B (Gas/Diesel) Remarks: (Gas only) STEX + MTBE + TMB's (8021) Project Name: RCRA INVESTIGATION 33 Time AYNE KELY ROBINSON Date SROUP 3 Preservative 2 if necessary, samples submitted to Hall Environmental may be subcontracted to other acceptited aboratories. □ Rush RACY Tum-Around Time: email or Fax#: KELY. ROBINSON@WINR. OM Project Manager. WESTERN REFINENCE SOUTHWEST INC E Standard Acc 23-1(52-53) (2) Eucore Type and # Container 3 Vial 3) Jans Sampler: Received by Project #: E Level 4 (Full Validation) Sample Request ID Chair of-Custody Record Mailing Address: 50 ROAD 4990 BOOMETED REFINERY Phone #: 505.632.4166 BLOOMETELD, NM 87413 四次日 Relinquished by Matrix Soi EFEDD (Type)\_\_ QA/QC Package: Time 15/0 1/22/9/150 Time: □ Standard □ Other 0 Date

| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis Request | BTEX + MTBE + TMB's (8021)  BTEX + MTBE + TPH (Gas only)  TPH Method 8015B (Gas/Diesel)  TPH Method 504.1)  B310 (PNA or PAH)  8310 (PNA or PAH)  Anlons (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  Anlons (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  8260B (VOA)  8270 (Semi-VOA)  6270 (Semi-VOA)  7 (AOA)  64 (Yor N) |   | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | 14/69 * Remarks:  14/69 * Refer to Work Mac Summy Time town for Watall With.   |
|--|--|---|--|--|
| Client: Western Refining Southwest Mailing Address: So Road 4990  Bloomfield NM 87413  Phone #: (SOS) (030-4116)   | d d on [ ]   | 9 1750 Ag EBS-042307 (1) VoAs (1) Auber (2) Poly (3) Poly (4) Poly (5) Poly | Nowe HAD HACL                          | shed by.  Received by:  Received by:  Received by:  Date  Da |

Air Bubbles (Y or N) Goola #1 Golf 42 **ANALYSIS LABORATORY** HALL ENVIRONMENTAL 텇 y, samples submitted to Hall Environmental may be subcontracted to other accredited laboratoric serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 (AOV-ima2) 07S8 Analysis Request www.hallenvironmental.com (AOV) 809S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO3,NO2,PO4,SO4) Tel. 505-345-3975 (HA9 10 AN9) 01 E8 EDB (Method 504.1) (1208) s'8MT + 38TM + X3TE -(Seep 3) 9 5 7 E E पीयप्राध्य Payne O Lobrer RCRA INVESTIGATION □ Rush Preservative MEDH Nore **インド**2 する。そ Sampler: Jrace Turn-Around Time: Project Name: asten Be finis Southwat la FStandard Container
Type and # B) Encor (2) Energe co Viah (2) Mal AOC 25-1(0-0.51)(3)Jaws (1.5-2.01) (3) Law Project #: Excevel 4 (Full Validation) Sample Request ID Bloomfille Refinery Chain-of-Custody Record 50 Road 4990 632-4166 Abs 25-1 Bloomfield NM Relinquished by: □ Other Exec Matrix Ž 1.800 (Sec.) email or Fax#: 大り Mailing Address: Phone #: (\$05) 0/0/ Time Date: Time: QA/QC Package: RAEDD (Type) Accreditation Time: □ Standard O NELAP <u> 4</u>22/4 Date Date:

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| 'Vanadium | SW-846 method 6010/6020       |
| Zinc .    | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

|  | (2) (3) (3) (4)         | HALL   | www.hallenvironmental.com | 4901 Hawki               | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request        | O <sup>†</sup> )                                  | o sac<br>eid\se                       | 10 <sup>2,</sup> F                      | + T + HA: | BEE 480 od 5 od 5 od 5 od 5 od 5 od 5 od 5 od  | TM + X∃TB TM + X∃TB TM + HqT T | X X IX X                           | X               | X             |                             | X              | ×    | XX X                      | × ×      | × ×        | XXX                       | X        |        | * Remarks:            | 73                              | This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. |
|--|-------------------------|--|---------------------------|--------------------------|------------------------------------|-------------------------|---|---------------------------------------|---|-----------|--|--|------------------------------------|-----------------|---------------|-----------------------------|----------------|------|---------------------------|----------|------------|---------------------------|----------|--------|-----------------------|---------------------------------|--|
| The same of the sa | Turn-Around Time:       | PStandard □ Rush                               | Project Name:             | RURA INVESTIGATION-GRP 3 | Project #:                         |                         | oject Manager:                                    | X X X X X X X X X X X X X X X X X X X |   |           | Samiestende and Same and Same and Same and Same and Same and Same and Same and Same and Same and Same and Same | Container Preservative Type and # Type   | (3) Jas Nove -1                    | (2) Eucol 1 - 1 | 2) Viak Me OH | 3) we None -2               | 2) Eucol 4 - 2 | MedH | Blau None -3              | <b>→</b> | Wal MeoH 3 | B) by Nove -4             | Derest J | MeOH   | Scelved II. Date Time | Received by: Dâte ' Time        | accredited laboratories.   |
|  | Chain-of-Custody Record | Client: Western REFENTING SOURWEST IN Standard | BLOOKETED, NM             | <b>%</b>                 | BLOOMFIELD, NM G7413               | Phone #: (505) 632-4166 | email or Fax#: KEUN, ROBINSON@WNK, COMProject Man | OA/QC Package:                        | (10000000000000000000000000000000000000 |           | CLÉDD (Type) EXCEL   | Time Matrix Sample Request ID  | 1/23/9 1410 Soil Sway 5-1 (0-0,51) |                 |               | 1420 Soil Sumus-16.5-20) (3 | 2)             | 7    | 1430 Soil Sumus-2(0-0,5') |          |            | 1435 Soil SumuS-2 (15-20) |          | →<br>→ | Time: Rehydusheapy:   | Date: Time: Relinquished by: Re | If necessary, samples submitted to Hall Environmental may be subcontracted to other                                  |

Air Bubbles (Y or N) ANALYSIS LABORATORY HALL ENVIRONMÉNTAL Coc 2 & 3 4901 Hawkins NE - Albuquerque, NM 87109 I and this possibility. Any sub-contracted data will be clearly notated on the analy Fax 505-345-4107 (AOV-ime2) 07S8 www.hallenvironmental.com w to previous (AOV) 808S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO3,NO2,PO4,SO4) Tel. 505-345-3975 (HA9 10 AN9) 01E8 EDB (Method 504.1) Code #2 X Remarks (1508) s'8MT + 38TM + X3T8 Project Name:
RCRA INVESTIGATION 424 LEAST RANG KELLY ROBINSON JACOUP 3 Preservative amples submitted to Hall Environmental may be subcontracted to other accredited laborator MeOH Nave 2000 3002 (2) Unaly MeDH MCDH TO Y 2007 Chain-of-Custody Record Tum-Around Time: Project Manager: Client: WESTERN REFINERS SOUTHWESTIVE B Standard (2) Ecoe 2) Euco Type and # Suran 5-3(1.5-2.0) (3) Jan 5-4/i.5.2.0) p-2 (<u>z</u>) as Eucoc Container 2) Vials (2) Vials (2) Vials مطري Sampler: (0-0-5)(13) Jan Project #: (Full Validation) email or Fax#: Key 4. Rostuson @WNR.com Sample Request ID Sumu 5-3 (0-02) N Sec BLOOMFIELD, NM 87413 Shunds Shunds Mailing Address; 50 Road 4990 Sum Phone #: 505・632・4166 SKEW ロメの配し BLOOMFIELD, NM Refinguished by □ Other Matrix 20,5 Š Ñ N. 959 Hyp 145 1200 Time QA/QC Package: CLEDD (Type) Accreditation Time: ☐ Standard O NELAP Date

| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Ariallysis Request | TPH (Wethod 504.1)  EDB (Method 504.1)  8310 (PMA or PAH)  Anions (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  8250 (Semi-VOA)  8270 (Semi-VOA)  CLyswid  Air Bubbles (Y or N) |                                  | < ×               | X                  |  | te to Work Ray Soury ables for Westall accountage Rist.   |
|--|---|----------------------------------|-------------------|--------------------|--|---|
| ime:  Rush  VESTICATION—GRP3   | Preservative Type Type Type Type Type Type Type Typ   | Nove - 9                         | MeDH              | CZ) VIALS MEDH10   |  | L:20 U 2 U 3 U 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |
| Chain-of-Custody Record  Client: WESTERN REFENTING FOOTHWESTENE Standard  BOOMFIELD, NM  BLOOMFIELD, NM 87413  Project #: Phone #: 505 - 632 - 4166            | ax#: Kali Y. Robinson@Wink.co rd Level 4 (Full Validation) ion Cither ype) EXCE C   | 123/9 1500 Soi) Sumus-5 (0-0.51) | J. 1. 11 11 101 J | - Wiell MeoH Blank |  | Date: Time: Refinquished bf:  Date: Time: Relinquished bf: Received by: Received by: Received by: |

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335,3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickei    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

|   | Υ                       | rAL<br>opv         |  |            |                  |                                     |   | (N )  | o Y)  | səlddu8 niA  |                                       |                         |             |                              |                 |  |   |     |                           |     |          | 3                                      | ٠                               | ا   |
|---|-------------------------|--------------------|--|------------|------------------|-------------------------------------|---|---|---|--|---------------------------------------|-------------------------|-------------|------------------------------|-----------------|--|---|-----|---------------------------|-----|----------|--|---------------------------------|---|
| ` | 1 700 Ceres 1           | HALL ENVIRONMENTAL | 4901 Hawl                                  | ا م        | Analysis Request | ADiesel)<br>پرفهی<br>پرفهی<br>پرفهی | 888<br>50)<br>500<br>500<br>500<br>500<br>500<br>500<br>500<br>500<br>500 | H9T 4<br>(1.81)<br>(1.40)<br>(HA<br>%<br>SON,e( | BE - 38<br>180<br>190<br>190<br>190<br>190<br>190<br>190<br>190<br>19   | TM + X=T8 TM + X=T8 TM + Methor TH (Methor HqT AM9) 01E8 AM9 01E8 AM9 01E8 CH, CH, CH, CH, CH, CH, CH, CH, CH, CH, | × × × × × × × × × × × × × × × × × × × | X                       | ×           |                              | X.              | ×  | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | */> | X                         |     | X        | Remarks:<br>* Refer to Work Plan Summa | Tables for Metal analyte last   | is serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analy port. |
|   | Turn-Around Time:       | ⊠-Standard □ Rush  | Project Name: RCRA INVESTIGATION - GREWP 3 | Project #: |                  | lager:                              | The sales and   | Sampler I row Payne                             | Sample From Contract | Container Preservative Table Type and # Type (Type)  | B) law Now                            | (2) ELLONG J 41/41 - 21 | WINALS MEDH | 3 Jan Nove -2                | (2) Eurol 1 - 2 | WARS MCOH -2   | (3) Say Nove -3                         | ->  | (2) VIACO IMEOH -5        | 1 . | Меон     | Received by: Date Time                 | Received by: U Date Time        | accredited laborator  |
|   | Chain-of-Custody Record | ١٧                 | Mild Repuers<br>o Road Org 90              | انها       | ~ 1              | OA/QC Package:                      | ☐ Standard (Full Validation)  | Accreditation                                   | CLÉDD (Type) Excel  | Date Time Matrix Sample Request ID   | 4/23/9 17-20 Soil Acc 22-5(0-0.5)     |                         | ^ · · · ·   | 1730 Soil Act 22-5 (1.5.2.0) |                 | \rightarrow | 1650 Soil Ac 22-6 (0-0.5")              |     | 1655 C:1 Acc 22-b (15:20) | į – | <b>~</b> | Time: Relinquished by 1200 Luly Clear  | Date: Time: (Belinquished by: / | if reary, samples submitted to Hall Environmental may be subcontracted to other                             |

2,

Air Bubbles (Y or U) ANALYSIS LABORATORY HALL ENVIRONMENTAL If necess and pies submitted to Hall Environmental may be subcontracted to other accredited laboratories. The second finis possibility. Any sub-contracted data will be clearly notated on the analytical representations. 4901 Hawkins NE - Albuquerque, NM 87109 Coc 2 g & Fax 505-345-4107 (AOV-ima2) 07S8 www.hallenvironmental.com (AOV) 809S8 War Black #9 8081 Pesticides / 8082 PCB's Anions (F,Cl, $MO_3,MO_2,PO_4,SO_4$ ) See Previous X Tel, 505-345-3975 Remarks: 年297000 RCRA I ENGITCATION -GOLD 5 N. 5 īme T Date Koleway ariza 16:20 □ Rush Preservative 2 Nove MEDH 202 MEDI 3 子の子 HOW HOW Medi Turn-Around Time: . Robinson@ Winscon Project Manager Project Name: Container Type and # Standard (2) Eucoe Bluce (Z) Jan 2 Eurons 2) Eucore Received puch (2) VIALS (Z) VIALS とうどうけいく ひ بسارق 2) VIALS Project #: Blan Sampler: (S) Swin 5-5 (15-2.01) Bup (Full Validation) MCOK Blan Softwest luc Sample Request ID Swm 5-5 (1,5-2.0) Swmu S-6 (0-6.51) Scorn 5-6 (1.5-2.0' Chain-of-Custody Record Rexinery apply 632-4116b Client: Western Rekining Bloomfield Refinduished by: 気への □ Other Bloarchetz Mailing Address: < Matrix 1.00 <u>~</u> 1.98 Ŕ 202 1210 1215 QA/QC Package: Time 1505 NEDD (Type) Sast email or Fax#: 32 Accreditation □ Standard O NELAP Phone #: Date | 5/ KZ/<sub>1</sub> 6/82/ 423/9 5/82/ 2

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| 'Vanadium | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

(M to Y) selddug tiA ANALYSIS LABORATORY HALL ENVIRONMENTAL COC Lof W Refer to allocated another tra 4901 Hawkins NE - Albuquerque, NM 87109 × Fax 505-345-4107 www.hallenvironmental.com X Dist for Metals and Pesiloides / 8082 PCB's CI'NO3'NO5'bO4'2O4) Tel. 505-345-3975 (HA9 to AN9) 01:68 MTBE + TMB's (8021) RCRA INVESTIGATION - GROWS SE 108 ١ 7 j } Date Sample The Robinson 10:00 Adly. Robinson C Rush Preservative 362 None H,SOL HND かると ESS 3 FOS T Zone Nove Tum-Around Time: Robinson Cront. Con Project Manager. ( 20 ) We and # Project Name: Er Standard (1) 13 Makes Container (5) VOA5 2) Poly (3) Poly (1) Poly C) Poly S VOR Project #; **全** (5) 794(2) () Poly (J) 10th The Level 4 (Full Validation) Louthwest, luc Sample Request ID MW-102 Chain-of-Custody Record EBW-051209 87413 Bloomfield Refluency Ø 632-466 SO Road Bloomfield NM Client Weston Refining □ Other EXCE email or Fax#: 1/2 ll. Matrix \$ Phone #: (\$105 Mailing Address: QA/QC Package: Time 074 13/9 ESTO EZ/EDD (Type) 130 Accreditation Time: ☐ Standard. ime. O NELAP Date 5/2/2 yels

ity. Any sub-contracted data will be dearly notated on the analytical report.

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| ) <sub>(</sub> |         | ITAL                    | ANALYSIS LABORATORY                   |                           |                            |              |               |  |                               | . (i          | M 10    | ر<br>الار     | Mos / No                            |          |          |         |           |           |          | X             |            |          | · |          |              |                  |                  | _             |
|----------------|---------|-------------------------|---------------------------------------|---------------------------|----------------------------|--------------|---------------|--|-------------------------------|---------------|---------|---------------|-------------------------------------|----------|----------|---------|-----------|-----------|----------|---------------|------------|----------|---|----------|--------------|------------------|------------------|---------------|
|                | X       | ENVIRONMENT             | Z                                     |                           | . 60                       |              |               |  |                               | Ch            | ato.    | M             | DNOSEIC                             |          |          | メ       |           |           | <u> </u> |               |            |          |   |          |              |                  | ·>               |               |
|                | Î.      | \Z                      | Ö                                     | Ě                         | Albuquerque, NM 87109      | 505-345-4107 |               |  |                               |               | (A      |               | lme2) 07.28                         |          |          | ·       |           | X         |          |               |            |          |   |          |              |                  | Q                |               |
| (              | 100 PD  | 2                       | A                                     | www.hallenvironmental.com | ž<br>ģ                     | 345          | equest        |  |                               |               |         |               | OV) 80858                           |          |          |         | X         |           |          |               | ×          |          |   |          | _            |                  | 8                |               |
|                | γ,<br>γ |                         | S                                     | ueul                      | Jergi                      | 505          | Rec           |  |                               |               |         |               | 8081 Pestic                         |          | -        |         |           |           |          |               |            | $\dashv$ |   | <u> </u> |              | -                | ;                |               |
|                | Ŏ,      | Z                       | 31                                    | viro                      | bnqr                       | T.<br>Xe     | ilysii        | (*0  | S"Oc                          | ("O           |         |               | eM <del>8 ∧чэя</del><br>O,∃) enoinA |          |          |         |           |           |          |               |            | -        |   | -        | -            | {                | 3                | <i>!</i><br>: |
| Ì              | $\cup$  |                         |                                       | haffer                    |                            |              | Ans           |  | _                             | (             |         |               | AN9) 0168                           |          | -        | X       |           |           |          |               |            |          |   | _        | <del> </del> |                  | 5                |               |
|                |         | HALL                    | Z                                     | WW.                       | N SE                       | 5-3975       |               | phen                                       | May S                         |               |         |               | <del>प्राच्या ।</del>               |          | X        |         |           |           |          |               |            |          |   |          | $\vdash$     | ١.               | D6534            |               |
|                |         | 1                       | •                                     |                           | 4901 Hawkins NE            | 505-345      | 3             |  | 10 GH                         |               | 8       | t D           | <del>мом</del> ) нчт                | ×        |          |         |           |           |          |               |            |          |   |          |              |                  | ,                | )             |
|                | •       | <b>A</b>                |                                       | ø.                        | 9<br>H                     | Tel. 50      |               |  |                               |               |         |               | orteM HqT                           |          |          |         |           |           |          |               |            | _        |   |          |              | SS               | i X              | 1             |
|                |         | Ĵ                       |                                       |                           | 46                         | F            |               |  |                               |               |         |               | TM + X3T8                           |          |          |         |           |           |          |               |            |          |   | _        | _            | Remarks          | V '              | ,             |
|                | Г       |                         |                                       |                           |                            |              |               | - (,                                       | CORI                          | 8'8%          | <br> T  | 10            | TM + X3T8                           |          |          |         |           |           |          |               |            | $\dashv$ |   |          |              | Œ.               | <del>-</del>     | _             |
|                | -       |                         |                                       | •                         | Groups                     |              |               |  | Ź                             | -             |         |               |                                     | 13       | 4)       | 8,1     | 3         | 1         | i        | 5-            | 7-         |          |   |          |              | Time             | Time             | _             |
|                |         |                         | ا                                     | ÷                         | المُخَالِ                  | ,            |               |  | Spinson                       | Robinso       |         |               | 0                                   |          | ,        |         | .:        |           |          |               |            |          |   |          |              | Date             | Date             |               |
|                |         | ime:                    | . C Rush                              |                           | westra                     | <b>b</b>     |               | Jer.                                       | X                             |               |         |               | Preservative<br>Type                | None     | · Nove   | HNO3    | カ         | Nove      | HOON     | H, Sou        | HC         | 1        |   |          | 1            |                  |                  |               |
|                |         | Tum-Around Time:        | E Standard                            | Project Name:             | RCRA Involugation - GroupS | Project #:   |               | Project Manager:                           | JE JE                         | Samoler       |         |               | Container<br>Type and #             | (1) VOPA | (1) Poly | 179H (य | (S) volts | (!) Amber |          | 17194 (D)     | 3) YOA'S   |          |   |          |              | Received by:     | Received by      | _             |
|                |         | 1                       | Client Western Refining Southwest Inc | <b>-</b>                  | 9                          | 3            |               | ار   | Tolidation (First Velidation) | 4             |         |               | Sample Request ID                   | ام       |          |         |           |           | <u> </u> |               | X-PA-CK    |          |   |          |              | 4                | a will           |               |
|                |         | Chain-of-Custody Record | tille Sou                             | Red lies                  | and ugan                   | 1)           | 1 0           | email or Fax#: Kelly. Rabins on @ war. con | in the last                   | 1 1 1 2 2 2 3 |         | إد            | 1                                   | 7-MW     |          |         |           |           |          |               | TRIP BLANK |          | - |          |              | O V O            | する。              |               |
| •              |         | of Cu                   | N Constitution                        | A K                       | B                          | Bloomfuld NM | //            | Jally. R.                                  | -                             |               | Other.  | ERCEI         | Matrix                              | Ma       |          |         |           |           |          | $\rightarrow$ | 4          |          |   |          |              | Relinquished by: | Relinquished by: |               |
|                |         | hain                    | Weste                                 | Blownfold                 | Mailing Address:           | Bloom        | Phone #: (505 | r Fax#: K                                  | OA/QC Package:                | itation       | ΑP      | KY EDD (Type) | Time                                | c1b      |          |         |           |           |          | 7             | )          |          |   |          | ij           | Time:            | Z jä             |               |
|                |         | ပ                       | Client                                |                           | Mailing                    | -            | Phone #       | email o                                    | OA/OCI                        | Accreditation | D NELAP | K EDD         | Date                                | Help     |          |         |           |           |          | >             | 1          |          |   |          |              | Oate:            | 1.05 Page        |               |

Air Bubbles (Y or N) Refer to albached anothylical Dat for metals and appeared cheesely analysis Laboratory COC 323 HALL ENVIRONMENTAL \* if necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be dearly rigidated on the analytical report. 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 www.hallenvironmental.com (AOV) **40928** 9081 Pesticides / 8082 PCB's Aniona (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 to AN9) Otes  $\succ$ (leseiO\ssO) 83108 borleM H91 (Vino aso) H9T + 38TM + X3T8 3TEX + MTBE + TMB's (8021) 50 Jae RCRA Investogition - Group 3 Slul obiuses Date Sampler Helle Kolewoon 8:0 Preservative C Rush Nove 2 E202 Zow. 1884 するえ Type HC Turn-Around Time: Kobinsten Chart. Con Project Manager. Project Name (1) Author Client Western Retiving Southwest le Wasandard Type and # Container U.BL. (C) Poly E) 884, (S) 1843. (i) VOR () Paly Received by: Excomfield, Refines, NM 89413 Project # ALEvel 4 (Full Validation) Sample Request ID Las Chain-of-Custody Record FB-05/209 Phineur Mailing Address: SO Rund 4970 ă Phone #: (505) 632-4166 Bloomfield FXCEL Matrix email or Fax#: Kelle 12/9/1700/20 ing. ZÉDD (Type)\_ Тіте QA/QC Package: □ Standard □ Other 5/3/9 Date

Report # 0905247

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| . Barium  | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/5020       |
| Zinc .    | SW-846 method 6010/6020       |

# GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | BPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

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www.hallenvironmental.com analysis laboratory Coc 183 HALL ENVIRONMENTAL metals and gen chierwith Erst Aves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical 4901 Hawkins NE - Albuquerque, NM 87109 0:00 5/14/69 \* Refer to attached analyse list (AOV-ima2) 07S8 (AOV) 809S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO3,NO2,PO4,SO4) Tel. 505-345-3975 Method 8015B (Gas/Diesel) (1208) e'BMT + 38TM + X3T8 RCRA INVESTIGNATION - (SEOUP 3) 1 1 ١ Sampler Kelle Kobiudo posses. If ner The Amples submitted to Hall Environmental may be subcontracted to other accredited laboratories C Rush Preservative NONE 202 200 अंग्रि Name NaOH HNO3 ゴエ Turn-Around Time: email or Fax#: Kelly, Robinson@wnc. Com Project Manager Project Name: **Ey** Standard Type and # 1) Amber Container (1) Poly (1) Poly [3) (Pa A) (2) Poly (UPoly Project #: (1) NOB (1) VOA 40)(S) Received by Client Western Refining Southwest, Inc. Bloomfield Refinery Level 4 (Full Validation) Sample Request ID Chain-of-Custody Record JRIP BANK MW-60 Malling Address: 50 Road 4990 Bloomfield NM 87413 Phone #: (505) 632-4166 Exect □ Other Matrix ₹ Z \$ <u>Σ</u> QA/QC Package: Time B CY EDD (Type) Accreditation Time: lime: □ Standard O NELAP 6/21 Date 6/21/5

|  | _                    | ANALYSIS LABORATORY | www.hallenvironmental.com | - Albuquerque, NM 871          |                   | Analysis                  | (†C   | CB.2<br>O <sup>†</sup> '20<br>W <sup>o</sup> f' | d 2                                      | (1)<br>NO <sub>2</sub><br>808: | 40<br>(A)<br>(A)  | 00 - 00 - 00 - 00 - 00 - 00 - 00 - 00 | AME AREA  AME AREA  AME AREA  CHOWN  CHOWN  CHOWN  CHOWN  CHOWN  CHOWN  CHOWN  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb  CHOWN  Selb | 8<br>8<br>8<br>8             | >   | ×     | X   | *              | X  | X   | **                 |  |   | toched analyte list too              | معد                |  |
|--|----------------------|---------------------|---------------------------|--------------------------------|-------------------|---------------------------|---|---|--|--------------------------------|-------------------|---------------------------------------|---|------------------------------|-----|-------|-----|----------------|----|-----|--------------------|--|---|--------------------------------------|--------------------|--|
|  |                      |                     |                           | $-(500\rho^2)$ 4901 Hawkins NE | Tel. 505-345-3975 |                           | sel)  | as oi<br>s/Die                                  | (G                                       | ) 8<br>Hd.                     | T +               | 38<br>8 F                             | TEX + MT TEX + MT PH Method   | 8<br>T                       | 181 | 12    | -3  | 3              | -3 | 131 | 7                  |  |   | Time Bemarks:                        |                    | 1 1 2 2  |
| a de la calación de l | Turn-Around Time:    | © Standard □ Rush   | Project Name:             | RCRA-INVESTIGATION-GOUPS       | Project #:        |                           | ect Manager:  | Kell Kopingon                                   | -  | Sampler Kelly Robinson         | 的W回数数数分析/加速数据的识别。 | Sample Heaper Americans               | Container Preservative Type and # Type  | (1) You                      | -   | T 111 |     | (1) Poly No OH |    |     | (1) Amble Nove     |  | 9 | Received by: Date                    | Received by: Date  | to the other possible ball to be about 11.1.   |
|  | hn-of-Custody Record | vest Inc            | _                         | 0                              | 2                 | Phone #: (355) 632 - 4166 | email or Fax#: Kelly, Rebinson Bunc. com Project Manage | QA/QC Package:                                  | ☐ Standard ☐ ☐ Cevel 4 (Full Validation) | uo                             | □ NELAP □ Other   | でをDD (Type) 上次とと                      | Date Time Matrix Sample Request ID Co   | 9/12/9/1630 As HAS MW-65 (1) |     | 8     | (3) |                |    | 3   | <del>当</del> → → → |  |   | Date: Time: Relinquishedby All Recei | Relinquished by: / | If accounts considered to Mail Environmental proxition and the authors accounting a partial section of the sect |

www.hallenvironmental.com Ceder Air Bubbles (Y or N) **ANALYSIS LABORATORY** CC3 &3 Refer to attend anoutente Dot If ner The Amples submitted to Hall Environmental may be subcontracted to other accredited laboratories (this possibility. Any sub-contracted data will be clearly notated on the analytic 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 Iysts Request Metals and General C (AOV) 809S8 X 8081 Pesticides / 8082 PCB's Anions (F,Cl,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 10 AN9) 01E8 (Klno ase) H9T + 38TM (1208) s'AMT + 38TM + X3T8 三元 PURA INVESTIGATION - GROUP 3 7 7 7 20:01 24 Kering □ Rush Preservative 2002 Samplement Nove Dave H, 504 HNO3 2000 Type TOOK Turn-Around Time: email or Fax#: 4 c. My. Kobi usson @wor, coultroject Manage N/Standard Project Name: Container Type and # (1) Amber S vop (C) Por A) NOT. (2) Par Sampler B Poly Project #: W Poly A01 (1) Client: Western Pefining Southwest, Mc. (Full Validation) Sample Request ID MW-65 (DUP) Chain-of-Custody Record Bloomfield NM 87413 Mailing Address: SO Road 4940 Bloomfiell Rethrem Excel □ Other Matrix \$ Phone #:(305) Time: /500 QA/QC Package: Time 5/12/9/1630 EDD (Type) Accreditation ☐ Standard O NELAP Date 13/9

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| 'Vanadium | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

# GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

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Air Bubbles (Y or N) ANALYSIS LABORATORY HALL ENVIRONMENTAL Refer to attacked another first samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. \$ 4901 Hawkins NE - Albuquerque, NM 87109 or Gen Chown + metallo. Fax 505-345-4107 X www.hallenvironmental.com (AOV) 808S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO3,NO2,PO4,SO4) Tel. 505-345-3975 EDB (Method 504.1) PH Method 8015B (Gas/Diesel) Remarks: MTBE + TPH (Gas only) BTEX + MTBE + TMB's (8021) 3  $\dot{\omega}$ 3 3 0  $\omega$ RCRA INVESTIGATION - (SCORE Time RCA LIMESTRANFION GROOP 3 delly Robinson Sample: Aclo Lobinson Sample Temperatues Preservative 🖁 H SOL NONE HINDS □ Rush Sacoa Sacoa 2007 202 Nave HNOZ TON 33 Turn-Around Time: Project Manager. Project Name: (J) Amiles CS) Very L Standard
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 Standard Type and # Container US Poly LAN(E) 1) Poly (3) VON 407 CI a) Poly Project #: Client: Western Refinity Southway In Level 4 (Full Validation) Sample Request ID email or Fax#: Kelly. Robinson Curnion Chain-of-Custody Record TRIP BLANK FB-051409 Bloomfold NM 87413 Mailing Address: So Road, 4990 MM-60 Phone #: (505) 632-41 66 EXCEL Matrix 4 16.20 α√ EDD (Type) QA/QC Package: Time 1215 <u>8</u>8 Time: □ Standard □ Other 5/14/9 16/11/18 Date 5/14/19

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

### GENERAL CHEMISTRY ANALYSES

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| -Ferric/ferrous Iron   | SW-846 method 6010/6020 & SM 3500F e2+ |

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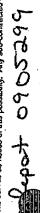
| * * * * * * * * * * * * * * * * * * * |                         | HALL ENVIRONMENTAL AMAI VETS I ARODATODY W | environmental.com | 4901 Hawkins NE - Albuquerque, NM 87109. | 10         | Analysis Reduest | (°0)                 | Sind<br>Sind   | 270<br>270                  | (H; (H; (H; (H; (H; (H; (H; (H; (H; (H; | 1 SO SE SE SE SE SE SE SE SE SE SE SE SE SE | i bo          | orthell House Hou | 4 8 8 8 8 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 | ×         | X        | X         | X        | X         | X       | X        | ×            | X    | WX X   | X        | X   |                  | Refix afficient and the let | - Wetay Out Outled (1,0,1) | 7.4  | This serves as notice of this possibility. Any sub-confracted data will be clearly hodged on the analytical report.   |
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|                                       | 1                       |  |                   | 49                                       | <b>Te</b>  |                  |                      |                |                             |   |   |               | EX + MT   |   |           |          |           |          |           |         |          |              |      |        | +        |     | Remarks          | 4                           | 7                          | E 14 | s possibility.  |
|                                       |                         |  |                   | Investigation-Gay 3                      |            |                  |                      | Ž              |                             | NSQV (                                  |   |               |   |   | 1         | <u> </u> | -         | -        | 7         | 1       | <u>_</u> | -2           | -2   | 72     | 2-       |     | Date Time        | <u>ئ</u>                    | Date Time                  |      |   |
|                                       | Time:                   | ( C Rush                                   | j                 | <i>westagat</i>                          |            |                  | aget)                | Cobinso,       |                             | さる、大名言な                                 |   |               | Preservative<br>Type  | 716                                     | None      | None.    | HND3      | HC       | Nowe      | ~       | H,SON    | Morre        | None | HN03   | U Z      | 13% | 1                | 7 10:00                     |                            |      | roorgited laboratories  |
|                                       | Turn-Around Time:       | _  | Project Nar       | RCRA-                                    | Project #: |                  | Project Manager      | 大学             |                             | Samplet                                 |   |               | Container<br>Type and #   |   | \$ (S)    | (1) Poly | (2) toly, | (S) NOA! | (J) Amber | W. Poly | (J. Pal  | (1) YOR      | Bhy  | C. Ris | 1947 (S) | 6   | Received by      |                             | Received by:               |      | contracted to other a   |
|                                       | Chain of Custody Bocord | S. Huet, luc                               | o Give            | So lead 4P90                             | NN 87413   | Jally -          |                      |                | © Level 4 (Full Validation) | rediction of                            |   | EXCEL         | Matrix Sample Request ID  |   | Ha MW-LAY |          |           |          |           |         | <b>→</b> | An 78-051309 |      |        |          |     | Refinqpished by: | U Lower                     | Relinquished by            |      | If necessary, samples submitted to Hall Environmental may be subcontracted to other according to the contract of the contract |
|                                       | Chain                   | Client L'Actual P. A.                      | A P               | Mailing Address:                         | Bloomfield | Phone #: (Sos    | email or Fax#: Kelly | QA/QC Package: | D Standard                  | Accreditation                           | יין ואבוראנ                                 | th/EDD (Type) | Date Time   |   | 5/BM 15/5 |          |           |          |           |         | <b>→</b> | ज्या भंडा/८  |      |        |          |     | Dafe: Time:      | 2-                          | Date: Time:                |      | If necessary, a   |

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Lab Report Of ON 299

| Chain-of-Custody Record Client Western Reimy Suffund Lic Bloomfield Refinent | Turn-Around Time:  Definition of Rush Project Name:  RCRA- Investigation - Grayo 3 | HALL ENVIRONMENTAL ANALYSIS LABORATOR www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109  | ENTAL<br>EATORY                 |
|--|--|--|---------------------------------|
| Bloomfeld, NM 87413<br>Phone #(505) 632-4166                                 | Project#: V  | Tel. 505-345-3975 Fax 505-345-4107   |                                 |
| email or Fax#. Kelly, Pobinson C. umr. Coux. ONIC Package:    Ostandard      | Project Manager  | (kOS, soci   |                                 |
| D Other  | Sampler X. U. Chindo   | 30) 8310<br>30 (1.812<br>(1.803<br>(1.444)<br>(1.403, 1.003 |                                 |
| (Time Matrix Sample Request ID   | Container Preservative Type  | BTEX + MTBE BTEX + MTBE TPH (Mathod 8 B310 (PMA-BF) RSHO (PMA-BF) RSHO (PMA-BF) RSHO (PMA-BF) RSHO (PMA-BF) B250 (VOA)   | bambeck<br>501/2011<br>701/3011 |
| 5/18/9 1640 Ag HALLS DE MW-63 ()   | 5 (1) VOG NOWE -3  |  |                                 |
|  | Wholy Nove -3  | X  |                                 |
|  | (2) Poly HNO2  | X  | ×                               |
|  | (5) WAS 4CT -3   | X  |                                 |
| 7  | ) Amber None   | Χ  |                                 |
|  | (1) Poly 14, 504 -3  |  | <br> X<br> +                    |
| *  | (1) Poly heart -3  |  | . )                             |
| M3/29 4730 An EBW-051309   |  |  | 1:<br>-                         |
|  | 2) Poly HNO4   |  |                                 |
|  |  |  |                                 |
| <b>*</b>   | '  |  |                                 |
| o Kulkdim  | Received by: 0 Sate Time   | Remarks:   | 技                               |
| Date: Time: Peelinquished by:  | Received by: Date Time   | for metals and openial Chein   | wish                            |
| if necessary, samples submitted to Hall Environmental may be subm            | nonfracted to other accredited laboratories. This serves as notice of the          | If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be dearly notated on the snahfical report   | dical report.                   |

|                         |   | ¥.                          | <b>\$</b> .                             |                   |          |                           |                |                             | (                  | Илс          | )<br>(Y | 80   | ddu8 1                                 | A         | 1        | 1           | Ţ          | 7            |          |        |             |           |              |   |          | F        |            |                                       | 1   |
|-------------------------|---|-----------------------------|---|-------------------|----------|---------------------------|----------------|-----------------------------|--------------------|--------------|---------|------|--|-----------|----------|-------------|------------|--------------|----------|--------|-------------|-----------|--------------|---|----------|----------|------------|---------------------------------------|---|
| Cic sr2                 | HALL ENVIRONMENTAL<br>ANALYSIS LABORATORY |                             | 3                                       |                   |          |                           |                |                             |                    |              |         |      |  | +         | ╀        | ╁           | +          | +            |          |        | _           | -         | <del> </del> | - | ├-       | ╫        |            |                                       |   |
|                         |   |                             |   |                   |          |                           |                |                             |                    | 7            | 5,7     | عد   | 10 m                                   | $\top$    | >        |             | +          | $\dagger$    |          |        | $\vdash$    | -         | $\vdash$     | - | $\vdash$ | $\vdash$ |            |                                       | t tooday  |
| _                       |   | 1                           | ე<br>დ                                  |                   |          |                           |                |                             |                    | 01           | V/      | 7~   | ON                                     | $\forall$ | +        | T           | †          | †            |          |        |             |           |              |   |          | T        |            | ٠<br>٢                                | alytical  |
| 1                       | 20  | Ë                           | ₩87                                     | 4107              |          |                           |                | <u> </u>                    |                    | (A           | OΛ      | -lui | 9S) 047                                | 8         |          | Τ           |            |              |          |        |             |           |              |   | -        |          |            | 3                                     | <b>₽</b>  |
| 20                      | 2 4                                       | <u>1</u> 2                  | ₹.<br>v                                 | 505-345-4107      | Request  | :                         |                |                             |                    | -            | (\      | AOV  | /) 809Z                                | 8         |          | X           |            |              |          |        |             |           |              |   |          |          | ] ,        | J.                                    | 동<br>왕<br>·   |
| NO                      |   | men                         | erdn                                    | 505               | Res      |                           |                |                             |                    |              |         |      | 94 r80                                 |           |          |             |            |              |          |        |             |           |              |   |          |          |            | <b>~</b>                              | ly socta  |
| Ų.                      | Zis                                       | www.hallenvironmental.com   | 1901 Hawkins NE - Albuquerque, NM 87109 | F.                | ysis     | (*(                       | )S'*           | Od.                         | ( <sup>3</sup> OI  |              |         |      | l) anoin                               | -+-       | <u> </u> | _           | _          | 4            |          |        |             |           |              |   |          | _        |            | a Henow                               | e cjesa   |
| Ű                       |   | allen                       | ₹                                       |                   | Anal     |                           |                |                             | <del>,</del>       |              |         |      | 8 ARO                                  |           | _        | ļ.          | _          | $\downarrow$ | _        |        |             |           | _            |   | _        | _        |            | 3                                     | S WILL  |
|                         |   | ww.h                        | Ψ                                       | 3975              |          |                           |                |                             |                    |              |         |      | M) 80<br>14) 018                       |           | -        | -           | +          | +            |          |        |             | _         | _            |   | -        | -        | (          | J.                                    | ted dat   |
|                         | I   | \$                          | vkins                                   | 345               |          |                           |                |                             |                    |              |         |      | PH (Me                                 |           | ╀        | +           | +          | +            | -        |        | ,           | -         | -            |   | -        | ├        |            | 3                                     | contract  |
|                         |   | \$41                        | T<br>g                                  | Tel. 505-345-3975 |          | (198                      | <br>Dies       | /SB!                        |                    |              |         |      | PH Me                                  |           | ╁        | ╁           | ╁          | +            |          | ****** |             | -         |              |   |          | ├-       | 1          | 10                                    | y sub   |
|                         |   |                             | 4901                                    | <u>Tel</u>        |          |                           |                |                             |                    |              |         |      | + X∃T                                  |           | +        | ╀           | +          | +            | $\dashv$ |        |             |           | _            | _ | -        | -        | rks:       |                                       | 15. An  |
| P<br>P                  | ЦЦ  |                             |   |                   |          |                           |                |                             |                    |              |         |      | + X3T                                  |           |          | T           | +-         | $\dagger$    | -        |        |             |           | ┢            |   | $\vdash$ |          | Remarks    |                                       | ags (   |
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|                         |   | M                           | _                                       |                   |          |                           | γ              |                             | 1                  |              |         |      | (e) (e)                                |           | 12       | 10          | <u>'</u> ] | 1            | $\neg$   |        |             |           |              |   |          |          | <u>2</u> 2 | e                                     | ogice -   |
| -                       |   | ğ                           | 1                                       |                   |          |                           | ج              |                             | 3                  |              |         |      |  |           | '        |             |            |              |          |        |             |           |              |   |          |          |            |                                       | 88  |
|                         | 1   | Ð                           |   | 1                 |          |                           | かんざか           | •                           | Sico o             |              |         |      | i i i ly                               |           | ľ        |             |            |              |          |        |             |           |              |   |          |          | affect C   | O O O O O O O O O O O O O O O O O O O | This serv   |
| 1                       |   | ğ                           |   |                   |          | _                         | \$             | 1                           | چ                  |              |         |      |  |           |          | ļ           |            | 1            | _        |        |             |           |              | 1 |          |          | ہے.        |                                       | SS  |
|                         | Rush                                      | 1                           |   |                   |          |                           | $\lambda$      |                             | 7                  |              |         |      | Preservative<br>Type                   | 5         | 17       | -           | 5          |              | ı        | Ì      |             |           |              |   |          |          | h; 00      |                                       | oratori   |
| <u>0</u>                |   | 1                           | $\mathcal{I}$                           |                   |          |                           | •              | 5-!<br>[                    | 3                  |              |         |      | serva<br>Type                          |           | 704      | 177         |            |              |          |        |             |           |              |   |          |          | ~          | 1                                     | ted ba  |
| Turn-Around Time:       |   | me:<br>Investigation - Gray |   | 1                 |          | ager                      | $\leq$         | ج کی                        | $\mathbb{Z}$       |              |         | _    | -                                      |           | 1        | -           | +          | +            | _        |        |             |           |              | _ | 4        |          | 73         | <b>.</b>                              | Becored   |
| Į į                     | to Standard                               | Nam<br>Ch                   |   | , l               |          | × E                       | Z              | 1                           |                    | 孋            |         |      | Container<br>Type and #                |           | بريا     | 4           | ?          |              | I        |        |             |           |              | - |          |          | 'Ya        | Ě                                     | office  |
| ₩.                      | 3   | Project Nati                | Drolove #.                              | <u> </u>          |          | gé                        | , 1            | 0                           | Tale to the second |              |         |      | Sont:                                  | N.B.      | 3        | _           |            |              |          |        |             |           |              |   |          |          | Receive    | Seive                                 | cted to   |
| 旦                       |   |                             | 1                                       | <u> </u>          |          | @ war.tou Project Manager |                |                             |                    | 0            |         | -    | <u> </u>                               | 15        | 2        | 7           |            | +            |          |        |             |           |              | - | -        |          | 2          | 8                                     | boord   |
| 75                      | 7   | 3                           |   |                   |          | 3                         |                | Excevel 4 (Full Validation) |                    |              |         |      | <del>ئة</del><br><del>0</del>          | _         |          | ر ا         |            |              |          |        |             |           |              |   |          |          | 3          |                                       | 96 50   |
| Ö                       | ashur                                     | iner.                       | d'                                      | 2                 | 1        | 3                         |                | /alida                      |                    |              |         |      | ant                                    | 92        |          | 1           |            |              | Ì        |        |             |           |              |   |          |          | 3          |                                       | tal may   |
| Ş                       | 3   | 4                           |   | 844               |          |                           |                | 7                           |                    |              |         |      | Red                                    | 16        |          |             |            |              | į        |        |             | ·         |              |   |          |          |            |                                       | onther.   |
| <b>LE</b> .             | 4   | 2                           |   | 0                 | اور      | P.                        |                | 4 (6                        | ļ                  |              |         |      | <u>ple</u>                             | 1 3       |          | 4           | 41         |              | 1        |        |             |           |              |   |          |          | 73         |                                       | t Enviro  |
| od                      | 3   | 7                           | 8                                       | 72                | 37       | <b>Zab</b> jnasoy         | ,              | Š                           |                    |              |         | ŀ    | Sample Request ID                      | ERW-CS130 |          | Tris Blo lc | 11         |              |          |        |             |           |              |   |          |          | 3          | ų.                                    | 野鱼  |
| ust                     | d'in                                      | শ্ৰে                        | 00 :                                    |                   | 632-4160 | ď                         |                | B                           |                    | Excel        |         |      | ······ · · · · · · · · · · · · · · · · |           |          | L           | $\coprod$  | 1            | _        |        |             |           |              |   |          |          |            | ह्य<br>क                              | milted  |
| Ç                       | 13  |                             | I۰                                      | 쾽                 | -0       | کنید                      | -              |                             |                    | K            |         |      | Matrix                                 | 15        |          | } 4         | #          |              | 1        |        | $\setminus$ |           |              |   |          |          | Relinquig  | nguisi                                | as sel  |
| Ş                       | 3   | Block Re                    | 1                                       | 5                 | 200      | X                         |                |                             | i                  |              |         | _    |  | 17        | <u> </u> | <u> </u>    | #_         | +            | -        |        |             | $\preceq$ | _            |   | -        |          | Se /       | <u>8</u>                              | , same  |
| Chain-of-Custody Record | lestem                                    | Mailing Address:            | T.                                      | Spowfield         |          | email or Fax#: Kelly      | OA/OC Package: | lard                        |                    | CYEDD (Type) |         |      | Тяте                                   | 17.20 Ba  | 1        | 71          |            |              |          |        |             |           |              |   | 1        |          | Time:      | Time:                                 | If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. |
| Ü                       | Client:                                   | ling /                      | )   °                                   |                   | Phone #: | ail or                    | SCP            | □ Standard                  | Officer            | 600          |         |      | Date                                   | 5/13/0    | 7        | $\int_{I}$  | T          | T            |          |        |             |           |              |   |          |          |            | äl                                    | ž   |
|                         | ð   | Z                           |   | .                 | Ĕ        | æ                         | ð              |                             | Ō                  | 8            |         |      | Ω                                      | 120       | 4        | /           |            | }            | İ        |        | ļ           |           |              |   |          |          | 影          | Dad                                   |   |
|                         |   |                             |   |                   |          |                           |                |                             |                    |              |         |      |  |           |          |             |            |              |          |        |             |           |              |   |          |          |            |                                       |   |



| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barlum    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

# GENERAL CHEMISTRY ANALYSES

| Analyte .              | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

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| Cac 122 | INTERNACIONAL IN | ANALYSIS LABORATORY | www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109 | 3975 Fax 505-345-4107          | t. Analysis Request |        |                | 282 × | (H)<br>(A)<br>(A)<br>(A)<br>(A)<br>(A)<br>(A)<br>(A)<br>(A)<br>(A)<br>(A | or P.  tals  tals  the control of th | ANY) (Method) (Method) (F,C) (Seminol) (Seminol) (Mov) | 01168<br>00inA<br>06188<br>0628<br>0728<br>0728<br>0728 |                     | X         | X             | X   | X               | X              | X                               | ×                   |  |   | to affected analyk list | Tall with questilly          | rves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical research |
|---------|--|---------------------|---------------------------|---|--------------------------------|---------------------|--------|----------------|-------|--|--|--|---|---------------------|-----------|---------------|-----|-----------------|----------------|---------------------------------|---------------------|--|---|-------------------------|------------------------------|--|
|         | Turn-Around Time:  | W Standard □ Rush   | me:                       | KCRA lunestration - Group 3 4901 Hawk   | Project #: U Tel. 505-345-3975 |                     | lager: | ටුන්දු 01      | H (G  | 9T +   |  | P.   | 3T8<br>H9T  | (i) JOH None / X    | ESVOY HC/ | _             |     | (1) Amba Nove / | () Poly NaOH / | (1) Poly H, Soy /               | 3) vow HC 2         |  |   | late Midog W            | Date Time                    | accredited laboratories.   |
| -       | indik of-Custody Record  | wasty lee           | 12 Refiner                | Dad 4990                                | 87413                          | 717                 |        | QA/QC Package: |       | ECDD (Type)  |  | Date Time Matrix Sample Request ID C   |   | 1/5/4/1130 Ag NW-64 |           | $\mathcal{O}$ | (A) |                 | 3              | → <del> </del> → <del> </del> → | 1 - Ay TICH BLANK 3 |  | < | Relinquished by.        | Date: Time: Relinquished by: | If necessary is amples submitted to Hall Environmental may be subcontracted to other                           |

|        |                         | ANALYSIS LABORATORY                     | www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request | (†C)  | as/Die                    | 3 (G:5)           | 100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100 | S bo | BTEX + M<br>TPH Methor<br>TPH Methor<br>TPH Methor<br>B310 (PNA<br>R310 (PNA<br>R310 (PNA<br>R310 (PNA<br>R310 (Sem<br>R260B (VO<br>R310 (Sem<br>R260B (VO | X×                     | X        | X    | ×  |      | X | X        |   |  | Remarks:                     | * Rets to And the List.                                   | This serves as notice of this possibility. Any sub-contracted data will be dearly notated on the analy*   |
|--------|-------------------------|---|---------------------------|---|------------------------------------|------------------|---|---------------------------|-------------------|--|------|--|------------------------|----------|------|----|------|---|----------|---|--|------------------------------|---|---|
| ap.de. | Turn-Around Time:       | Standard - Rush                         | Project Name:             | RCRA Musshypton - Grap3                 | Project #: ()                      |                  |   | Cum                       | Sample: X Shinson |  |      | Container Preservative + + Type and # Type   | E DWGN STONES          | PH       | None | _  | None |   | H, 30, L | - |  | Date Time                    | Receive 66: 7 100 P 1020  Receive 66: 7   100 P Date Time |   |
|        | Chair_Jf-Custody Record | Client: Western Petining Sastings, Inc. |                           |   | Bloomfield NM 87413                |                  | email or Fax#: Kelly . Robinson and Con Project Manager | QA/QC Package: ☐ Standard |                   | S EDD (Type)   |      | Date Time Matrix Sample Request ID   | 11579 10915 Ap MUJ-660 | <b>1</b> |      | 7) |      |   |          |   |  | Date: Time: Relinquished by: | 15/9 (800 Kelly Oly Date: Time: Relinquished by:          | If remeany, samples submitted to Hall Environmental may be subcontracted to other accredited laboratoring |

Cool #2

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

|                        | <del></del>                            |
|------------------------|--|
| Analyte                | Analytical Method                      |
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

Alr Bubbles Remarks: Le Aborched analyt Ot ANALYSIS LABORATORY HALL ENVIRONMENTAL If necessary, samples submitted to Hall Environmental may be subcomfacted to other accepting laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. COC 1 - 1 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Call w question (AOV-ima8) 0728 www.hallenvironmental.com X (AQV) 808S8 8081 Pesticides / 8082 PCB's CI'NO3'NO5'LO4'2O4) (1.403 bortleM) 805 Time (2000) RURG Investigation-Googs くらしなからん 80/04  $M | \omega$ M 3 3 M Preservative □ Rush 707 Zore 302 B, SO 1037 100x HC) Sampler: Xcll Turn-Around Time: email or Fax# Kelly . Robinson Cumr. Con Project Manager Sachucot- Inc. & Standard Type and # STOWERS. (1) Poly Container (3) Fambol 18 (A) (Z) Hod ( S. Pall Project #. Received by (Full Validation) Sample Request 相 MW-SK (Pare) S ( 24 1) Chail-of-Custody Record Bloomfeld, NM 87413 Mailing Address: SO Read Myago Bloomfield Refinery 1633-4166 Client Wester Refinity Matrix 1300 Ag Phone #: (SDS) B QA/QC Package: Time E EDD (Type) □ Standard Offier Offier Date 4

Part 0907286

Ceo(ec#1

| HALL ENVIRONMENTAL  ANALYSIS LABORATORY  www.hallenvironmental.com  4901 Hawkins NE - Albuquenque, NM 87109  Tel. 505-345-3975 Fax 505-345-4107  Tel. 505-345-3975 Fax 505-345-4107   | TEX + MTBE + TMB's (8021)  TEX + MTBE + TPH (Gas only)  TPH (Mathod 8015B (Gas/Diesel)  TPH (Mathod 504.1)  TORA OF PAH)  Anions (F.CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  Sofor Peaticides \ 8082 PCB's  Anions (F.CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Sofor (VOA)  Anions (F.CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ) | )<br>33<br>33<br>7<br>11<br>12<br>14<br>14<br>15<br>16<br>17 | X              | ×             | X   | X   | Time 100 Remarks:  | this possibility. Any sub-contracted data will be clearly inclated on the analytical report.                      |
|---|--|--|----------------|---------------|-----|-----|--|---|
| Chain Af-Custody Record Turn-Around Time:  Client: Ule stean Rectivine Scotlanest, Inc. 10/Standard   Rush  Blocometical Refine Project Name:  Mailing Address: Sto Read 4990   RCRA Investhochton - Gayo 3  Phone #: (505) 638-41106 | ckage: Time Ma   |  | 1 Charles Till | Mrs Poly 4NO2 | 4 # | MOA | Time: Relinguished by.  Received by:  Receiv | sary, samples submitted to Hall Environmental may be subcomfaded to other accredited laboratories. This serves as |

25. This bennes as motice of this possibility. Any sub-contracted data will be clearly included on the area Carllel & Report 0967286



| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsėnic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| . Chloride             | BPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

Air Bubbles (Y or M) analysis laboratory HALL ENVIRONMENTAL \*Refer to attached another Dist. W/ questible Inves as notice of this possibility. Any sub-contracted data will be clearly notated on the analyr 4901 Hawkins NE - Albuquerque, NM 87109 7,007 Fax 505-345-4107 www.hallenvironmental.com (AOV) 808S8 Tel. 505-345-3975 (HA9 10 AN9) 01:E8 RCRA Investigation- Graup 3 Time 1000 2 Sampler Kelle Kolouns Date If r samples submitted to Hall Environmental may be subcontracted to other accredited laboratour □ Rush Preservative 92 Nove TOOL Jaros プラ2 HN03 J H Turn-Around Time: email or Fax#: **Kelly. Kobinson @wnr.com** |Project Manager: Project Name: X Standard (S) COP Container Type and # (1) Amber (1) Poly 407(J) CENTRA Poly 10 Poly mod (1) Project #: するろう Client: Western Reflying Southoast, luc Level 4 (Full Validation) Sample Request ID BLANKS Chair\_Jf-Custody Record 87413 4994 Bloomfield Rathuen MW-6 23-4166 Rip Sto Read 2 Excel Matrix Bloomfield Mailing Address: 1/16/91300 EDD (Type). QA/QC Package: Time B ☐ Standard Phone #: □ Other 110/01/ Date

|  | HAIL ENVIDONMENTAL     | ANALYSIS LABORATORY                   | www.hallenvironmental.com | 4901 Hawkins NE - Albuquerque, NM 87109 | 5 Fax 505-345-4107 | Analysis Request |   |       | )d 2                                   | 111:<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100 | s (AC)                                  | etal<br>Olyon<br>Oldee<br>Oldee<br>Oldee<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>Olyon<br>O | Anions (F, 6) Anions (F, 6) 8081 Pesti 8081 Pesti 8270 (Sem Total |                      | X           | X  | X            | X | X          | X        |  |  |         | for to Analyte Lat.  | _ |
|--|------------------------|---------------------------------------|---------------------------|---|--------------------|------------------|---|-------|--|---|---|---|---|----------------------|-------------|----|--------------|---|------------|----------|--|--|---------|--|---|
|  |                        | ANA                                   | 5.6.                      | Gravo 3                                 | -                  |                  | sel)                                      | 10 SE | () s<br>() s<br>() s<br>() s           | Hd.   | 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + | 8 bo  | BTEX + M<br>BTEX + M<br>TPH Metho<br>TPH (Metho<br>TPH (Metho     | XX                   | [ E.J       | مي | ٩            | 5 | 3          | 3        |  |  |         | Date Time Remarks:    DO   D95   |   |
|  | Turn-Around Time:      |                                       |                           | RCRA (mestration.                       | Project #:         |                  | Project Manager.                          |       |  | Sample Le Koloin  | $\mathcal{N}_{\mathcal{N}}$             |   | Container Preservative Type and # Type                            | 3) VOM Nave          | (5) VOPS HC |    | (2) Pay HNO2 |   | While Nath |          |  |  |         | Received by:   | ) |
| la de la constante de la const | C. A. J-Custody Record | Client: Western Refining Softhart Inc | Bloomfield Retinen        | Mailing Address: So Road 449            | Boomfield NM 87413 | \ <u>X</u>       | email or Fax#: Kelly, Robius on Blow. Con | .age: | ☐ Standard ☑ Level 4 (Full Validation) | D Other   | IN EDD (Type) EXCEL                     |   | Date Time Matrix Sample Request ID                                | 7/16/9/1145/14 MW-65 |             |    |              |   |            | <b>→</b> |  |  | $\prod$ | Date: Time: Relinquished by:    Mag   LSDD   Acl   Collection Date: Time: Relinquished by: |   |

Air Bubbles (Y or N) analysis Laboratory HALL ENVIRONMENTAL erves as notice of this possibility. Any sub-contracted data will be clearly notated on the analy. \* Refer to attached anought list. 4901 Hawkins NE - Albuquerque, NM 87109 Coc 1 Fax 505-345-4107 lysis Reguest www.hallenvironmental.com (AOV) 809S8 Call with goeston 8081 Pesticides / 8082 PCB's Anions (F,CI,NO3,NO2,PO4,SO4) Tel. 505-345-3975 EDB (Method 504.1) (leseiQ\ssD) 83f08 MTBE + TPH (Gas only) (1208) s'BMT WTBE + RCEA LINVESTIGATION - (SECOP X ť 7 If samples submitted to Hall Environmental may be subconfracted to other accredited laborator? Preservative Nove 1,50° HNO3 古る する 9202 2 ブエ Turn-Around Time: Sample email or Fax#: Kelly. robinson @ Jonn Com Project Manage Project Name: **©∕Standard** 1) Amber Type and # (i) Poly Container (2) Poly (5) VOAS 1) Poly (1) Poly 40x (1) Project #: Client: Western Refining Southwest, Inc. ☑Level 4 (Full Validation) d Sample Request ID Chain\_/f-Custody Record Plonnfield, NM 87413 Bloomfield Refinent Sto Read 4990 PR-BM Phone #: ( 505) 632 -4166 Relinquished by: Matrix 4 Mailing Address: 2000 **15**(20 Time QA/QC Package: X/EDD (Type) □ Standard □ Other Dafe 9

| Analyte   | Analytical Method             |
|-----------|-------------------------------|
| Antimony  | SW-846 method 6010/6020       |
| Arsenic   | SW-846 method 6010/6020       |
| Barium    | SW-846 method 6010/6020       |
| Beryllium | SW-846 method 6010/6020       |
| Cadmium   | SW-846 method 6010/6020       |
| Chromium  | SW-846 method 6010/6020       |
| Cobalt    | SW-846 method 6010/6020       |
| Cyanide   | SW-846 method 335.3/335.2 mod |
| Lead      | SW-846 method 6010/6020       |
| Mercury   | SW-846 method 7470/7471       |
| Nickel    | SW-846 method 6010/6020       |
| Selenium  | SW-846 method 6010/6020       |
| Silver    | SW-846 method 6010/6020       |
| Vanadium  | SW-846 method 6010/6020       |
| Zinc      | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | SM-2540C                               |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium`             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | EPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| HALL ENVIRONMENTAL  ANALYSIS LABORATORY  www.hallenvironmental.com  4901 Hawkins NE - Albuquerque, NM 87109  Tel. 505-345-3975 Fax 505-345-4107  Analysis Requires:  | BTEX + MTBE + TMB's (8021)  BTEX + MTBE + TPH (Gas only)  TPH (Method 8015B (Gas/Diesel)  BTEX + MTBE + TPH (Gas only)  EDB (Method 504.1)  BA10 (PNA or PAH)  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  Anions (F,CI,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )  BS60B (VOA)  BS60B (VOA)  B270 (Semi-VOA)  Ali Bubbles (YOTN) |  | × | X | X                | ×           | × |                    | X                | ×              | <b>X</b> | × | Remarks:                         |  | serves as notice of this possibility. Any sub-contracted data will be clearly notated on the enalytical report.                            |
|--|--|--|---|---|------------------|-------------|---|--------------------|------------------|----------------|----------|---|----------------------------------|--|--|
| Chair of-Custody Record Turn-Around Time:  Client: Western Refining Softward Juc OrStandard Or Rush  Bloomfield Refinem Project Name:  Mailing Address: SD Flood 4990 RCRA Investration - Group?  Phome #: (SOS) 1632-41 Lob | Fax# Kelly, Robinson Chons.com ackage:  (Type)  Time Matrix Sample Request ID  | 7/16/9 1030 As 4410-135 MW-62 (1) WAS NONE |   | 士 | CH) CFPOL HND3 1 | <del></del> | 2 | W W (C)Poly H, SQ1 | 1-071509 (1) voy | (S)Vpres HCl 2 |          |   | 1 1STO KULL SIEW NOW JA JULION W | Date: Time: Hedlinquished by: Received by: Date Tene | If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this |

| Tum-Around Time:    | 7 10                    | Project Name:      | 1 40                         | 67415 Project #: | Analysis/Raquest        | Unic Carproject Manager: | 1208<br>802<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>1 | 25 Sec. (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) | Kelly frances MR H (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) |                     | MTB BTM o All o Al | Request ID Committee Treservative State of Type and # Type Type Type Type Type Type Type Type | ·            | (A Pale  | SON SON (S)        | (S) WORD HCL | <br>(4) Buy HND2 3 | 4 Nort | Waln NaDH 3 | H,504  | カイ      |                            | A LO CO CO CO CO CO CO CO CO CO CO CO CO CO | Date                   |
|---------------------|-------------------------|--------------------|------------------------------|------------------|-------------------------|--------------------------|---|---|--|---------------------|--|---|--------------|----------|--------------------|--------------|--------------------|--------|-------------|--------|---------|----------------------------|---|------------------------|
| -                   | J, lu so-Standard       |                    | P                            | •                | 0                       | Unr. Corproject Manager: | 10/1  |   | *ely   |                     |  | Type and #  | Ohuber       | (A Pale  | \$100 (E)          | (S) VORD     | <br>               |        | _           |        | (3) YON |                            | _   |                        |
| Photo of Cuckey Box | Client Westurn Sections | 3 Loan Field / Ref | Mailing Address: SD PEDLY 49 | December 2 No. 8 | Phone # (505) (532-416) | Kelly.                   | iĝe:  | O Standard (Full Validation)                    | -  | WEDD (Type) EXC. PL |  | Date Time Matrix Sample Request ID  | FOT AS EBUTO | <b>ラ</b> | 19 HZD A FB-071509 |              |                    |        |             | ><br>> | TRIP IL | Time: Deliverable of the / | <u>Q</u>                                    | Time: Refinquished by: |

| Analyte    | Analytical Method             |
|------------|-------------------------------|
| Antimony   | SW-846 method 6010/6020       |
| Arsenic    | SW-846 method 6010/6020       |
| Barium     | SW-846 method 6010/6020       |
| Beryllium  | SW-846 method 6010/6020       |
| Cadmium    | SW-846 method 6010/6020       |
| Chromium   | SW-846 method 6010/6020       |
| Cobalt     | SW-846 method 6010/6020       |
| Cyanide    | SW-846 method 335.3/335.2 mod |
| Lead       | SW-846 method 6010/6020       |
| Mercury    | SW-846 method 7470/7471       |
| Nickel     | SW-846 method 6010/6020       |
| Selenium   | SW-846 method 6010/6020       |
| Silver     | SW-846 method 6010/6020       |
| Vanadium . | SW-846 method 6010/6020       |
| Zinc       | SW-846 method 6010/6020       |

| Analyte                | Analytical Method                      |
|------------------------|--|
| Total Dissolved Solids | . SM-2540C                             |
| Bicarbonate            | SW-846 method 310.1                    |
| Chloride               | EPA method 300.0                       |
| Sulfate                | EPA method 300.0                       |
| Calcium                | SW-846 method 7140                     |
| Magnesium              | SW-846 method 7450                     |
| Sodium                 | SW-846 method 7770                     |
| Potassium'             | SW-846 method 7610                     |
| Manganese              | SW-846 method 6010/6020                |
| Nitrate/nitrite        | BPA method 300.0                       |
| Ferric/ferrous Iron    | SW-846 method 6010/6020 & SM 3500F e2+ |

| THE PROPERTY OF THE PARTY OF TH | ANALYSIS LABORATORY |              | 4901 Hawkins NE - Albuquerque, NM 87109 | Tel. 505-345-3975 Fax 505-345-4107 | Analysis Request | O <sup>†</sup> )                                 | o asé<br>eiO\a<br>S.4O | 100 100 100 100 100 100 100 100 100 100 | + TT +<br>- 81 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 | d 86 d 80 d 80 d 80 d 80 d 80 d 80 d 80 | ecthodal to the control of the contr | BTEX BTEX BTEX TPH (A TPH (A B310 (I B8210 (I B8250 (I B8250 (I B081 P B250 (I B081 P B250 (I B081 P B250 (I B081 P | X             | ×                | × ×                |          | × × ×                   | X        | ×              |      |  |  | ks:                      | - r se otherwood thanky see |  |
|--|---------------------|--------------|---|------------------------------------|------------------|--|------------------------|---|--|---|--|---|---------------|------------------|--------------------|----------|-------------------------|----------|----------------|------|--|--|--------------------------|-----------------------------|--|
| Turn-Around Time:  | ☑ Standard □ Rush   | ne:          | KCRA Involycotron- Cours                | Project #:                         |                  | oject Manager:                                   | xel Course             | Sampler X - W Colour & V                |  | appetemberable with the second          | Container Preservative   |   | () VORT NOW ( | (S) VOMS HCI & 1 | ) POLY HNO2 TS,3 , | Na04 1/1 | (1) Poly 1 H, Say   5 1 | 34<br>-{ | (1) poly Now 7 | 1000 |  |  | Received by: Date Time   | ate                         | 2 mm 2 mm 2 mm 2 mm 2 mm 2 mm 2 mm 2 m |
| Sustody Record   | us Southwestly      | Aeld DRAMOLA | ad Vygg                                 | 21748 1                            | 2011-x           | email or Fax#: Kelly, Robinson Quantalproject Ma | QA/QC Package:         | Level + (rui validation)                | Type)  |   |  | Date Time Matrix Sample Request ID T  | 19 FBW-P71609 |                  |                    |          |                         |          |                |      |  |  | The SRO Xelinquished by. | Time: Relinquished by:      | 2                                      |

Air Bubbles (Y or M) ANALYSIS LABORATORY HALL ENVIRONMENTAL If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. affectued aerolyk 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 (AOV-imac) 07S8 www.hallenvironmental.com (AOV) 809S8 X 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 10 AN9) 01E8 EDB (Method 504.1) (leseiO\zs0) 83108 borteM H9 Remarks: BTEX + MTBE + TPH (Gas only) MTBE + TMB's (8021) RC. CA luncotrophon-Grays ĭime Time Cobinson JA8 60 N Ŋ 0 4 0 N 2 Date akolawa □ Rush Preservative Nake Jak Nat まる H, SOL るとフ HNO. THE STATE OF THE S Turn-Around Time: Sampler人と email or Fax#: Kelln. Kobiud On @ Whi. Calpject Manager Project Name: affuncity le to Standard Type and # Container 4) Was 11 Bhy 1) Vob このににいにいいい</l> NM 87413 Project #. Received by: Received by PLevel 4 (Full Validation) Sample Request ID THE PARTY Charlof-Custody Record 山るるい -07ho09 Phone #: (505) (032 4166 Mailing Address: 50 Road 8 Bloomfeld Relinguished by: Relinquished by: 3 Loom till Matrix 005 Time agge Tagge QA/QC Package: ≥ EDD (Type) Time; Time: ☐ Standard □ Other □ Client: / 4 179 Date

|  |  |  | (Y or N)                 | Air Bubbles             |            |                     |                   |                       |               |          |               |                             |             |   |                   | <del></del>      |   |
|--|--|--|--------------------------|-------------------------|------------|---------------------|-------------------|-----------------------|---------------|----------|---------------|-----------------------------|-------------|---|-------------------|------------------|---|
| <b></b> ≿  |  |  |                          |                         |            |                     |                   |                       |               |          |               | 丁                           |             |   |                   |                  | }   |
| ₹ö   |  | 0.75   | 1610x1                   | ९म ५५                   | 2          | X                   | $\overline{\chi}$ |                       |               |          |               |                             |             |   | 一 .               | 4                |   |
| O ZI   |  | اير ن  | 12 PS                    | BTEK -                  | X          | X                   | 又                 |                       |               |          |               |                             |             |   |                   | <u>န</u> ်       | 1.  |
|  | Ц                                      | 2/11/21/4  | Misono)                  | Reachinity              | X          | X                   | X                 |                       |               |          |               |                             |             |   |                   | 4                | :   |
|  | 410                                    |  | (AOV                     | -imə2) 07 <u>2</u> 8    |            |                     |                   |                       |               |          |               |                             |             |   | $\Box$            | 2                | [ ]   |
|  | 345-<br>iles                           |  | ()                       | 4OV) 80928              |            |                     |                   |                       |               |          |               |                             |             |   |                   | ٧.               |   |
| ment ment  | 505-345-4107 <sub>c</sub> .<br>Request | PCB's  | 2808 \ <b>z</b> əb       | 8081 Pestici            |            |                     |                   |                       |               |          |               |                             |             |   |                   | 7                |   |
| HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com   | Fax 505-34<br>Iysisi Reque             | ( <sup>†</sup> 05' <sup>†</sup> 0d                             | ,400,60N,                | lO,∃) anoinA            |            |                     |                   |                       |               |          |               |                             |             |   |                   | Sepano           |   |
|  | leu.                                   | 5  |                          | RCRA 8 Me               |            | _><                 | X                 |                       |               |          |               |                             |             |   |                   | ಶ್ವ              |   |
| M.ha   | 975                                    | Å  |                          | AN9) 01:8               |            |                     |                   |                       |               |          |               | $\perp$                     |             |   |                   | Z,               |   |
|  | 45-3                                   |  |                          | EDB (Metho              |            |                     |                   |                       |               |          |               | _                           | <u> </u>    |   |                   |                  |   |
| - Iawi   | 05-3                                   |  |                          | orteM) H9T              |            |                     |                   |                       | $\Box$        |          |               | _ _                         |             |   | _                 | ਰ<br>ਹ           | ļ.  |
| HALL ENVIRONME ANALYSIS LABOR  www.hallenvironmental.com   | Tel. 505-345-3975                      |  |                          | TPH Methoc              |            |                     |                   |                       | _             | _        | _             |                             | ļ           |   | ;;                | epot as          |   |
| 4  |  | S  |                          | TM + X3T8               |            | -                   |                   |                       |               | _        | _             | $\perp$                     | -           |   | Remarks:          | ्व               | i.  |
|  |  | (1208) s   | SE + TMB's               | TW + X3T8               |            |                     |                   |                       | _             | _        | _             |                             | -           |   | - 18°C            | <del></del> _    |   |
| 1 3  | -                                      |  |                          |                         | _          | 7                   |                   |                       |               |          |               |                             |             |   |                   |                  | ŧ   |
| 1 2 S  |  | ノ  |                          | 9 11                    | 74         |                     | 8                 |                       |               |          |               |                             |             |   | Time              | Time             | The contract of this accordition, Amont a contracted data will be in                              |
| 2  |  | \$   |                          |                         | 3          |                     |                   | 1                     |               | j        | 1             |                             |             |   | وا                | سيه ا            | 60  |
| 10 章   |  | 13   |                          |                         | \$         |                     |                   |                       |               | $\wedge$ |               |                             |             |   | Date              | Da               | <u>a</u>  |
|  |  | Obins To   | obindo                   | <u>o</u>                |            | _                   |                   |                       | /             | _        | $\dashv$      | +                           | +           | ╀┼  | _                 |                  |   |
| Rush   |  | Q'   | 力關                       | servativ<br>Type        | 3          | 3                   | 3                 | 74                    |               |          | \             |                             | $\parallel$ |   | رر                | $\aleph$         |   |
| N  |  |  |                          | Preservative<br>Type    | None       | Nove                | 2002              | H                     | $\parallel$   |          | 11            |                             |             |   | -                 | 3                | 9:30  |
| nd Time:  rd VRush 5 day  me:  INVESTIGATION - (Vap. 2   | '                                      | å ≓.   | <b>公</b> 豐               | <u>.</u>                |            |                     |                   | $-\!\!\!\!/\!\!\!\!/$ | ++            |          | ++            |                             | -           | +   | $\dashv \epsilon$ | ۲                |   |
| roun<br>Nar  |  | Mar  |                          | ainer<br>and            | 3          | 3                   | 7                 | R                     |               |          | $\mathcal{M}$ |                             |             |   | d by:             | 0                | 79  |
| Tum-Around Tum-Around To Standard Project Name:  | Project #:                             | $\int \frac{\vec{g}}{ \vec{g} }$                               | Sampler:                 | Container<br>Type and # | (f) Jan    | 4) bw               | 4) pm             | STUBE                 |               |          | $\setminus$   |                             |             |   | Received by:      | 1.2              | 3   |
| Secord Tum-Around Sundard Project Name Project Name Project Name   | <u> </u>                               | Cobinson Conf. Com Project Manager.  Level 4 (Full Validation) |                          | <u> </u>                | (3)        |                     | Ŧ                 | 3                     | H             | -        | <del>\</del>  |                             | +           | $+\!$ | - 8               | Rece             | —  <u>}</u>   |
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| S P P P  | 团。                                     |  |                          | Req                     | <b>-</b>   |                     | و                 | TRAP BEATOR           |               |          |               | $\setminus$                 | $\Lambda$   |   |                   | 3                | 1 6   |
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| 0 30 4   | 53                                     | evel S   |                          | am                      | ၁          | Y                   | 7                 | 制                     | $\parallel$   |          |               |                             | $  \cdot  $ |   | 4                 | 4                | <u> </u>  |
| of-Custody Reco  | 16 NM 87                               |  |                          | , ,                     | Ŧ          | Æ                   |                   | 1                     |               |          |               |                             | $\prod$     |   |                   | 3 3              | i i   |
| उं कि व  | 2 2                                    | <u>}</u>   | Exce                     | Matrix                  |            |                     | إرب               | $ \cdot $             | ∥             |          | I             |                             | 11          |   | Relinquished      | Effinquished by: | <del> </del>  |
| ham-of-Western Address:  | 13                                     | استنا  | (II)                     | Σ                       | Š          | Ó                   | Ŕ                 |                       |               |          |               |                             | V           |   | Relin -           | り                |   |
|  | Jac.                                   | · · · · · · · · · · · · · · · · · · ·                          | be)                      | Time                    | 1000       | 13iS                | -                 | $\mathcal{I}$         |               |          | T             |                             |             | T   | 1                 | 2                | Ì   |
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| Client: Western Refinity Eafly Mailing Address: Cr. P. C. L. Cathived  | Phone #:                               | email or Fax#: Ac<br>QA/QC Package:                            | □ Other<br>© EDD (Type)_ | Date                    | 6/52/      | 19                  | 57                | )                     |               |          |               |                             |             |   | ا الله            | 120/9<br>Date:   |   |
| ō     <u>\$</u>  | के                                     | ा है। हैं।   |                          |                         | 2/2        |                     | 2/2               |                       | 1             |          | ļ             |                             |             |   | Date              | 町と               | 1   |
|  |  |  |                          |                         |            | ۸-                  |                   |                       |               |          |               |                             |             |   | 7                 | • -              |   |

#### **ANALYSIS LABORATORY** HALL ENVIRONMENTAL es as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical received \* Se attacked anothy list 4901 Hawkins NE - Albuquerque, NM 87109 for specific and tes, Fax 505-345-4107 www.hallenvironmental.com (AOV) 809S8 8081 Pesticides / 8082 PCB's Anions (F,CI,NO<sub>3</sub>,NO<sub>2</sub>,PO<sub>4</sub>,SO<sub>4</sub>) Tel. 505-345-3975 (HA9 to AN9) 01:E8 Remarks: (ylno ese) H9T + 38TM + X3T8 PLAA Inahighan-Group 3 138/89 Time Ø Sampler Kellitole in If necess and moles submitted to Hall Environmental may be subcontracted to other accredited laboratories. The □ Rush Preservative ング公 H NO3 182 2 Naor 202 7 2007 JI Turn-Around Time Received by: email or Fax#. Kelly . Robinson@wnr.com Project Manager Project Name: (D) Standard (1) Amber Type and # Container (3) Poly (S) VOA) B) VOA 1) Poly Project #: N) WOR (Full Validation Loleupy Sample Request ID Client Western Refining Southwest, INC Cha of-Custody Record TRIP BLANK Bloomfeld Refinen Mailing Address: 50 Road 4990 JW-0 Bloowhell, NM 87413 Phone #: (505) (632-4166 Relinquished by: Relinquished by: 19 (Type) EXCE Time A Matrix 4 00201 6/621 129/9/2007 QA/QC Package: Time: □ Standard Other\_ Date

# **Appendix D**

**Survey Data** 

# Fixed width point lat/long/elevation listing

# Project: WESTERN REFINERY

User name

hwilleto

**Date & Time** 

9:55:07 AM 9/3/2009

**Coordinate System** 

Projection from data collector

Zone

Zone from data collector

Project Datum

(WGS 84)

Geoid Model

GEOID03

Vertical Datum Coordinate Units Distance Units Height Units

US survey feet US survey feet US survey feet

| Point listing |                      |                                     |           |   |          |
|---------------|----------------------|-------------------------------------|-----------|---|----------|
| Nam           | e Latitude           | Longitude                           | Elevation | Feature Code                              |          |
| 6             |                      | 107°58'14.66801"W                   | 5540.445  | TANK 44 SOUTH                             |          |
| 6             | 5 36°41'48.66772"N   | 107°58'12.78343"W                   | 5540.632  | TANK 45 SOUTH                             |          |
| €             | 6 36°41'48.01176"N   | 107°58'15.61914"W                   | 5543.595  | LOADING BAY #1 COR                        |          |
| 6             | 7 36°41'47.89084"N   | 107°58'15.56867"W                   | 5543.567  | LOADING BAY #1 COR                        |          |
| 6             | 8 36°41'47.66694"N   | 107°58'16.45442"W                   | 5543.569  | LOADING BAY #1 COR                        |          |
| 6             | 9 36°41'47.78111"N   | 107°58'16.50315"W                   | 5543.774  | LOADING BAY #1 COR                        |          |
| 7             | 0 36°41'47.53262"N   | 107°58'16.40604"W                   | 5543.655  | LOADING BAY #2 COR                        |          |
| 7             | 1 36°41'47.41675"N   | 107°58'16.35878"W                   | 5543.508  | LOADING BAY #2 COR                        |          |
| 7             | 2 36°41'47.64134"N   | 107°58'15.47457"W                   | 5543.646  | LOADING BAY #2 COR                        |          |
| 7             | 3 36°41'47.76306"N   | 107°58'15.52374"W                   | 5543.700  | LOADING BAY #2 COR                        |          |
| 7             | 4 36°41'47.51769"N   | 107°58'15.42746"W                   | 5543.616  | LOADING BAY #3 COR                        |          |
| 7             | 5 36°41'47.39555"N   | 107°58'15.37969"W                   | 5543.508  | LOADING BAY #3 COR                        |          |
| 7             | 6 36°41'47.27035"N   | 107°58'15.33252"W                   | 5543.492  | LOADING BAY #4 COR                        |          |
| 7             | 7 36°41'47.14612"N   | 107°58'15.28193"W                   | 5543.540  | LOADING BAY #4 COR                        |          |
| 7             | 8 36°41'46.92246"N   | 107°58'16.16575"W                   | 5543.596  | LOADING BAY #4 COR                        |          |
| 7             | 9 36°41'47.04449"N   | 107°58'16.21421"W                   | 5543.500  | LOADING BAY #4 COR                        |          |
| 8             | 0 36°41'47.16837"N   | 107°58'16.26543"W                   | 5543.533  | LOADING BAY #3 COR                        |          |
| 8             |                      | 107°58'16.31362"W                   | 5543.499  | LOADING BAY #3 COR                        |          |
|               |                      | 107°58'17.22097"W                   | 5549.393  | AOC 22-10                                 |          |
| 8             | · = '                | 107°58'17.06316"W                   | 5549.485  | AOC 22-11                                 |          |
| 8             |                      | 107°58'24.54356"W                   | 5545.382  | CONCRETE PAD                              |          |
| 8             |                      | 107°58'25.13052"W                   | 5545.386  | CONCRETE PAD                              |          |
|               |                      | 107°58'25.13172"W                   | 5545.316  | CONCRETE PAD                              |          |
|               |                      | 107°58'25.24909"W                   | 5545.179  | CONCRETE PAD                              |          |
|               |                      | 107°58'25.25039"W                   | 5544.396  | BLD COR                                   |          |
|               |                      | 107°58'24.54189"W                   | 5545.317  | CONCRETE PAD                              |          |
|               |                      | 107°58'25.15767"W                   |           | ONCRETE PAD 8FT O/S                       |          |
|               |                      | 107°58'25.24860"W                   | 5544.607  | BLD COR                                   |          |
|               |                      | 107°58'26.73399"W                   | 5544.265  | BLD COR                                   |          |
| 850           |                      | 107°58'26.73611"W                   | 5544.396  | BLD COR                                   |          |
| 904           |                      | 107°58'17.16476"W                   |           | OC 22-15/MW-61 PVMT                       |          |
| 905<br>905    |                      | 107°58'17.16031"W 107°58'17.15514"W |           | AOC 22-15/MW-61 PAD                       | CACTNO   |
| 905           |                      | 107°58'17.13514"W                   |           | OC 22-15/MW-61 TOP OF AOC 26-8/MW-65 PVMT | CASING   |
| 905           |                      | 107°58'15.39658"W                   |           | AOC 26-8/MW-65 PAD                        |          |
| 905           |                      | 107°58'15.39107"W                   |           | OC 26-8/MW-65 TOP OF C                    | T CT NIC |
| 905           |                      | 107°58'13.11816"W                   | 5540.206  | AOC 26-5                                  | HOING    |
| 905           |                      | 107°58'12.57862"W                   | 5540.025  | AOC 26-6                                  |          |
| 903           |                      | 107°58'12.67447"W                   | 5540.360  | AOC 26-7                                  |          |
| 903           |                      | 107°58'14.06416"W                   |           | OC 26-9/MW-66 GRADE                       |          |
| 905           |                      | 107°58'14.06109"W                   |           | AOC 26-9/MW-66 PAD                        |          |
| 900           |                      | 107°58'14.05858"W                   |           | OC 26-9/MW-66 TOP OF C                    | DSTNC    |
| 906           |                      | 107°58'14.85771"W                   | 5540.054  | AOC 26-2                                  | USTIAG   |
| 906           |                      | 107°58'14.97772"W                   | 5540.088  | AOC 26-1                                  |          |
| 906           |                      | 107°58'14.43626"W                   | 5540.587  | AOC 26-1<br>AOC 26-4                      |          |
| 901           | 10 20 4T 40 10 202 N | 701 20 T4.42050 M                   | 3340.307  | AUC 20-4                                  |          |

```
36°41'48.41610"N 107°58'14.64503"W
                                            5543.638
                                                                AOC 26-3
     36°41'48.63697"N 107°58'15.77033"W
                                            5540.853
                                                                AOC 22-3
9066
     36°41'48.83611"N 107°58'16.03057"W
                                            5540.449AOC 22-12/TW-1 GRADE
      36°41'48.82723"N 107°58'16.02711"W
                                            5540.336 AOC 22-12/TW-1 PAD
     36°41'48.82442"N 107°58'16.02512"W
                                            5543.607AOC 22-12/TW-1 TOP OF CASING
9068
     36°41'48.95123"N 107°58'16.04153"W
                                            5540.379
                                                                AOC 22-2
9070 36°41'48.50044"N 107°58'16.34853"W
                                            5540.103
                                                                AOC 22-1
9071
     36°41'48.53647"N 107°58'16.20569"W
                                            5540.324
                                                               AOC 22-13
9072
     36°41'48.38276"N 107°58'15.95304"W
                                            5541.189
                                                               AOC 22-4
9073
      36°41'47.56329"N 107°58'16.74392"W
                                            5543.605
                                                                AOC 22-5
                                                               AOC 22-6
     36°41'47.04554"N 107°58'16.49572"W
9074
                                            5543.874
9075
     36°41'46.18239"N 107°58'17.09575"W
                                            5543.745
                                                               AOC 22-7
     36°41'45.80509"N 107°58'17.08569"W
                                            5546.880
                                                               AOC 22-9
     36°41'46.01420"N 107°58'17.35087"W
9077
                                            5545.296
                                                             AOC 22-14
                                            5545.715
9078
     36°41'45.99895"N 107°58'16.85610"W
                                                               AOC 22-8
      36°41'43.67391"N 107°58'17.17320"W
                                                                AOC 24-6
9079
                                            5552.073
     36°41'43.33506"N 107°58'16.48842"W
                                                               AOC 24-1
9080
                                            5551.597
     36°41'42.89208"N 107°58'18.26308"W
                                                               AOC 24-4
9081
                                            5550.914
                                            5550.986
     36°41'42.89601"N 107°58'17.40801"W
                                                                AOC 24-3
     36°41'43.44358"N 107°58'18.28355"W
9083
                                            5550.721
                                                                AOC 24-5
9084
     36°41'44.02484"N 107°58'18.38288"W
                                            5549.111AOC 24-7/MW-64 GRADE
9085
      36°41'44.02633"N 107°58'18.36885"W
                                            5549.043 AOC 24-7/MW-64 PAD
9086
     36°41'44.02863"N 107°58'18.35629"W
                                            5552.285AOC 24-7/MW-64 TOP OF CASING
     36°41'46.18596"N 107°58'18.25178"W
                                            5544.488AOC 22-16/MW-63 GRADE
9087
     36°41'46.17832"N 107°58'18.24028"W
                                            5544.482 AOC 22-16/MW-63 PAD
9088
9089
     36°41'46.17547"N 107°58'18.22906"W
                                            5547.255AOC 22-16/MW-63 TOP OF CASING
                                            5542.373SWMU 4-1/MW-59 GRADE
9090
     36°41'45.92894"N 107°58'22.23505"W
9091
     36°41'45.92727"N 107°58'22.21723"W
                                            5542.365 SWMU 4-1/MW-59 PAD
     36°41'45.92938"N 107°58'22.20599"W
                                            5545.196SWMU 4-1/MW-59 TOP OF CASING
9092
     36°41'45.19215"N 107°58'24.95955"W
                                            5544.569
                                                                SWMU 5-1
9093
     36°41'45.20846"N 107°58'24.73350"W
9094
                                            5544.407
                                                                SWMU 5-2
9095
     36°41'44.99208"N 107°58'24.49009"W
                                            5544.918
                                                                SWMU 5-3
     36°41'44.82380"N 107°58'24.50076"W
                                            5544.925
                                                                SWMU 5-4
9096
9097
                                                                SWMU 5-5
      36°41'44.61681"N 107°58'24.73909"W
                                            5544.880
     36°41'44.61062"N 107°58'25.05289"W
9098
                                            5544.571
                                                                SWMU 5-6
     36°41'44.32802"N 107°58'25.68687"W
                                                                AOC 25-1
9099
                                            5544.772
9100
     36°41'45.38988"N 107°58'25.99162"W
                                            5544.007AOC 25-2/MW-60 GRADE
     36°41'45.37937"N 107°58'25.98861"W
                                            5544.003 AOC 25-2/MW-60 PAD
9101
9102
     36°41'45.37028"N 107°58'25.98617"W
                                            5543.711AOC 25-2/MW-60 TOP OF CASING
9103
      36°41'42.90086"N 107°58'16.48495"W
                                            5551.416
                                                                AOC 24-2
      36°41'43.03985"N 107°58'07.46838"W
9104
                                            5558.555AOC 23-1/MW-62 GRADE
     36°41'43.02840"N 107°58'07.46780"W
9105
                                            5558.703 AOC 23-1/MW-62 PAD
9106 36°41'43.02125"N 107°58'07.46590"W
                                            5561.322 AOC 23-1/MW-62 PAD
```

#### Back to top

# Appendix E

**Boring Logs** 



Well No.: MW-59 (SWMU 4-1)

512/347-8243 fax

Client: Western Refining Southwest, Inc.
Site: SWMI Group #3. Bloomfield Refinery

Site: SWMU Group #3, Bloomfield Refinery Ground Water: Se

**Start Date:** 4/6/2009 **Finish Date:** 4/6/2009

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

404 Camp Craft Road

Austin, Texas 78746

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.767' W107º58.370'

Total Depth: 44.25' bgl Ground Water: Saturated @ 40' bgl

Elev., TOC (ft. msl): 5545.196 Elev., PAD (ft. msl): 5542.365 Elev., GL (ft. msl): 5542.373

**Site Coordinates:** 

N 36º41'45.92938"

W 107º58'22.20599"

| Sampling  |            |              |   |  |                        |                               |                      |
|---|------------|--------------|---|--|------------------------|-------------------------------|----------------------|
| Sample Depth Time Sample Type/Container/No Saturation Organic Vapor (ppm) | USCS Class | Recovery (%) | Sample Description  |  | Comple                 | etion Results                 |                      |
| -2-   |            |              | Ground Surface  | Aluminum Protective Cover Pad - 4'x4'x6" | The second second      |                               |                      |
| 0-<br>  |            | 100          | Clayey Silt (ML)<br>Low plasticity, firm, damp, brown                               | uminum Prot<br>id - 4'x4'x6"             | 7                      | 4                             | rehole 1             |
| 2 38°F 2 0930 G/2V/2E/3J 2.9 37°F   |            | 80           | Clayey Silt (ML)<br>Similar to above  | Aluminum Pro                             |                        | ↑ Joints                      | 8" Diameter Borehole |
| 50.8<br>37°F<br>6-1<br>6-8' 1130 G/2V/<br>2E/3J 214<br>37°F               |            | 80           | Clayey Silt (ML) Similar to above, mixed with soft black sticky sludge, odor        | Reinforced                               |                        | Sch. 40 PVC w/Threaded Joints | έœ                   |
| 6-8' 1130 G/2V/<br>2E/3J 214<br>37°F                                      |            | 80           | Clayey Silt/Sludge (ML) Gray silt mixed with sludge                                 | Stee                                     |                        | 4" Sch. 40 P                  |                      |
| 9.7<br>49°F   |            | 90           | Clayey Silt (ML) Low plasticity, soft, damp, brown to light gray, 8.5-9' faint odor |  | onite Grout            |                               |                      |
| 41<br>49°F  |            | 80           | Clayey Silt (ML)<br>Similar to above, light gray/brown                              |  | Cement/Bentonite Grout |                               |                      |
| 9.5<br>49°F   |            | 60           | Silty Sand (SM) Very fine grain, compact, damp, brown                               |  | O                      |                               |                      |
| 17 -  |            |              | Silty Sand (SM)<br>Similar to above   |  |                        |                               |                      |



Well No.: MW-59 (SWMU 4-1)

512/347-8243 fax

Start Date: 4/6/2009 Finish Date: 4/6/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Austin, Texas 78746

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.767' W107º58.370'

Total Depth: 44.25' bgl Ground Water: Saturated @ 40' bgl

Elev., TOC (ft. msl): 5545.196 Elev., PAD (ft. msl): 5542.365 Elev., GL (ft. msl): 5542.373

Site Coordinates:

N 36º41'45.92938" W 107º58'22.20599"

| -           |              | 5            | Sam                         | plir       | ıg                     |            |              |   |     |   |           |                                  |
|-------------|--------------|--------------|-----------------------------|------------|------------------------|------------|--------------|---|-----|---|-----------|----------------------------------|
| Depth (ft.) | Sample Depth | Time         | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |     | Comp  | letion Re | esults                           |
| 1           |              |              |                             |            | 8.0<br>50ºF            |            | 50           |   |     |   |           |                                  |
| 16          |              |              |                             |            | 8.1<br>50ºF            |            | 60           | Silty Sand (SM)<br>Similar to above   |     | nints 7   | <b>→</b>  | nite Grout                       |
| 18          |              |              |                             |            | 7.3<br>50ºF            |            | 80           | Silty Sand (SM) Similar to above, gypsum crystals                             |     | 4" Sch. 40 PVC w/Threaded Joints<br>eaded Joints      |           | Cement/Bentonite Grout           |
| 22          |              | <u> </u><br> |                             |            | 6.4<br>50ºF            |            | 80           | Silty Sand (SM) Very fine to fine grain, loose to compact, light brown to tan |     | h. 40 PVC w<br>d Joints                               |           |                                  |
| 7           |              |              |                             |            | 6.6<br>50ºF            |            | 80           | Silty Sand (SM)<br>Similar to above   | 24' | 4" Sc<br>n w/Threade                                  |           | Bentonite Pellets                |
| 24          |              |              |                             |            | 5.5<br>50°F            |            | 80           | Silty Sand (SM) Similar to above  | 26' | 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints |           | Bent                             |
| 28 -        |              |              |                             |            | 6.3<br>50ºF            |            | 90           | Silty Sand (SM)<br>Similar to above   | 28' | PVC Slottec   |           | Pack                             |
| 30 1        |              |              |                             |            | 4.2<br>50ºF            |            | 90           | Silty Sand (SM) Similar to above  |     | 74" Sch. 40   |           | 10/20 Sieve Sand Filter Pack     |
| 32-         |              |              |                             |            | 3.9<br>50ºF            |            | 80           | Clayey Silt (ML) Low plasticity, soft to firm, damp, brown                    |     |   |           | 10/20 Sieve                      |
| RPS<br>404  | Camp         |              |                             | L          |                        |            |              | Sheet: 2 of 3   |     |   | 512/347   | <u>⊞</u><br>′-7588<br>′-8243 fax |



Well No.: MW-59 (SWMU 4-1)

Start Date: 4/6/2009 Finish Date: 4/6/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Drilling Method: Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.767' W107º58.370'

Ground Water: Saturated @ 40' bgl Elev., TOC (ft. msl): 5545.196

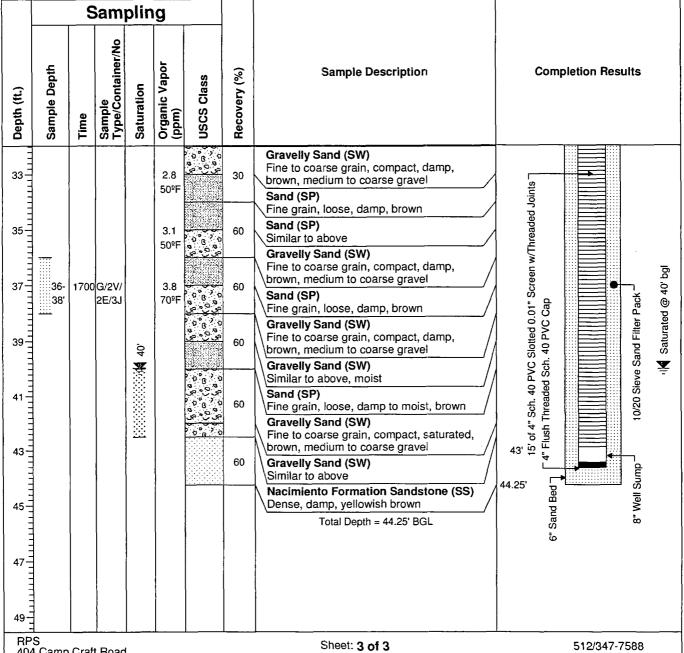
Elev., PAD (ft. msl): 5542.365 Elev., GL (ft. msl): 5542.373

Site Coordinates:

Total Depth: 44.25' bgl

N 36º41'45.92938"

W 107º58'22.20599"



404 Camp Craft Road Austin, Texas 78746

512/347-8243 fax



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

404 Camp Craft Road Austin, Texas 78746

**Drilling Method:** Hand Auger **Sampling Method:** Auger Bucket **Comments:** N36º41.754' W107º58.417' **LOG OF BORING** 

512/347-7588

512/347-8243 fax

Boring No.: SWMU 5-1

Start Date: 4/23/2009 Finish Date: 4/23/2009

Ground Water: Not Encountered Fin

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5544.569

Site Coordinates: N 36º41'45.19215"

W 107º58'24.95955"

|             |                | Sa      | amp                          | lin        | g                      |            |              |  |                                  |
|-------------|----------------|---------|------------------------------|------------|------------------------|------------|--------------|--|----------------------------------|
| Depth (ft.) | Sample Depth   | Time    | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Depth (ft.)                      |
| 0-          | <del></del> 0- |         |                              |            |                        | 40.000000  |              | Ground Surface   | -0                               |
|             | 0.5'           | 1410    | G/2V/<br>2E/3J               |            | 9.8<br>78ºF            |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, dry to damp, brown |                                  |
| =           | 1.5-           | 1420    | G/2V/                        |            | 9.4                    |            |              |  | <u> </u>                         |
| 2-          | 2'             | 1120    | 2E/3J                        |            | 78ºF                   |            |              | Total Depth = 2' BGL   | _ ^ I                            |
| ]           |                |         |                              |            |                        |            |              | ·  | =                                |
| -           |                | }       |                              |            |                        |            |              |  | -                                |
| 4-          |                |         |                              |            |                        |            |              |  | -4                               |
|             |                |         |                              |            |                        |            |              |  | E                                |
| 6   8   8   |                |         |                              |            |                        |            |              |  |                                  |
| -           |                |         |                              |            |                        |            |              |  | -                                |
|             |                |         |                              |            |                        |            |              |  | E                                |
|             |                |         |                              |            |                        |            |              |  | El                               |
|             |                |         |                              |            |                        |            |              |  | E                                |
| 8-          |                |         |                              |            |                        |            |              |  | -8<br>-                          |
|             |                |         |                              |            |                        |            |              |  | Ē                                |
|             |                |         |                              |            |                        |            |              |  | <u> </u>                         |
| 10-         |                |         |                              |            | l                      |            |              |  | 10                               |
| -           |                |         |                              |            |                        |            |              |  | -                                |
|             |                |         |                              |            |                        |            |              |  | -                                |
| 12-         |                |         |                              |            | }                      |            |              |  | -<br>-<br>-<br>-<br>-<br>-<br>12 |
| =           |                |         |                              |            |                        |            |              |  | <u> </u>                         |
|             |                |         |                              |            |                        |            | ı            |  |                                  |
| BE          | 96             | <u></u> | l                            |            | l                      | l          |              |  |                                  |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

404 Camp Craft Road

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.754' W107º58.414'

# LOG OF BORING

512/347-7588

512/347-8243 fax

Boring No.: SWMU 5-2 **Start Date:** 4/23/2009 Finish Date: 4/23/2009

Ground Water: Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5544.407

Total Depth: 2' bgl

Site Coordinates: N 36º41'45.20846"

W 107º58'24.73350"

|  |                          | Sa   | amp                          | lin        | g                      |            |              |  |  |
|--|--------------------------|------|------------------------------|------------|------------------------|------------|--------------|--|--|
| Depth (ft.)                              | Sample Depth             | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Depth (ft.)                                |
| 0-                                       | ······ 0-                |      |                              |            |                        |            |              | Ground Surface   | -0   |
| -  | 0-<br>0.5'<br>1.5-<br>2' |      | G/2V/<br>2E/3J<br>G/2V/      | ]:<br>-    | 7.7<br>78ºF<br>9.3     |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, dry to damp, brown |  |
| 2-                                       | 2'                       | ' '  | 2E/3J                        |            | 78ºF                   |            |              | Total Depth = 2' BGL   | _2   |
| 6 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1 |                          |      | 2E/3J                        |            | 76-г                   |            |              |  | 6 10 12                                    |
| 12-                                      |                          |      |                              |            |                        |            |              |  | -<br>-<br>-<br>12<br>-<br>-<br>-<br>-<br>- |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Austin, Texas 78746

Driller: N/A

Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket

Comments: N36º41.750' W107º58.409'

#### LOG OF BORING

512/347-8243 fax

Boring No.: SWMU 5-3 Start Date: 4/23/2009

Finish Date: 4/23/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5544.918

Ground Water: Not Encountered

Site Coordinates: N 36º41'44.99208"

W 107º58'24.49009"

|             |                 | Sa     | amp                          | lin        | g                      |            |              |   |              |                 |
|-------------|-----------------|--------|------------------------------|------------|------------------------|------------|--------------|---|--------------|-----------------|
| Depth (ft.) | Sample Depth    | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |              | Depth (ft.)     |
|             |                 |        |                              |            |                        |            |              | Ground Surface  |              | -0              |
| 0-          | 0-              |        | G/2V/<br>2E/3J<br>G/2V/      |            | 12.2<br>80ºF<br>15.9   |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, damp, brown | -            |                 |
| 6           |                 |        | 2E/3J                        |            | 80°F                   |            |              | Total Depth = 2' BGL                                      |              | -4<br>-6<br>-10 |
| RI          | PS<br>14 Camp C | raft F | Road                         |            |                        |            |              | Sheet: 1 of 1   | 512/347-7588 | - }             |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.747' W107º58.409' LOG OF BORING

Boring No.: SWMU 5-4

Start Date: 4/23/2009 Finish Date: 4/23/2009

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5544.925

Site Coordinates: N 36º41'44.82380"

W 107º58'24.50076"

|             |                                | Sa              | amp                          | lin        | g                      |            |              |   |                                |                                 |
|-------------|--------------------------------|-----------------|------------------------------|------------|------------------------|------------|--------------|---|--------------------------------|---------------------------------|
| Depth (ft.) | Sample Depth                   | Time            | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |                                | Depth (ft.)                     |
| 0-          | —— n-                          |                 |                              |            |                        |            |              | Ground Surface  |                                | -0                              |
|             | 0-                             |                 | G/2V/<br>2E/3J<br>G/2V/      |            | 13.7<br>78ºF<br>14.3   |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, damp, brown |                                | -<br>-<br>-<br>-<br>-<br>-<br>- |
| 2~          | <del></del> 2'                 |                 | 2E/3J                        | ı          | 78ºF                   | 4000044    |              | Total Depth = 2' BGL                                      |                                | 2<br>[                          |
| 4           |                                |                 |                              |            |                        |            |              |   |                                | 6                               |
| 12-         |                                |                 |                              |            |                        |            |              |   |                                | 12                              |
| 40          | PS<br>)4 Camp C<br>ustin, Texa | raft F<br>s 787 | Road<br>746                  |            |                        |            |              | Sheet: 1 of 1   | 512/347-7588<br>512/347-8243 f | fax                             |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A Drilling Rig: N/A

404 Camp Craft Road

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.744' W107º58.414' LOG OF BORING

512/347-7588

512/347-8243 fax

Boring No.: SWMU 5-5

Start Date: 4/23/2009 Finish Date: 4/23/2009

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5544.880

Total Depth: 2' bgl

Site Coordinates: N 36º41'44.61681"

W 107º58'24.73909"

|             |               | Sa   | amp                          | lin        | g                      | <b>,</b>   |              |  |                       |
|-------------|---------------|------|------------------------------|------------|------------------------|------------|--------------|--|-----------------------|
| Depth (ft.) | Sample Depth  | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Depth (ft.)           |
| 0-          | O-            |      |                              |            |                        |            |              | Ground Surface   | -0                    |
|             | 0.5'<br>& Dup | 1500 | G/2V/<br>2E/3J               |            | 12.0<br>80ºF           |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, dry to damp, brown |                       |
| ] =         | 1.5-<br>2'    | 1505 | G/2V/                        |            | 17.8                   |            |              |  | <u> </u>              |
| 2-          | 2'            |      | 2E/3J                        |            | 80ºF                   |            |              | Total Depth = 2' BGL   | -2                    |
|             |               |      |                              |            |                        |            |              |  |                       |
| ] =         |               |      |                              |            |                        |            |              |  | -4                    |
| 4-          |               |      |                              |            |                        |            |              |  | =4                    |
|             |               |      |                              |            |                        |            |              |  |                       |
| =           |               |      |                              |            |                        |            |              |  | -<br>-<br>-<br>-<br>6 |
| 6-          |               |      |                              |            |                        |            |              |  | 1- 1                  |
| =           |               |      |                              |            |                        |            |              |  | =                     |
| 8-          |               |      |                              |            |                        |            |              |  | =                     |
| 8-          |               | <br> |                              |            |                        |            |              |  | -8                    |
|             |               |      |                              |            |                        |            |              |  | E                     |
| =           |               |      | j                            |            |                        |            |              |  |                       |
| 10-         |               |      |                              |            |                        |            |              |  | -<br>-<br>10          |
| =           |               |      |                              |            |                        |            |              |  | =                     |
|             |               |      |                              | i          |                        |            |              |  | <u> </u>              |
| 12-         |               |      |                              |            |                        |            |              |  | -<br>-12              |
| =           |               |      |                              |            |                        |            |              |  | E                     |
| =           |               |      |                              |            |                        |            |              |  | E                     |
| BI          | 1             | L    |                              | L .        | <u> </u>               | <u> </u>   | <u> </u>     |  |                       |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.744' W107º58.419'

# **LOG OF BORING**

512/347-8243 fax

Boring No.: SWMU 5-6

Start Date: 4/23/2009 Finish Date: 4/23/2009

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bg!

Elev., GL (ft. msl): 5544.571

Site Coordinates: N 36º41'44".61062"

W 107º58'25.05289"

|             |                | Sa      | amp                          | lin        | g                      |            |              |  |                                 |             |
|-------------|----------------|---------|------------------------------|------------|------------------------|------------|--------------|--|---------------------------------|-------------|
| Depth (ft.) | Sample Depth   | Time    | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   |                                 | Depth (ft.) |
| 0-          |                |         |                              |            |                        |            |              | Ground Surface   |                                 | -0          |
| -           | 0-             | 1510    | G/2V/<br>2E/3J               |            | 16.0<br>80ºF           |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, dry to damp, brown | _                               |             |
| _           | 1.5-           | 1515    | G/2V/                        |            | 12.5                   |            |              |  | -                               | -           |
| 2-          | <del></del> 2' | 1515    | 2E/3J                        |            | 80ºF                   |            |              | Total Depth = 2' BGL   |                                 | -2          |
| =           |                |         | 20/33                        |            | 00-F                   |            |              | Total Deptit = 2 Bdt.  | -                               | -           |
|             |                | l       |                              |            |                        |            |              |  | -                               | -           |
| =           |                |         |                              |            |                        |            |              |  | <u> </u>                        | -           |
| 4           |                |         |                              |            |                        |            |              |  | -                               | -4<br>-     |
| -           |                |         |                              |            |                        |            |              |  |                                 | -           |
|             |                |         |                              |            |                        |            |              |  | _                               | -           |
| 6           |                |         | ļ                            |            |                        |            |              |  |                                 | -           |
| 6_          |                |         |                              |            |                        |            |              |  | -                               | -6<br>-     |
| =           | i              |         |                              |            |                        |            |              |  | E                               | -           |
| =           |                |         |                              |            |                        |            |              |  |                                 | -           |
| =           |                | 1       |                              |            | 1                      |            | <br>         |  |                                 | -           |
| 8-          |                | Ì       |                              |            |                        |            |              | _  | -                               | -8<br>-     |
| Ξ           |                |         |                              |            |                        |            |              |  |                                 | -           |
| =           |                |         |                              |            |                        |            |              |  | =                               | <u>-</u>    |
| =           |                |         |                              | ļ          |                        |            |              |  | E                               | -           |
| 10-         |                |         |                              |            |                        |            |              |  | -                               | -10         |
| Ξ           |                |         |                              |            |                        |            |              |  |                                 | -           |
| _           |                | -       |                              |            |                        |            |              |  | -                               | -           |
| =           |                |         |                              |            |                        |            |              |  |                                 | -           |
| 12-         |                |         |                              |            | 1                      |            | 1            |  | <u> -</u>                       | - 12        |
| _           |                |         |                              |            |                        |            |              |  | -                               | -           |
| _           |                |         |                              |            |                        |            |              |  | -                               | -           |
|             |                | <u></u> |                              | <u> </u>   | L                      |            | l            |  |                                 |             |
| RF<br>40    | 4 Camp C       | raft F  | Road                         |            |                        |            |              | Sheet: 1 of 1  | 512/347-7588<br>512/347-8243 fa |             |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

404 Camp Craft Road

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36°41.811' W107°58.272' **LOG OF BORING** 

Boring No.: AOC 22-1

**Start Date:** 4/15/2009 **Finish Date:** 4/15/2009

512/347-7588

512/347-8243 fax

Total Depth: 2' bgl
Ground Water: Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5540.103

**Site Coordinates:** 

N 36º41'48.50044" W 107º58'16.34853"

|             |              | Sa      | amp                          | lin        | g                      |   |              |   |                                  |
|-------------|--------------|---------|------------------------------|------------|------------------------|---|--------------|---|----------------------------------|
| Depth (ft.) | Sample Depth | Time    | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class                              | Recovery (%) | Sample Description                                    | Depth (ft.)                      |
| 0-          | O-           |         |                              |            |                        | 111111111111111111111111111111111111111 |              | Ground Surface  | -0                               |
|             | 0-           | 1600    | G/2V/<br>2E/3J               | 1          | 4.5<br>70ºF            |   | 100          | Silt (ML)<br>Very fine grain, loose, dry, brown       |                                  |
| 1 1 1       | 1.5-         | 1615    | G/2V/                        |            | 3.5                    |   |              | Clayey Silt (ML)<br>Low plasticity, soft, damp, brown | -2                               |
| 2-          |              |         | 2E/3J                        |            | 70ºF                   |   |              | Total Depth = 2' BGL                                  | E                                |
| -           |              |         |                              |            |                        |   |              |   | -                                |
| 4-          |              |         |                              |            |                        |   |              |   | -<br>-<br>-<br>-<br>-4           |
| -           |              |         |                              |            |                        |   |              |   | F 1                              |
| =           |              |         |                              |            |                        |   |              |   |                                  |
| 6-          |              |         |                              |            |                        |   |              |   | -6                               |
|             |              |         |                              |            |                        |   |              |   |                                  |
| -           |              |         |                              |            | !                      |   |              |   | E                                |
| 8-          |              |         |                              |            |                        |   |              |   | <u>-</u> 8                       |
| =           |              |         |                              |            |                        |   |              |   | -<br> -<br> -                    |
|             |              |         |                              | :          |                        |   |              |   | E                                |
| 10-         |              |         |                              |            |                        |   |              |   | 10                               |
|             |              |         |                              |            |                        |   |              |   | -<br>-<br>-<br>-<br>-<br>-<br>12 |
| 12-         | ]            |         |                              |            |                        |   |              |   | E 12                             |
| '- =        |              |         |                              |            |                        |   |              |   | '-                               |
|             |              |         |                              |            |                        |   |              |   |                                  |
|             | <del></del>  | <b></b> | .11                          | Ь——        |                        |   | -            |   |                                  |



Boring No.: AOC 22-2

Start Date: 4/15/2009

Finish Date: 4/15/2009

512/347-8243 fax

Total Depth: 2' bgl

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5540.379

**Site Coordinates:** 

**N** 36º41'48.95123" **W** 107º58'16.04153"

Site: SWMU Group #3, Bloomfield Refinery Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Austin, Texas 78746

Driller: N/A Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.818' W107º58.266'

Client: Western Refining Southwest, Inc.

|                |                          | Sa     | amp                          | lin        | g                      |            |              |   |             |
|----------------|--------------------------|--------|------------------------------|------------|------------------------|------------|--------------|---|-------------|
| Depth (ft.)    | Sample Depth             | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                              | Depth (ft.) |
| 0-             | ····· 0-                 |        |                              |            |                        |            |              | Ground Surface                                  | 0           |
|                | 0-<br>0.5'<br>1.5-<br>2' | ĺ      | G/2V/<br>2E/3J<br>G/2V/      |            | 16.1<br>70ºF<br>2.1    |            | 100          | Silt (ML)<br>Very fine grain, loose, dry, brown |             |
| 2-             | 2'                       | i      | 2E/3J                        |            | 70ºF                   |            |              | Total Depth = 2' BGL                            | 2           |
| 4—<br>6—<br>8— |                          |        |                              |            |                        |            |              |   | 6 110       |
| RF             | PS<br>14 Camp C          | raft B | had                          |            |                        |            |              | Sheet: 1 of 1                                   | 38          |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

3833 S. Staples, Suite N-229

Corpus Christi, TX 78411

Driller: N/A

Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.813' W107º58.261'

# **LOG OF BORING**

361/855-7410 fax

Boring No.: AOC 22-3 Start Date: 4/15/2009

Finish Date: 4/15/2009

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5540.853

Ground Water: Not Encountered

Site Coordinates: N 36º41'48.63697"

W 107º58'15.77033"

|             |                  | Sa    | amp                          | lin        | g                      |            |              |   |             |
|-------------|------------------|-------|------------------------------|------------|------------------------|------------|--------------|---|-------------|
| Depth (ft.) | Sample Depth     | Time  | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Depth (ft.) |
| 0-          | <del></del> 0-   |       |                              |            |                        |            |              | Ground Surface  |             |
| 11111       | 0.5'             | 1650  | G/2V/<br>2E/3J               |            | 5.1<br>70ºF            |            | 100          | Silt (ML) Very fine grain, loose to compact, dry to damp, brown | -           |
| 3           | 1.5-             | 1700  | G/2V/                        |            | 3.7                    |            |              |   |             |
| 2           | ··· 2'           | ,,,,, | 2E/3J                        |            | 70ºF                   |            |              | Total Depth = 2' BGL  | 2           |
| 6   10   12 |                  |       |                              |            |                        |            |              |   | -4<br>4<br> |
| RF          | PS<br>33 S. Stap | les s | Suito N                      | J-220      |                        |            |              | Sheet: 1 of 1   | 55-7335     |



Boring No.: AOC 22-4

**LOG OF BORING** 

Start Date: 4/15/2009

Finish Date: 4/15/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.808' W107º58.265' Total Depth: 2' bgl

Ground Water: Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5541.189

Site Coordinates:

N 36º41'48.38276" W 107º58'15.95304"

|                |                              | Sa              | amp                          | lin        | g                      |            |              |  |                                 |  |
|----------------|------------------------------|-----------------|------------------------------|------------|------------------------|------------|--------------|--|---------------------------------|--|
| Depth (ft.)    | Sample Depth                 | Time            | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   |                                 | Depth (ft.)  |
|                |                              |                 |                              |            |                        |            |              | Ground Surface   |                                 | -0   |
| 0-             | 0-                           |                 | G/2V/<br>2E/3J<br>G/2V/      |            | 3.4<br>70ºF<br>2429    |            | 100          | Sandy Silt (ML) Very fine grain, loose to compact, dry to damp, brown, odd | or                              | -<br>-<br>-<br>-<br>-  |
| 2-             | 2'                           |                 | 2E/3J                        |            | 70ºF                   |            |              | Total Depth = 2' BGL   |                                 | -2<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 6-1111         |                              |                 |                              |            |                        |            |              |  |                                 | 6 8  |
| 8-             |                              |                 |                              |            |                        |            |              |  |                                 | -8<br>-10  |
| 10             |                              |                 |                              |            |                        |            |              |  | 1.                              | 10   |
| 12-            |                              |                 |                              |            |                        |            |              |  |                                 | -12<br>-12<br>-  |
| RF<br>40<br>Au | S<br>4 Camp C<br>stin, Texas | raft R<br>s 787 | oad<br>46                    |            |                        |            |              |  | 512/347-7588<br>512/347-8243 fa | ax   |



Boring No.: AOC 22-5
Total Depth: 2' bgl
Ground Water: Not Encountered
Finish Date: 4/15/2009

Ground Water: Not Encountered Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5543.605

Site Coordinates:

N 36º41'47.56329" W 107º58'16.74392"

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A
Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.793' W107º58.280'

|                             |      |                              | ·          |                        |            |              |  |   |
|-----------------------------|------|------------------------------|------------|------------------------|------------|--------------|--|---|
|                             | Sa   | amp                          | lin        | g                      |            |              |  |   |
| Depth (ft.)<br>Sample Depth | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                                 | Depth (ft.)   |
| 0- :::::: 0-                |      |                              |            |                        |            |              | Ground Surface                                     | -0  |
| 0-                          | 1720 | G/2V/<br>2E/3J               |            | 1.6<br>80ºF            |            |              | Sandy Silt (ML) Fine grain, loose, dry, gray       | -<br> -<br> -   |
| 1.5- \                      | i    |                              | -          |                        |            | 100          | Clayey Silt (ML) Fine grain, compact, moist, brown | ====  |
| 2 2'                        | 1730 | G/2V/                        |            | 1.4                    |            |              |  |   |
| ]                           |      | 2E/3J                        |            | 80ºF                   |            |              | Total Depth = 2' BGL                               |   |
| ]                           |      |                              |            |                        |            |              |  | E   |
| .]                          |      |                              |            |                        |            |              |  | F.  |
| 4                           |      |                              |            |                        |            |              |  | -4  |
| ] [                         |      |                              |            |                        |            |              |  | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| =                           |      |                              |            |                        |            |              |  | -<br>-  |
| 6                           |      |                              |            |                        |            |              |  | -6  |
|                             |      |                              |            |                        |            |              |  |   |
|                             |      |                              |            |                        |            |              |  | -<br> -<br> -   |
| 8-                          |      |                              |            |                        |            |              |  | <del>-</del> 8  |
| 1                           |      |                              |            |                        |            |              | •  | - <sup>1</sup>  |
|                             |      |                              |            |                        |            |              |  | <u> -</u>   |
| =                           |      |                              |            |                        |            |              |  | -<br>-<br>-<br>10   |
| 10-                         |      |                              |            |                        |            |              |  | <del>-</del> 10   |
| 1                           |      |                              |            |                        |            |              |  | <u> -</u>   |
| 1                           |      |                              |            |                        |            |              |  | -   |
| 12 -                        |      |                              |            |                        |            |              |  | 12  |
| 1                           |      |                              |            |                        |            |              |  | <u> -</u>   |
| = 1                         |      |                              |            |                        |            |              |  | E   |
| RPS                         |      |                              |            |                        |            |              |  | 47.7500   |

RPS 404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 1



Boring No.: AOC 22-6

Finish Date: 4/23/2009

512/347-8243 fax

Start Date: 4/23/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.783' W107º58.278' Total Depth: 2' bgl

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5543.874

Site Coordinates:

**N** 36º41'47.04554" **W** 107º58'16.49572"

|             |                | Sa     | amp                          | lin        | g                      |            |              |  |               |
|-------------|----------------|--------|------------------------------|------------|------------------------|------------|--------------|--|---------------|
| Depth (ft.) | Sample Depth   | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                           | Don'th (#)    |
| 0-          | ······ 0-      |        |                              |            |                        |            |              | Ground Surface                               |               |
| =           | 0-<br>0.5'     | 1650   | G/2V/<br>2E/3J               |            | 1.5<br>80ºF            |            |              | Sandy Silt (ML) Fine grain, loose, dry, gray | F             |
| =           |                | :      | 20,00                        |            | 001                    |            | 100          | Clayey Silt (ML)                             |               |
| 2           | 1.5-           | 1655   | G/2V/                        |            | 4.1                    |            |              | Fine grain, compact, moist, brown            |               |
| =           |                |        | 2E/3J                        |            | 80ºF                   |            |              | Total Depth = 2' BGL                         | =             |
| =           |                |        |                              |            |                        |            |              |  | E             |
| ╡           |                |        |                              |            |                        |            |              |  |               |
| 4-          |                |        |                              |            |                        |            |              |  |               |
| =           |                |        |                              |            |                        |            |              |  | -<br> -<br> - |
| =           |                |        |                              |            |                        |            |              |  | E             |
| 6-          |                |        |                              |            |                        |            |              |  | <u> </u>      |
| Ξ           |                |        |                              |            |                        |            |              |  | E             |
| =           |                |        |                              |            |                        |            |              |  | -<br> -<br> - |
| 8-          |                |        |                              |            |                        |            |              |  | -8            |
| =           |                |        |                              |            |                        |            | :            |  | E             |
| =           |                |        |                              |            |                        |            |              |  | =             |
| o-[         |                |        |                              |            |                        |            |              |  | <u>-</u> -1   |
| =           |                |        |                              |            |                        |            |              |  | Ė             |
| =           |                |        |                              |            |                        |            |              |  | Ē             |
| 2-          |                |        |                              |            |                        |            |              |  | <u>-</u> -1   |
| =           |                |        |                              |            |                        |            |              |  | E             |
| -           |                |        |                              |            |                        |            |              |  | E             |
| RP          | 'S<br>4 Camp C | raft R | oad                          |            |                        |            |              | Sheet: 1 of 1                                | 512/347-7588  |



**Boring No.:** AOC 22-7 **Start Date:** 4/13/2009

Finish Date: 4/13/2009

512/347-7588

512/347-8243 fax

Client: Western Refining Southwest, Inc.
Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A
Drilling Rig: N/A

404 Camp Craft Road

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.770' W107º58.284' Total Depth: 2' bgi

Ground Water: Not Encountered

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5543.745

Site Coordinates:

N 36º41'46.18239" W 107º58'17.09575"

|  |              | Sa   | amp                          | lin        | g                      |              |              |  |                                 |
|--|--------------|------|------------------------------|------------|------------------------|--------------|--------------|--|---------------------------------|
| Depth (ft.)                            | Sample Depth | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class   | Recovery (%) | Sample Description                                       | Depth (ft.)                     |
| 0-                                     | O-           |      |                              |            |                        |              |              | Ground Surface   | -0                              |
| 0-                                     | 1.5-         |      | G/2V/<br>2E/3J<br>G/2V/      |            | 1.3<br>68ºF<br>2.6     |              | 100          | Silt (ML) Very fine grain, loose to compact, damp, brown | -<br>-<br>-<br>-<br>-<br>-<br>- |
| 2-                                     | 2'           |      | 2E/3J                        |            | 68ºF                   | #111HJJ 11 H |              | Total Depth = 2' BGL                                     | -2                              |
| 4————————————————————————————————————— |              |      |                              |            |                        |              |              | Total Bopar 2 Bac  |                                 |



Boring No.: AOC 22-8

Start Date: 4/13/2009

Finish Date: 4/13/2009

512/347-7588

512/347-8243 fax

Client: Western Refining Southwest, Inc.
Site: SWMU Group #3, Bloomfield Refinery

**Site:** SWMU Group #3, Bloomfield Refin **Job No.:** 354 - Bloomfield, NM

Geologist: Tracy Payne

404 Camp Craft Road

Austin, Texas 78746

Driller: N/A
Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36°41.767' W107°58.281' Total Depth: 2' bgl

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5545.715

**Site Coordinates:** 

N 36º41'45.99895 W 107º58'16.85610"

|   |                      | Sa   | amp                          | lin        | g                      |            |              |   |                               |
|---|----------------------|------|------------------------------|------------|------------------------|------------|--------------|---|-------------------------------|
| Depth (ft.)                             | Sample Depth         | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Depth (ft.)                   |
| 0-                                      | <del>::::::</del> 0- |      |                              |            |                        |            |              | Ground Surface  | -0                            |
|   | 0.5'                 |      | G/2V/<br>2E/3J<br>G/2V/      |            | 1.4<br>68ºF<br>1.2     |            | 100          | Silt (ML) Very fine grain, loose to compact, dry to damp, brown | -                             |
| 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | &Dup                 |      | 2E/3J                        |            | 68ºF                   |            |              | Total Depth = 2' BGL  | -2<br>-4<br>4<br>6<br>8<br>10 |



Boring No.: AOC 22-9 Start Date: 4/13/2009

Finish Date: 4/13/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

Austin, Texas 78746

**Drilling Method:** Hand Auger Sampling Method: Auger Bucket Comments: N36º41.764' W107º58.286' Total Depth: 2' bgl

Ground Water: Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5546.880

**Site Coordinates:** 

**N** 36º41'45.80509" **W** 107º58'17.08569"

|             |                | Sa   | amp                          | lin        | g                      |            |              |   |   |
|-------------|----------------|------|------------------------------|------------|------------------------|------------|--------------|---|---|
| Depth (ft.) | Sample Depth   | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Don'th (#)  |
| 0-          | 0_             |      |                              |            |                        |            |              | Ground Surface  |   |
| -           | 0-             | 1655 | G/2V/<br>2E/3J               |            | 0.6<br>68ºF            |            | 100          | Silt (ML) Very fine grain, loose to compact, dry to damp, brown |   |
| _ =         | 1.5-           | 1705 | G/2V/                        |            | 1.1                    |            |              |   | =   |
| 2           | 2'             |      | 2E/3J                        |            | 68ºF                   |            |              | Total Depth = 2' BGL  |   |
| 4-          |                |      |                              | i          |                        |            |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-   |
| 6-1         |                |      |                              |            |                        |            |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 8-          |                |      |                              |            |                        |            |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 10 -        |                |      |                              |            |                        |            |              |   |   |
| 12          |                |      |                              |            |                        |            |              |   | E<br>E<br>E<br>1  |
|             | PS<br>4 Camp C |      |                              |            |                        |            |              | Sheet: 1 of 1   | 512/347-7588<br>512/347-8243 fax  |



Boring No.: AOC 22-10

Start Date: 4/14/2009

Finish Date: 4/14/2009

512/347-7588

512/347-8243 fax

Client: Western Refining Southwest, Inc.
Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

404 Camp Craft Road

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36°41.749' W107°58.283' Total Depth: 2' bgl

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5549.393

**Site Coordinates:** 

**N** 36º41'44.96497" **W** 107º58'17.22097"

| <u> </u>    | Γ            | _    |                              |            |                        |   |              |  | 1                |
|-------------|--------------|------|------------------------------|------------|------------------------|---|--------------|--|------------------|
|             |              | Sa   | amp                          | lin        | g                      |   |              |  |                  |
| Depth (ft.) | Sample Depth | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class                                    | Recovery (%) | Sample Description   | Depth (ft.)      |
| 0-          | n-           |      |                              |            |                        |   |              | Ground Surface   | -0               |
| 0-          | 0-           | 1410 | G/2V/<br>2E/3J               | !          | 7.9<br>72ºF            |   |              | Silt/Gravel Base (ML) Very fine grain, compact, dry, brown             |                  |
|             | 1.5-         | 1425 | G/2V/                        |            | 3.8                    |   | 100          | Clayey Silt (ML) Low plasticity, very fine grain, compact, damp, brown |                  |
| 2-          | 2'           |      | 2E/3J                        |            | 72ºF                   | <u>                                      </u> |              | Total Depth = 2' BGL.  | 2<br>            |
|             |              |      |                              |            |                        |   |              |  |                  |
| 4-          |              |      |                              |            |                        | Í   |              |  | -4               |
|             |              |      |                              |            |                        |   |              |  | E                |
| 6-          |              |      |                              |            |                        |   |              |  | -<br>-<br>-6     |
|             |              |      |                              |            |                        | 1   |              |  | E                |
| -           |              |      |                              |            |                        |   |              |  |                  |
| 8-          |              |      |                              |            |                        |   |              |  | -<br>-<br>-<br>8 |
| -           |              |      |                              |            |                        |   |              |  |                  |
| 10-         |              |      |                              |            |                        |   |              |  | -10              |
|             |              |      |                              |            |                        |   |              |  |                  |
| 12-         |              |      |                              |            |                        | 1   |              |  | 12               |
|             |              |      |                              |            |                        |   |              |  | E                |
| DI          |              |      |                              |            |                        | L   |              |  | F_               |



Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.743' W107º58.281'

# LOG OF BORING

Boring No.: AOC 22-11

Start Date: 4/14/2009 Finish Date: 4/14/2009

512/347-8243 fax

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5549.485

**Site Coordinates:** 

Total Depth: 2' bgl

N 36º41'44.55341" W 107º58'17.06316"

| Sample Depth | Sample Type/<br>Containe/No. | apor                                 |            |              |  |   |
|--------------|------------------------------|--------------------------------------|------------|--------------|--|---|
| ı Sa   ∑ı    | Sample                       | Saturation<br>Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | 1 |
| 0- 1440      |                              |                                      |            |              | Ground Surface   |   |
| 0.5'         | 0 G/2V/<br>2E/3J             | 5.9<br>73ºF                          |            | 100          | Clayey Silt (ML) Low plasticity, compact, very fine grain, damp, brown, gravelly | <br>                                    |
| 1.5-         | 5 G/2V/                      | 4.3                                  |            |              |  | -                                       |
| 2'           | 2E/3J                        | 73ºF                                 |            |              | Total Depth = 2' BGL   |   |
| ]            |                              |                                      |            |              |  | F                                       |
| ]            |                              |                                      |            |              |  | -                                       |
| <b> </b>     |                              |                                      |            |              |  | <u>-</u> '                              |
| =            |                              |                                      |            |              |  | E                                       |
|              |                              |                                      |            |              |  | E                                       |
| 5-           |                              |                                      |            |              |  | <u> </u>                                |
| =            |                              |                                      |            |              |  | <u>-</u><br>-                           |
| ]            |                              |                                      |            |              |  | Ē                                       |
| 3-]          |                              |                                      |            |              | ·  | - 8<br> -                               |
|              |                              | :                                    |            |              |  | Ē                                       |
|              |                              |                                      |            |              |  | <u>-</u>                                |
| )-]          |                              |                                      |            |              |  | <u>-</u> 1                              |
|              |                              |                                      |            |              |  | Ė                                       |
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| 2 ]          |                              |                                      |            |              |  |   |
| 1            |                              |                                      |            |              |  |   |
| RPS          |                              |                                      |            |              |  | <u>F</u>                                |



Well No.: AOC 22-12 / TW-01

Total Depth: 42' bgl

Start Date: 4/13/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Ground Water: Saturated @ 37.75' bgl Finish Date: 4/13/2009

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc.

Elev., TOC (ft. msl): 5543.607 Elev., PAD (ft. msl): 5540.336 Elev., GL (ft. msl): 5540.449

**Drilling Rig: CME 75** 

**Site Coordinates:** N 36º41'48.82442"

W 107º58'16.02512"

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.816' W107º58.256'

|  |              | S                    | am                               | plin       | g                      |            |              |  |   |
|--|--------------|----------------------|----------------------------------|------------|------------------------|------------|--------------|--|---|
| Depth (ft.)  | Sample Depth | Time                 | Sample<br>Type/Container/No      | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Completion Results  |
| 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                    |              |                      | CANA                             |            |                        |            |              | Ground Surface   |   |
|  | 0.5'         | 0915<br>&Dup<br>0930 | G/4V/<br>4E/6J<br>G/2V/<br>2E/3J |            | 0.9<br>53ºF<br>3.4     |            | 100          | Silt (ML) Very fine grain, compact, damp, brown                              | 4'x4'x6".   |
| 1  | — 2          |                      | 2E/3J                            |            | 53ºF<br>4.9<br>60ºF    |            | 80           | Clayey Silt (ML)<br>Similar to above   | Steel Reinforced Concrete Pad - 4'x4'x6"  Grout   Concrete Pad - 4'x4'x6"  Grout   Concrete Pad - 4'x4'x6"  Grout   Richard State Pack State St |
| 4 1111111111111111111111111111111111111                    |              |                      |                                  |            | 5.6<br>60ºF            |            | 80           | Clayey Silt (ML)<br>Similar to above   | Steel Reinforced Concrete Pad -  Grout  Sch. 40 PVC w/Threaded Joints  8" Diameter Bore   |
| o di   |              |                      |                                  |            | 5.2<br>60ºF            |            | 90           | Clayey Silt (ML)<br>Similar to above   | PVC w/T   |
| 10   |              |                      |                                  | :          | 4.9<br>60ºF            |            | 100          | Clayey Silt (ML) Similar to above, trace fine grain sand                     | Steel Re Grout -  |
| 12-  |              |                      |                                  |            | 4.2<br>60ºF            |            | 100          | Sandy Silt (ML) Very fine grain, loose to compact, damp, light brown         | Steel F<br>Cement/Bentonite Grout   |
| 14-5   |              |                      |                                  |            | 6.3<br>60ºF            |            | 90           | Sandy Silt (ML)<br>Similar to above  | Cement/   |
| 16-2   |              |                      |                                  |            | 6.0<br>60ºF            |            | 60           | Clayey Silt (ML) Low plasticity, soft, very fine grain, compact, damp, brown |   |
| 18-  |              |                      |                                  |            | 5.2<br>60ºF            |            | 100          | Clayey Silt (ML)<br>Similar to above   |   |
| 20-  |              |                      |                                  |            | 5.1<br>60ºF            |            | 100          | Sandy Silt (ML) Very fine grain, loose to compact, damp, light brown         |   |
| 10 112 114 116 118 120 111 12 120 111 12 120 111 111 111 1 |              |                      |                                  |            | 4.4<br>60ºF            |            | 90           | Silty Sand (SM) Very fine to fine grain, loose, damp, light brown            |   |
| RP   | S<br>S       | I                    |                                  |            |                        |            | FL           | Sheet: 1 of 2  | 512/247 7599  |

404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 2



Well No.: AOC 22-12 / TW-01

Total Depth: 42' bgl

Start Date: 4/13/2009

Ground Water: Saturated @ 37.75' bgl Finish Date: 4/13/2009

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig:** CME 75

Elev., TOC (ft. msl): 5543.607 Elev., PAD (ft. msl): 5540.336 Elev., GL (ft. msl): 5540.449

Site Coordinates:

N 36º41'48.82442"

W 107º58'16.02512"

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon Comments: N36º41.816' W107º58.256'

Client: Western Refining Southwest, Inc.

Site: SWMU Group #3, Bloomfield Refinery

| Sample Description  Completion  Completion  Completion  Completion  Sample Description  Completion  Sample Description  Completion  Sample Description  Completion  Sample Description  Sample Description  Completion  Completion  Completion  Sample Description  Sample Description  Completion  Sample Description  Completion  Sample Description  Completion  Sample Description  Sample Description  Completion  Sample Description | <b>—</b>                              |
|--|---------------------------------------|
| 24- 26- 26- 28- 30- 30- 30- 30- 30- 30- 30- 30- 30- 30   | ♣ Properties Grout                    |
| 36-36-37.75 1210 2E/3J 38-30 10 Gravelly Sand (SW) Similar to above No Recovery - similar to above Gravelly Sand (SW) Similar to above, saturated at 37.37' bgl Sand (SW) Fine to coarse grain, loose, saturated, arou edor.   | ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ |
| Sand (SW) Similar to above, saturated, gray, odor Nacimiento Formation Clayey Sand/Weathered Sandstone (SC/SS) Dense, damp, yellowish brown  Total Depth = 42' BGL   | 2/347-7588                            |



Start Date: 4/8/2009

Finish Date: 4/8/2009

Boring No.: AOC 22-13

Client: Western Refining Southwest, Inc.

**Site:** SWMU Group #3, Bloomfield Refinery **Job No.:** 354 - Bloomfield, NM

Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75

**Drilling Method:** Hollow Stem Augers

Sampling Method: Split Spoon

Comments: N36º41.811' W107º58.269'

Total Depth: 42.5' bgl

Ground Water: Saturated @ 39' bgl

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5540.324

**Site Coordinates:** 

N 36º41'48.53647" W 107º58'16.20569"

| N 30 41 40.55047 | VV 107 30 10.20303 |
|------------------|--------------------|
| *                |                    |
|                  |                    |

|  |                          | Sa   | amp                          | lin        | g                      |  |              |   |             |
|--|--------------------------|------|------------------------------|------------|------------------------|--|--------------|---|-------------|
| Depth (ft.)                              | Sample Depth             | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class   | Recovery (%) | Sample Description  | Depth (ft.) |
| 0-                                       | O-                       |      |                              |            |                        |  |              | Ground Surface  | -0          |
| 0   10   12   12   12   12   12   12   1 | 0-<br>0.5'<br>1.5-<br>2' |      | G/2V/<br>2E/3J<br>G/2V/      |            | 1427<br>76ºF           | - Annual - A | 100          | Silt (ML) Very fine grain, compact, dry, brown, odor  | 2           |
| 4  | _                        |      | 2E/3J                        |            | 1186<br>76ºF           |  | 60           | Clayey Silt (ML) Very fine grain, low plasticity, compact to loose, damp, brown, odor           |             |
| 6  |                          |      |                              |            | 1373<br>76ºF           |  | 70           | Clayey Silt (ML) Similar to above, odor   | 4           |
| 111111111                                |                          |      |                              |            | 1349<br>76ºF           |  | 70           | Clayey Silt (ML) Similar to above, odor   | 8           |
| 10                                       |                          |      |                              |            | 1302<br>76ºF           |  | 70           | Clayey Silt (ML) Similar to above, odor   | 10          |
| 12-                                      |                          |      |                              |            | 1302<br>76ºF           |  | 60           | Clayey Silt (ML) Similar to above, odor   | 12          |
|  |                          |      |                              |            | 1345<br>75ºF           |  | 90           | Clayey Silt (ML) Similar to above, odor   | 14          |
| 14-                                      | •                        |      |                              |            | 1277<br>75ºF           |  | 90           | Clayey Silt (ML) Similar to above, odor   | 16          |
|  |                          |      |                              |            | 1250<br>75°F           |  | 90           | Clayey Silt (ML)<br>Similar to above, odor  | шш          |
| 18 -                                     | 18-<br>20'               | 1800 | G/2V/<br>2E/3J               |            | 1660<br>74ºF           |  | 60           | Silty Sand (SM) Very fine grain, loose, damp, light brown to tan, faint staining apparent, odor | 18          |
| 22-                                      |                          |      |                              |            | 1611<br>74ºF           |  | 70           | Silty Sand (SM) Similar to above, odor  | 20          |
| DE                                       |                          |      |                              |            | 1336<br>74ºF           |  | 90           | Silty Sand (SM)<br>Similar to above, odor   | - 24        |

RPS 404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 2



Start Date: 4/8/2009

Finish Date: 4/8/2009

Boring No.: AOC 22-13

Client: Western Refining Southwest, Inc.

Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

**Drilling Method:** Hollow Stem Augers

Sampling Method: Split Spoon

Comments: N36º41.811' W107º58.269'

Total Depth: 42.5' bgl

Ground Water: Saturated @ 39' bgl

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5540.324

**Site Coordinates:** 

N 36º41'48.53647" W 107º58'16.20569"

|             | Sampling      |      |                              |            |                        |              |              |  |                  |
|-------------|---------------|------|------------------------------|------------|------------------------|--------------|--------------|--|------------------|
| Depth (ft.) | Sample Depth  | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class   | Recovery (%) | Sample Description   |                  |
|             |               |      |                              |            |                        |              |              |  | E                |
| 25          |               |      |                              |            | 1131<br>74ºF           |              | 100          | Silty Sand (SM)  Very fine grain, loose, damp, light brown to tan, faint staining apparent, odor               | 25               |
| 27          |               |      |                              |            | 1131<br>73ºF           |              | 80           | Silty Sand (SM) Similar to above, odor   | 27               |
| 29          |               |      |                              |            | 1184<br>73ºF           |              | 80           | Silty Sand (SM) Similar to above, sand lenses at base of interval, odor  | E 29             |
| 31          |               |      |                              |            | 1268<br>73ºF           |              | 60           | Sand (SP) Fine grain, loose, damp, tan, stained, odor, gravelly sand at base                                   | 31               |
| 33          | 32-           | 1810 | G/2V/                        |            | 1694<br>73ºF           |              | 50<br>0      | Sand (SP) Similar to above, stained, odor, very damp, trace gravel   | 33               |
|             | 34.5'         |      | 2E/3J                        |            | 1596<br>73ºF           | ° 0° 0° 0°   |              | No Recovery - similar to above   | 1                |
| 35          | <u>::::::</u> |      |                              |            | 908                    | مى<br>0°8°0° | 10           | Gravelly Sand (SW)  Medium grain, loose, stained, odor, damp to very damp, coarse gravel                       | 35               |
| 27          |               |      |                              |            | 72ºF                   | 0,000        | 10           | Gravelly Sand (SW)   | E 37             |
| 37          | 37-<br>39'    | 1820 | G/2V/<br>2E/3J               | 39,        | 1228<br>72ºF           | 0°6°0        | 10           | Similar to above, odor  Gravelly Sand (SW)  Similar to above, dark brown, odor, stained/oily appearance        |                  |
| 39-         | ننبندن        |      |                              | *          |                        | 0°8'0        | 20           | Gravelly Sand (SW) Similar to above, less gravel, saturated, dark gray, odor                                   | <del>-[</del> 39 |
| 41          |               |      |                              |            |                        | 77777        | 70<br>90     | Nacimiento Formation Sand/Sandstone (SS) Fine to medium grain, dense, damp, yellowish brown clay lense at base |                  |
| 43          |               |      |                              |            |                        |              |              | Clay (CH) High plasticity, very stiff, damp, yellowish brown   |                  |
|             |               |      |                              |            |                        |              |              | Sandstone (SS) Medium grained, dense   | Ē ,,             |
| 45-         |               |      |                              |            |                        |              |              | Total Depth = 42.5' BGL  | E 45             |
|             |               |      | <u> </u>                     |            |                        |              | <u> </u>     |  | E_               |

RPS 404 Camp Craft Road Austin, Texas 78746

Sheet: 2 of 2



Start Date: 4/8/2009

Finish Date: 4/8/2009

Boring No.: AOC 22-14

Total Depth: 10' bgl

**Ground Water:** Not Encountered

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5545.296

**Site Coordinates:** 

**N** 36º41'46.01420" **W** 107º58'17.35087"

**Site:** SWMU Group #3, Bloomfield Refinery **Job No.:** 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

**Drilling Method:** Hollow Stem Augers **Sampling Method:** Split Spoon

Client: Western Refining Southwest, Inc.

Comments: N36º41.768' W107º58.290'

|                |              | Sa   | amp                          | lin        | g                      |            |              |  |             |
|----------------|--------------|------|------------------------------|------------|------------------------|------------|--------------|--|-------------|
| Depth (ft.)    | Sample Depth | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Depth (ft.) |
| 0-             | O-           |      |                              |            |                        |            |              | Ground Surface   | -0          |
|                |              |      | G/2V/<br>2E/3J<br>G/2V/      |            | 2.1/<br>3.1<br>71ºF    |            | 100          | Silt (ML) Very fine grain, compact, dry, brown                       |             |
| 2-             |              |      | 2E/3J                        |            | 6.3<br>71ºF            |            | 90           | Clayey Silt (ML) Very fine grain, low plasticity, loose, damp, brown | 2           |
| 4-             |              |      |                              |            | 5.1<br>71ºF            |            | 90           | Clayey Silt (ML)<br>Similar to above                                 | 4           |
| 6-             |              |      | ;                            |            | 4.6<br>71ºF            |            | 90           | Clayey Silt (ML)<br>Similar to above                                 |             |
| 6 8 10 -       |              |      |                              |            | 3.8<br>71ºF            |            | 90           | Clayey Silt (ML)<br>Similar to above                                 | 8           |
| 10-            |              |      |                              |            |                        |            |              | Total Depth = 10' BGL  | <u> </u>    |
| 12<br>14<br>16 | 77777        |      |                              |            |                        |            |              |  | 112         |

RPS 404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 1



Well No.: MW-61 (AOC 22 -15)

Total Depth: 40.25' bgl Ground Water: Saturated @ 36' bgl Start Date: 4/15/2009

Site: SWMU Group #3, Bloomfield Refinery Job No.: 354 - Bloomfield, NM

Client: Western Refining Southwest, Inc.

Elev., TOC (ft. msl): 5539.411 Elev., PAD (ft. msl): 5539.613 Finish Date: 4/15/2009

Geologist: Tracy Payne Driller: Enviro-Drill, Inc.

Elev., GL (ft. msl): 5539.588

Drilling Rig: CME 75

Site Coordinates: N 36º41'48.82131"

W 107º58'17.15514"

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.813' W107º58.287'

|                              |                              | S    | Sam                         | plin       | ıg   |            |                      |   |                   |   |                                  |                      |
|------------------------------|------------------------------|------|-----------------------------|------------|--|------------|----------------------|---|-------------------|---|----------------------------------|----------------------|
| Depth (ft.)                  | Sample Depth                 | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm)                                     | USCS Class | Recovery (%)         | Sample Description  |                   | Completio   | n Results                        |                      |
| -2-<br>0-<br>2-<br>4-<br>10- | 1-<br>::::1.5-<br>2'<br>&Dup | 1155 |                             |            | 2.8<br>63°F<br>29.5<br>63°F<br>23.4<br>68°F<br>5.5<br>68°F |            | 100<br>60<br>50<br>0 | Ground Surface  Asphalt/Base  Clayey Silt (ML) Low plasticity, stiff, damp, brown  Clayey Silt (ML) Similar to above, soft  Clayey Silt (ML) Similar to above  Clayey Silt (ML) Similar to above - no recovery  Clayey Silt (ML) Similar to above  Clayey Silt (ML) Similar to above  Similar to above, trace very fine grain sand  Silty Sand (SM) Very fine grain, loose, damp, brown  Silty Sand (SM) Similar to above | Flush Mount Cover | Steel Reinforced Concrete Pad - 4'x4'x6"   Cement/Bentonite Grout | 4" Sch. 40 PVC w/Threaded Joints | 8" Diameter Borehole |

404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 3



Well No.: MW-61 (AOC 22 -15)

Start Date: 4/15/2009 Finish Date: 4/15/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Austin, Texas 78746

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.813' W107º58.287'

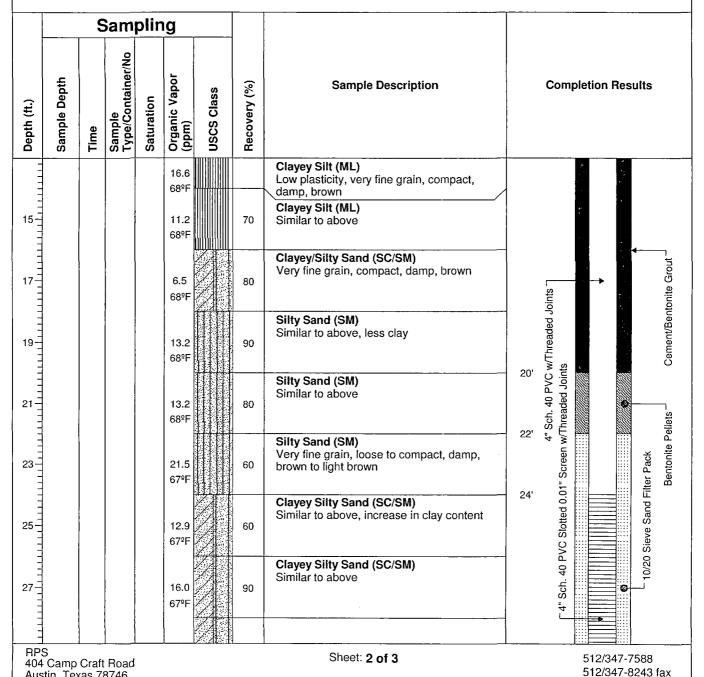
Total Depth: 40.25' bgl

Ground Water: Saturated @ 36' bgl

Elev., TOC (ft. msl): 5539.411 Elev., PAD (ft. msl): 5539.613 Elev., GL (ft. msl): 5539.588

Site Coordinates:

N 36º41'48.82131" W 107º58'17.15514"





Well No.: MW-61 (AOC 22 -15)

Start Date: 4/15/2009

Finish Date: 4/15/2009

Client: Western Refining Southwest, Inc.

Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.813' W107º58.287'

Total Depth: 40.25' bgl

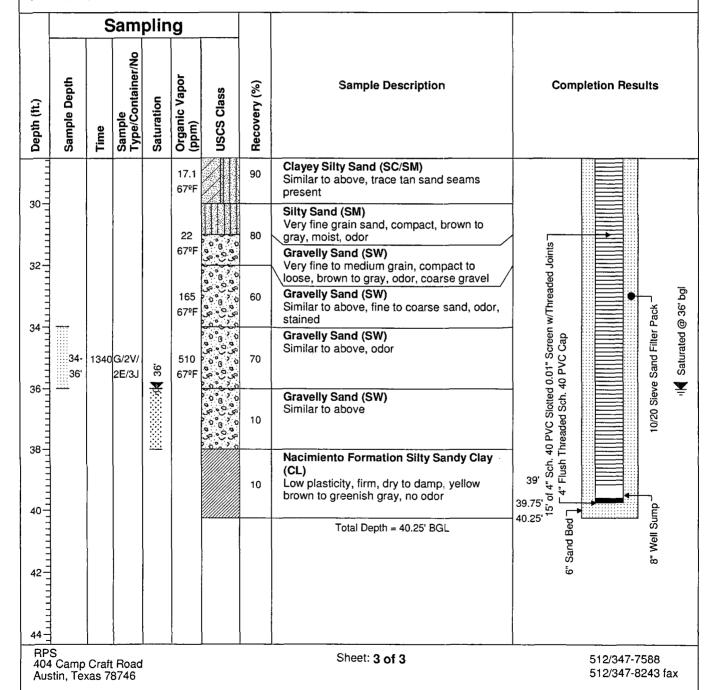
Ground Water: Saturated @ 36' bgl

Elev., TOC (ft. msl): 5539.411 Elev., PAD (ft. msl): 5539.613 Elev., GL (ft. msl): 5539.588

**Site Coordinates:** 

N 36º41'48.82131"

W 107º58'17.15514"





Well No.: MW-63 (AOC 22 -16)

Start Date: 4/13/2009 Finish Date: 4/14/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.771' W107º58.305'

Total Depth: 46' bgl

Ground Water: Saturated @ 39' bgl

Elev., TOC (ft. msl): 5547.255 Elev., PAD (ft. msl): 5544.482 Elev., GL (ft. msl): 5544.488

Site Coordinates:

N 36º41'46.17547"

W 107º58'18.22906"

|             |              | S    | am                          | plir       | ng                     |            |              |  |  |  |  |  |  |
|-------------|--------------|------|-----------------------------|------------|------------------------|------------|--------------|--|--|--|--|--|--|
| Depth (ft.) | Sample Depth | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                                 | Completion Results   |  |  |  |  |
| -2-         |              |      | 0.00                        |            |                        |            |              | Ground Surface                                     | re Cover   |  |  |  |  |
| 0           | [            | 1325 | G/2V/<br>2E/3J<br>G/2V/     |            | 0.9                    |            | 100          | Silt (ML)<br>Very fine grain, compact, damp, brown |  |  |  |  |  |
| 2           | 2'           | 1000 | G/2V/<br>2E/3J              |            | 4.5<br>68ºF            |            | 50           | Clayey Silt (ML)<br>Similar to above               | Aluminum Pro ad Concrete Pad - 4'xe  |  |  |  |  |
| 4711111111  |              |      |                             |            | 5.8<br>68ºF            |            | 60           | Clayey Silt (ML)<br>Similar to above               | Steel Reinforced Concrete Pad - 4'x4'x6"  4" Sch. 40 PVC w/Threaded Joints |  |  |  |  |
| 9<br>1      |              |      |                             |            | 5.8<br>68ºF            |            | 70           | Clayey Silt (ML)<br>Similar to above               | Steel  |  |  |  |  |
| 8           |              |      |                             |            | 7.3<br>68ºF            |            | 80           | Clayey Silt (ML)<br>Similar to above               |  |  |  |  |  |
| 10          |              |      |                             |            | 3.2<br>68ºF            |            | 10           | Clayey Silt (ML)<br>Similar to above               | Cement/Bentonite Grout   |  |  |  |  |
|             |              |      |                             |            | 3.8<br>68ºF            |            | 90           | Clayey Silt (ML)<br>Similar to above, trace sand   | 3  |  |  |  |  |
| 14-         | _            | L    |                             |            |                        |            |              | Clayey Silt (ML)<br>Similar to above               |  |  |  |  |  |

404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 3



Well No.: MW-63 (AOC 22 -16)

512/347-7588

512/347-8243 fax

Start Date: 4/13/2009 Finish Date: 4/14/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: Enviro-Drill, Inc. **Drilling Rig:** CME 75

404 Camp Craft Road

Austin, Texas 78746

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.771' W107º58.305'

Total Depth: 46' bgl

Ground Water: Saturated @ 39' bgl

Elev., TOC (ft. msl): 5547.255 Elev., PAD (ft. msl): 5544.482 Elev., GL (ft. msl): 5544.488

Site Coordinates:

N 36º41'46.17547"

W 107º58'18.22906"

|             |              | S    | Sam                         | plir       | ng                     |            |              |   |        |  |             |     |                   |                              |
|-------------|--------------|------|-----------------------------|------------|------------------------|------------|--------------|---|--------|--|-------------|-----|-------------------|------------------------------|
| Depth (ft.) | Sample Depth | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |        | Com  | pletion     | Res | ults              |                              |
|             |              |      |                             |            | 6.2<br>68ºF            |            | 90           |   |        | _  |             | 1   |                   |                              |
| 16-111111   |              |      |                             |            | 5.8<br>68ºF            |            | 80           | Clayey Silt (ML)<br>Similar to above  |        | ints   | · · · · · · |     | -                 | nite Grout                   |
| 18-         |              |      |                             |            | 5.7<br>68ºF            |            | 90           | Clayey Silt/Silt (ML) Similar to above, trace light brown to tan sand in partings |        | Threaded Jo  |             |     |                   | Cement/Bentonite Grout       |
| 20          |              |      |                             |            | 5.8<br>68ºF            |            | 90           | Silty Sand (SM)<br>Very fine grain, loose, damp, light brown to<br>tan            |        | 4" Sch. 40 PVC w/Threaded Joints Teaded Joints Teaded Joints |             |     | · ·               | Ö                            |
| 22          |              |      |                             |            | 6.8<br>68ºF            |            | 90           | Silty Sand (SM)<br>Similar to above, tan  |        | 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints        |             |     | ellets            |                              |
| 26          |              |      |                             |            | 4.9<br>68ºF            |            | 90           | Silty Sand (SM)<br>Very fine grain, loose, damp, tan                              | 25'    | l 0.01" Scree  |             |     | Bentonite Pellets | d Filter Pack                |
| 28          |              |      |                             |            | 7.5<br>68ºF            |            | 90           | Silty Sand (SM)<br>Similar to above   | 27'    | PVC Slotted  |             |     |                   | 10/20 Sieve Sand Filter Pack |
| 30          |              |      |                             |            | 7.9<br>68ºF            |            | 90           | Silty Sand (SM)<br>Similar to above   | 29.75' | -4" Sch. 40  |             | 6   |                   | L 10/2                       |
| 30-1        |              |      |                             |            | 6.0<br>68ºF            |            | 90           | Silty Sand (SM)<br>Similar to above   |        |  |             |     |                   |                              |



Well No.: MW-63 (AOC 22 -16)

512/347-8243 fax

Start Date: 4/13/2009

Finish Date: 4/14/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig:** CME 75

Austin, Texas 78746

**Drilling Method:** Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.771' W107º58.305'

Total Depth: 46' bgl Ground Water: Saturated @ 39' bgl

Elev., TOC (ft. msl): 5547.255 Elev., PAD (ft. msl): 5544.482 Elev., GL (ft. msl): 5544.488

**Site Coordinates:** 

N 36º41'46.17547" W 107º58'18.22906"

|             |              | S     | Sam                         | plin          | ıg                     |   |              |  |  |                              |
|-------------|--------------|-------|-----------------------------|---------------|------------------------|---|--------------|--|--|------------------------------|
| Depth (ft.) | Sample Depth | Time  | Sample<br>Type/Container/No | Saturation    | Organic Vapor<br>(ppm) | USCS Class  | Recovery (%) | Sample Description   | Com  | pletion Results              |
| 33          |              |       |                             |               | 6.5<br>68ºF            | 500,000,000,000,000,000,000,000,000,000   | 50           | Gravelly Sand (SW) Medium to coarse grain, loose, damp, brown, coarse gravel   | oints T  |                              |
| 35          |              |       |                             |               | 10.9<br>70ºF           | \200, | 60           | Gravelly Sand (SW)<br>Similar to above   | Threaded Jo  | Pack Pall                    |
| 37          | 36-<br>38'   | 1230  | G/2V/<br>2E/3J              |               | 12.2<br>70ºF           | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  | 70           | Gravelly Sand (SW)<br>Similar to above   | 11" Screen w   | 10/20 Sieve Sand Filter Pack |
| 39          |              |       |                             | .65 ¥#€050505 |                        | 6,00,00,00,00,00,00,00,00,00,00,00,00,00  | 0 40         | No recovery - similar to above  Sand (SW) Medium to coarse grain, loose, saturated, brown, trace gravel  | 5' of 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints aded Sch. 40 PVC Cap | 10/20 Sieve                  |
| 41          |              |       |                             |               |                        | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\  | 40           | Sand (SW)<br>Similar to above  | 74.<br>15' of 4" Sch. 40 PVC Sl<br>4" Flush Threaded Sch. 40 PVC Cap             |                              |
| 45 47 47 49 |              |       |                             |               |                        | <u>ໄດ້ຊີ່ໄດ້</u><br>ໄດ້ຊີ່ໄດ້   |              | Sand (SW) Similar to above No recovery - similar to above Nacimiento Formation Weathered Sandstone/Sandstone (SS) Dense to fine grain, dry, greenish gray  Total Depth = 46' BGL | 94 4. Flush Thre   | 8" Well Sump                 |
| RP          | L            | Craft | Road                        |               |                        |   |              | Sheet: 3 of 3  |  | 512/347-7588                 |



Well No.: MW-62 (AOC 23 -1)

512/347-8243 fax

**Start Date:** 4/21/2009

Finish Date: 4/21/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig:** CME 75

Austin, Texas 78746

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.717' W107º58.123'

Total Depth: 58.25' bgl

Ground Water: Saturated @ 55' bgl

Elev., TOC (ft. msl): 5561.322 Elev., PAD (ft. msl): 5558.703 Elev., GL (ft. msl): 5558.555

Site Coordinates:

N 36º41'43.02125"

W 107º58'07.46590"

|   |                                  | S            | Sam                              | plir       | ıg                     |                                       |              |   |                           |  |                               |
|---|----------------------------------|--------------|----------------------------------|------------|------------------------|---------------------------------------|--------------|---|---------------------------|--|-------------------------------|
| Depth (ft.)                             | Sample Depth                     | Time         | Sample<br>Type/Container/No      | Saturation | Organic Vapor<br>(ppm) | USCS Class                            | Recovery (%) | Sample Description  |                           | Comp                                     | oletion Results               |
| -2-                                     | 0                                |              | 0.00                             |            | 0.1                    |                                       |              | Ground Surface  | ve Cover                  | <b>-</b>                                 |                               |
| 0   11111111111111111111111111111111111 | 0-<br>0.5'<br>&Dup<br>1.5-<br>2' | 1115<br>1130 | G/2V/<br>2E/3J<br>G/2V/<br>2E/3J |            | 3.1<br>71ºF<br>3.3     |                                       | 100          | Silt (ML)<br>Very fine grain, loose, dry, brown                           | Aluminum Protective Cover | d - 4'x4'x6"                             | <b>1 1 1 1 1 1 1 1 1 1</b>    |
| 2                                       | 2'                               |              | 2E/3J                            |            | 71ºF<br>14.5<br>74ºF   |                                       | 40           | Silt (ML)<br>Similar to above, damp                                       | Alumin                    | Concrete Pa                              | Paded Joints J                |
| 4-1111111111111111111111111111111111111 |                                  |              |                                  |            | 14.4<br>74ºF           |                                       | 90           | Silt (ML) Similar to above Sand (SP) Fine grain, loose, damp, dark brown  |                           | Steel Reinforced Concrete Pad - 4'x4'x6" | Sch. 40 PVC w/Threaded Joints |
| 6                                       |                                  |              |                                  |            | 14.8<br>74ºF           |                                       | 100          | Sand (SP) Similar to above, brown to light brown                          |                           | Steel                                    | 4" Sch. 40 P                  |
| 10-                                     |                                  |              |                                  |            | 12.3<br>74ºF           | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 60           | Gravelly Sand (SW) Fine to coarse grain, loose, dry, brown, coarse gravel |                           | nite Grout                               |                               |
| 11111111                                |                                  |              |                                  |            |                        | 00,000<br>00,000                      | 0            | Gravelly Sand (SW) Similar to above, no recovery                          |                           | Cement/Bentonite Grout                   |                               |
| 12                                      |                                  |              |                                  |            | 7.1<br>77ºF            |                                       | 100          | Silty Sand (SM) Fine grain, loose to compact, damp, light grayish tan     |                           | Ö  |                               |
| 14-                                     |                                  |              |                                  |            | 17.6<br>77ºF           |                                       | 90           | Silty Sand (SM) Similar to above, compact                                 |                           |  | 5                             |
| RP:<br>404                              | S<br>Camp                        | Craft        | Road                             |            |                        |                                       |              | Sheet: 1 of 4   |                           |  | 512/347-7588                  |



Well No.: MW-62 (AOC 23 -1)

Start Date: 4/21/2009 Finish Date: 4/21/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.717' W107º58.123'

Ground Water: Saturated @ 55' bgl

Total Depth: 58.25' bgl

Elev., TOC (ft. msl): 5561.322 Elev., PAD (ft. msl): 5558.703 Elev., GL (ft. msl): 5558.555

Site Coordinates:

N 36º41'43.02125" W 107º58'07.46590"

|             |              | S     | Sam                         | plir       | ng                     |            |              |   |  |
|-------------|--------------|-------|-----------------------------|------------|------------------------|------------|--------------|---|--|
| Depth (ft.) | Sample Depth | Time  | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Completion Results                             |
|             |              |       |                             |            |                        |            | 0            | Silty Sand (SM) Similar to above, sandstone present,                                  |  |
| 16          |              |       |                             |            | 8.7                    |            | 60           | \vellowish brown / Silty Sand (SM)  | ↓ Lout   |
|             |              |       |                             |            | 78ºF                   | 44         |              | Similar to above, no recovery  Clayey Silty Sand (SC/SM)                              | w/Threaded Joints ☐ ◆ ◆ Cement/Bentonite Grout |
| 18          |              |       |                             |            |                        |            | 0            | Fine grain, very dense, damp, tan   | 4 Joir   |
| =           |              |       |                             |            | 2.2                    |            | 100          | Clayey Silty Sand (SC/SM) Similar to above, no recovery                               | adec   |
| <u> </u>    |              |       |                             |            | 78ºF                   |            |              | Clayey Silty Sand (SC/SM)   | Thre   |
| 20-         |              |       |                             |            |                        |            |              | Similar to above, grayish tan, organics at 18.5' bgl, pinkish tan 18.25 to 18.75' bgl | N N N N N N N N N N N N N N N N N N N          |
|             |              |       | !                           |            | 3.9<br>78ºF            |            | 100          | Clayey Silty Sand (SC/SM)   | 4" Sch. 40 PVC w/Threaded Joints               |
| 22          |              |       |                             |            | /8*F                   |            |              | Fine grain, very dense, damp, grayish tan   | ch.  |
|             |              |       |                             |            | 2.4                    |            | 100          | Clayey Silty Sand (SC/SM) Similar to above, compact                                   | 20 1   |
| =           |              |       |                             |            | 78ºF                   |            | 100          |   |  |
| 24          |              |       |                             |            | 1.6                    |            | 90           | Clayey Silty Sand (SC/SM)   |  |
| =           |              |       |                             |            | 78ºF                   |            | 0            | Similar to above  Clayey Silty Sand (SC/SM)   | ,  |
| 26          |              |       |                             |            |                        |            | U            | Similar to above, no recovery   |  |
|             |              |       |                             |            | 4.0<br>77ºF            |            | 90           | Silty Sand (SM) Fine grain, compact, damp, light brown                                |  |
| =           |              |       |                             |            |                        |            | 0            | Silty Sand (SM)   |  |
| 28          |              |       |                             |            | 3.6                    |            |              | Similar to above, no recovery Silty Sand (SM)   |  |
| 3           |              |       |                             |            | 77ºF                   |            | 90           | Similar to above, clay/silt lenses present  |  |
| 30-         |              |       |                             |            |                        |            |              | Silty Sand (SM) Similar to above, no recovery   |  |
| ]           |              |       |                             |            | 5.4                    |            |              | Silty Sand (SM)   |  |
| Ξ           |              |       |                             |            | 77ºF                   |            | 90           | Similar to above, increase in silt content  |  |
| 32          |              |       |                             |            |                        |            |              |   |  |
| RPS         | S<br>. Camp  | Croff | - Dood                      |            |                        |            |              | Sheet: 2 of 4   | 512/347-7588                                   |

404 Camp Craft Road Austin, Texas 78746



Well No.: MW-62 (AOC 23 -1)

512/347-82 # fax

ieve Sand

Start Date: 4/21/2009 Finish Date: 4/21/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Austin, Texas 78746

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.717' W107º58.123'

Total Depth: 58.25' bgl

Ground Water: Saturated @ 55' bgl

Elev., TOC (ft. msl): 5561.322 Elev., PAD (ft. msl): 5558.703 Elev., GL (ft. msl): 5558.555

**Site Coordinates:** 

N 36º41'43.02125" W 107º58'07.46590"

|             | _            | S     | Sam                         | plir       | ng                     |            |              |  |     |   |
|-------------|--------------|-------|-----------------------------|------------|------------------------|------------|--------------|--|-----|---|
| Depth (ft.) | Sample Depth | Time  | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   |     | Completion Results  |
| 33          |              |       |                             |            | 3.2<br>58ºF            |            | 50           | Sandy Silt (ML) Very fine grain, compact, dry, greenish gray, no plasticity                  |     | rout _  |
| 35          |              |       |                             |            | 3.3<br>58ºF            |            | 50           | Sandy Silt (ML) Similar to above, dense, fine grain sand lenses present, rusty brown and tan |     | ed Joints Pellets Cement/Bentonite Grout  |
| 37-         |              |       |                             |            | 4.4<br>62ºF            |            | 50           | Silty Sand (SM) Fine grain, compact, damp, light greenish gray                               | 001 | 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints  By Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints  By Sch. 40 PVC Slotted Joints  Cement/S |
| 39          |              |       |                             |            | 5.3<br>63ºF            |            | 90           | Silty Sand (SM) Similar to above, slightly cemented, black organics present, gray sand       | 38' | Screen w/Th   |
| 41          |              |       |                             |            | 3.3<br>71ºF            |            | 90           | Silty Sand (SM) Similar to above, trace clay   | 42' | . 40 PVC Slotted 0.01" Scree  |
| 43          |              |       |                             |            |                        |            | 0            | Silty Sand (SM) Similar to above   | 42  | sch. 40 PVC §   |
| 45          |              |       |                             |            | 3.3<br>73ºF            |            | 20           | Silty Sand (SM) Similar to above   |     | .4  |
| 47          |              |       |                             |            |                        |            | 0            | Silty Sand (SM)<br>Similar to above  |     |   |
| 49          |              |       |                             |            | 2.3<br>84ºF            |            | 50           | Silty Sand (SM) Fine grain, poorly cemented, damp, light greenish gray                       |     |   |
| RP:<br>404  | S<br>Camp    | Craft | Road                        |            |                        |            |              | Sheet: 3 of 4  |     | 512/347-75 <sup>th</sup>  |



Well No.: MW-62 (AOC 23 -1)

Total Depth: 58.25' bgl

Start Date: 4/21/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #3, Bloomfield Refinery

Ground Water: Saturated @ 55' bgl Elev., TOC (ft. msl): 5561.322 Elev., PAD (ft. msl): 5558.703 Elev., GL (ft. msl): 5558.555 Finish Date: 4/21/2009

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: Enviro-Drill, Inc. Elev., C Drilling Rig: CME 75 Site Co

Site Coordinates: N 36º41'43.02125"

W 107º58'07.46590"

**Drilling Method:** Hollow-Stem Auger/ODEX **Sampling Method:** Split Spoon

Comments: N36º41.717' W107º58.123'

|                           |                       | S     | Sam                         | plir             | ng                     |            |              |  |   | ·                   |
|---------------------------|-----------------------|-------|-----------------------------|------------------|------------------------|------------|--------------|--|---|---------------------|
| Depth (ft.)               | Sample Depth          | Time  | Sample<br>Type/Container/No | Saturation       | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Completion Results  |                     |
| 111                       |                       |       |                             |                  |                        |            |              |  |   |                     |
| 51                        |                       |       |                             |                  | 3.8<br>82ºF            |            | 90           | Silty Sand (SM) Similar to above, trace clay, poorly cemented, standstone present  | ded Joints -  | bgl                 |
| -<br>-<br>-<br>-          | 52-<br>53'            |       | G/2V/                       |                  | 4.4                    |            | 90           | Silty Sand (SM)<br>Similar to above  | VC C  | @ 55 <sub>'</sub>   |
| 53 <del> </del><br>-<br>- | 53                    |       | 2E/3J                       |                  | 83ºF                   |            | 10           | Silty Sand (SM)<br>Similar to above  | n. 40 F   | Saturated @ 55' bgl |
| 55                        |                       |       |                             | <br> }4 <b> </b> |                        | , ° (      | 90           | Silty Sand/Sand (SM/SW)  Medium to coarse grain, loose, moist to saturated at 55' bgl  | 0.01" Scr   | il Sat              |
| ; <b>7</b>                |                       |       |                             | _                |                        |            | 90           | Silty Sand (SM) Similar to above, saturated, brown to yellowish brown Nacimiento Formation Silt/Shale (ML) Very dense, dry, black, no odor | 40 PVC Slotted 0.01" Screen w/Threaded Joints 40 PVC Slotted 0.01" Screen w/Threaded Joints 4" Flush Threaded Sch. 40 PVC Cap |                     |
| 91111                     |                       |       |                             |                  |                        |            |              | Total Depth = 58.25' BGL   | 15' of 4" Sch. 40<br>6" Sand Bed 7 25.22<br>8" Well Sump  |                     |
| 1111111                   |                       |       |                             |                  |                        |            |              |  | o <del>-</del>  |                     |
| 31111                     |                       |       |                             |                  |                        |            |              |  |   |                     |
| 5 1 1 1 1 1               |                       |       |                             |                  |                        |            |              |  |   |                     |
| 3P3<br>104<br>103         | S<br>Camp<br>tin, Tex | Craft | Road                        |                  |                        |            |              | Sheet: 4 of 4  | 512/347-7588<br>512/347-8243 f  | ax                  |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.723' W107º58.276'

# **LOG OF BORING**

512/347-8243 fax

Boring No.: AOC 24-1 Start Date: 4/23/2009 Finish Date: 4/23/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5551.597

Total Depth: 2' bgl

Site Coordinates: N 36º41'43.33506"

**Ground Water:** Not Encountered

W 107º58'16.48842"

|                                       |                | Sa     | amp                          | lin        | g                      |            |              |  |                     |
|---------------------------------------|----------------|--------|------------------------------|------------|------------------------|------------|--------------|--|---------------------|
| Depth (ft.)                           | Sample Depth   | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                               | Depth (ft.)         |
|                                       |                |        |                              |            |                        |            |              | Ground Surface                                   | 0                   |
| 0   1   1   1   1   1   1   1   1   1 | 0.5'           |        | G/2V/<br>2E/3J               |            | 3.3<br>60ºF            |            | 100          | Silt (ML)<br>Very fine grain, loose, damp, brown |                     |
| 2-                                    | 1.5-           |        | G/2V/<br>2E/3J               |            | 3.9<br>60ºF            |            |              | Total Depth = 2' BGL                             |                     |
| 4   1   1   1   1   1   1   1   1   1 |                |        |                              |            |                        |            | :            | Total Sopiul - 2 Soci                            | -4                  |
| 6                                     |                |        |                              | :          |                        |            |              |  | 6                   |
| 8   1   1   1   1   1   1   1   1   1 |                |        |                              |            |                        |            |              | ·  | -8<br>8<br><br><br> |
| 10-                                   |                |        |                              |            |                        |            |              |  |                     |
| -                                     |                |        |                              |            |                        |            |              |  | E                   |
| RF<br>40                              | PS<br>4 Camp C | raft F | load                         |            | l .                    | J          | <u></u>      | Sheet: <b>1 of 1</b> 512/347-8                   |                     |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

404 Camp Craft Road Austin, Texas 78746

Driller: N/A
Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36°41.716' W107°58.278'

# **LOG OF BORING**

512/347-7588

512/347-8243 fax

Boring No.: AOC 24-2 Start Date: 4/23/2009 Finish Date: 4/23/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5551.416

**Ground Water:** Not Encountered

Total Depth: 2' bgl

Site Coordinates: N 36º41'42.90086"

W 107º58'16.48495"

|             |                | Sa       | amp                          | ling       | g                      |            |              |  |             |
|-------------|----------------|----------|------------------------------|------------|------------------------|------------|--------------|--|-------------|
| Depth (ft.) | Sample Depth   | Time     | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                                     | Depth (ft.) |
| 0-          | <del></del> 0- |          |                              |            |                        |            |              | Ground Surface   | -0          |
| 0-          | 0-             | 0930     | G/2V/<br>2E/3J               |            | 2.7<br>62ºF            |            | 100          | Clayey Silt (ML) Very fine grain, compact, damp, brown |             |
|             | 1.5-<br>2'     | 0940     | G/2V/                        |            | 4.1                    |            | İ            |  | -           |
| 2           | <del></del> 2' |          | 2E/3J                        |            | 62ºF                   |            |              |  | 2 I         |
|             |                |          |                              |            |                        |            |              |  | -<br>-      |
|             |                |          |                              |            |                        |            |              |  | -           |
| 4-          |                |          |                              |            |                        |            |              |  | -4          |
|             |                |          |                              |            |                        |            |              |  | _<br>_<br>_ |
|             |                |          |                              |            |                        |            |              |  |             |
| 6-          |                |          |                              |            |                        |            |              |  | -6          |
|             |                |          |                              |            |                        |            |              |  | -           |
| -           |                |          |                              |            |                        |            |              |  | -           |
| 8-          |                |          |                              |            |                        |            |              |  | -<br>-8     |
|             |                |          |                              |            |                        |            |              |  | E           |
|             |                |          |                              |            |                        |            |              |  | E           |
| 10-         |                |          |                              |            |                        |            |              |  | -<br>-10    |
|             | 1              |          |                              |            |                        |            |              |  | -           |
|             |                |          |                              |            |                        |            |              |  |             |
| 12-         |                |          |                              |            |                        |            |              |  | -<br>-<br>- |
| '-          |                |          |                              |            |                        |            |              |  | [ '4        |
|             |                |          |                              |            |                        |            |              |  | E           |
| RF          |                | <u> </u> |                              |            |                        | <u> </u>   |              | F10/017 7500   |             |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A **Drilling Method:** Hand Auger

Sampling Method: Auger Bucket Comments: N36º41.722' W107º58.288'

# **LOG OF BORING**

Boring No.: AOC 24-3 Start Date: 4/23/2009

Ground Water: Not Encountered Finish Date: 4/23/2009 Elev., TOC (ft. msl): --

Elev., GL (ft. msl): 5550.986

Total Depth: 2' bgl

Elev., PAD (ft. msl): --

Site Coordinates: N 36º41'42.89601"

W 107º58'17.40801"

|                |                              | Sa              | amp                          | lin        | g                      |                     |              |  |  |
|----------------|------------------------------|-----------------|------------------------------|------------|------------------------|---------------------|--------------|--|--|
| Depth (ft.)    | Sample Depth                 | Time            | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class          | Recovery (%) | Sample Description   | Depth (ft.)                                |
| 0-             | O-                           |                 |                              |            |                        | The Transference of |              | Ground Surface   | -0   |
|                | 0-                           | 1000            | G/2V/<br>2E/3J               |            | 1.7<br>65ºF            |                     | 100          | Gravelly Silty Sand (SM/SP) Fine grain, compact, damp, brown | -<br>-                                     |
| -              | 1.5-                         | 1010            | G/2V/                        |            | 7.7                    |                     |              |  | -<br> -<br> -<br> -                        |
| 2-             | <del></del> 2'               |                 | 2E/3J                        |            | 65ºF                   |                     |              | Total Depth = 2' BGL   | 2  |
| 4              |                              |                 |                              |            |                        |                     |              |  | 4  |
| 6-             |                              |                 |                              |            |                        |                     |              |  | -6<br> -                                   |
| 8-             |                              |                 | :                            |            |                        |                     |              |  | <br>                                       |
| 10-            |                              |                 |                              |            |                        |                     |              |  |  |
| 12-            |                              |                 |                              |            |                        |                     |              |  | -<br>-<br>12<br>-<br>-<br>-<br>-<br>-<br>- |
| RF<br>40<br>Au | S<br>4 Camp C<br>Istin, Texa | raft F<br>s 787 | load<br>'46                  |            |                        |                     |              | Sheet: 1 of 1  | 512/347-7588<br>512/347-8243 fax           |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.717' W107º58.303'

# **LOG OF BORING**

Boring No.: AOC 24-4 Start Date: 4/23/2009 Finish Date: 4/23/2009

**Ground Water:** Not Encountered Elev., TOC (ft. msl): --

Total Depth: 2' bgl

Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5550.914

Site Coordinates: N 36º41'42.89208"

W 107º58'18.26308"

|   |                              | Sa              | amp                          | lin        | g                      |   |              |   |   |              |
|---|------------------------------|-----------------|------------------------------|------------|------------------------|---|--------------|---|---|--------------|
| Depth (ft.)                             | Sample Depth                 | Time            | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class                              | Recovery (%) | Sample Description  | Donth (#)   | Deptin (11.) |
| 0-                                      | ······ 0-                    |                 |                              |            |                        | -1-1-1-1-1-0-1-0-1-0-1-0-1-0-1-0-1-0-1- |              | Ground Surface  |   |              |
| 1111                                    | 0-                           | 1030            | G/2V/<br>2E/3J               |            | 3.9<br>70ºF            |   | 100          | Gravelly Silty Sand (SM/SP) Fine grain, loose to compact, damp, brown | - \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \   |              |
| ] =                                     | 1.5-                         | 1040            | G/2V/                        | ı          | 6.4                    |   |              |   | -   | ļ            |
| 2-                                      | 2'<br>&Dup                   |                 | 2E/3J                        |            | 70ºF                   | 4040101000000                           | 1            | Total Depth = 2' BGL  |   | 2            |
| 4-1                                     |                              |                 |                              |            |                        |   |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | 4            |
| 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |                              |                 |                              |            |                        |   |              |   |   | ŝ            |
| 8-                                      |                              |                 |                              |            |                        |   |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  | 3            |
| 10-                                     |                              |                 |                              |            |                        |   |              |   |   | 10           |
| 12-                                     |                              |                 |                              |            |                        |   |              |   | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                               | 12           |
| RF<br>40<br>Au                          | PS<br>4 Camp C<br>stin, Texa | raft R<br>s 787 | Road<br>'46                  |            | 1                      | I                                       | 1            | Sheet: 1 of 1   | 512/347-7588<br>512/347-8243 fax  |              |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Austin, Texas 78746

Drilling Method: Hollow Stem Augers Sampling Method: Split Spoon

Comments: N36º41.724' W107º58.304'

# **LOG OF BORING**

512/347-8243 fax

Boring No.: AOC 24-5 Start Date: 4/8/2009 Finish Date: 4/8/2009

**Ground Water:** Not Encountered Elev., TOC (ft. msl): --

Total Depth: 10' bgl

Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5550.721

Site Coordinates: N 36º41'43.44358"

W 107º58'18.28355"

|             |                    | Sa     | amp                          | lin        | g                      |            |              |  |   |
|-------------|--------------------|--------|------------------------------|------------|------------------------|------------|--------------|--|---|
| Depth (ft.) | Sample Depth       | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | (#)   |
| 0-          | O-                 |        |                              |            |                        |            |              | Ground Surface   |   |
| -           | 0-<br>0.5'<br>&Dup | 1100   | G/2V/<br>2E/3J               |            | 1.2<br>69ºF            |            | 100          | Silt (ML) Very fine grain, compact, dry, brown, gravelly               | -<br> -<br> -<br> -<br> -   |
|             | 1.5-               | 1200   | G/2V/                        |            | 6.0                    |            |              |  |   |
| 2-          |                    |        | 2E/3J                        |            | 69ºF                   |            |              | Clayey Silt (ML) Low plasticity, very fine grain, compact, damp, brown |   |
| -           | 11                 |        |                              |            | 5.4                    |            | 100          | 200 placeton, 100, 1110 g. a.i., 2011.paci, 2211.p, 21011.             | -   |
| 4-          |                    |        |                              |            | 69ºF                   |            |              |  |   |
| -           |                    |        |                              |            | 6.4<br>69ºF            |            | 100          | Clayey Silt (ML)<br>Similar to above                                   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 6-          |                    |        |                              |            | 7.8<br>69ºF            |            | 50           | Clayey Silt (ML)<br>Similar to above                                   |   |
| 8           |                    |        |                              |            | 5.9<br>69ºF            |            | 100          | Clayey Silt (ML) Similar to above, trace of very fine grain sand       |   |
| 10-         |                    |        |                              |            |                        |            |              | Total Depth = 10' BGL  |   |
| 12-         |                    |        |                              |            |                        |            |              |  |   |
| RF<br>40    | S<br>4 Camp C      | raft F | Road                         |            |                        |            |              | Sheet: 1 of 1  | 512/347-7588<br>512/347-8243 fax  |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Austin, Texas 78746

**Drilling Method:** Hollow Stem Augers Sampling Method: Split Spoon

Comments: N36º41.728' W107º58.287'

#### LOG OF BORING

512/347-8243 fax

Boring No.: AOC 24-6 Start Date: 4/8/2009 Finish Date: 4/8/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5552.073

Total Depth: 10' bgl

**Site Coordinates: N** 36º41'43.67391"

**Ground Water:** Not Encountered

W 107º58'17.17320"

|  |                | Sa   | amp                          | lin        | g                      |            |              |   |             |
|--|----------------|------|------------------------------|------------|------------------------|------------|--------------|---|-------------|
| Depth (ft.)                              | Sample Depth   | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Depth (ft.) |
| 0-                                       | O-             |      |                              |            |                        |            |              | Ground Surface  | -0          |
|  | 0-             | 1255 | G/2V/<br>2E/3J               |            | 0.3<br>74ºF            |            | 100          | Silt (ML) Low plasticity, very fine grain, loose to compact, dry, brown, black nodule of asphaltic material, no staining of the soil was observed |             |
| 2  | 1.5-<br>2'     | 1315 | G/2V/                        |            | 5.0                    |            |              |   |             |
|  | _              |      | 2E/3J                        |            | 74ºF                   |            |              | Clayey Silt (ML) Similar to above, clayey   | Ė.          |
|  |                |      |                              |            | 4.8                    |            | 80           | , ,   | E           |
|  |                |      |                              |            | 74ºF                   |            |              |   | E           |
| 4-7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1- |                |      |                              |            | 4.9<br>74ºF            |            | 80           | Clayey Silt (ML) Similar to above   | 4           |
| 6  |                |      |                              |            | 2.0<br>74ºF            |            | 80           | Clayey Silt (ML)<br>Similar to above  | 6           |
| 8-1111111                                |                |      |                              |            | 5.3<br>74ºF            |            | 100          | Clayey Silt (ML) Similar to above, trace of very fine grain sand  | -8          |
| 10                                       |                |      |                              |            |                        |            |              | Total Depth = 10' BGL   |             |
| 12-                                      |                |      |                              |            |                        |            |              |   |             |
|  | PS<br>4 Camp C |      |                              |            |                        |            |              | Sheet: <b>1 of 1</b> 512/347-758  |             |



Well No.: MW-64 (AOC 24 -7)

512/347-8243 fax

Start Date: 4/7/2009 Finish Date: 4/7/2009

Client: Western Refining Southwest, Inc.

Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Austin, Texas 78746

Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Comments: N36º41.736' W107º58.304'

Total Depth: 50.25' bgl **Ground Water:** Not Encountered

Elev., TOC (ft. msl): 5552.285 Elev., PAD (ft. msl): 5549.043 Elev., GL (ft. msl): 5549.111

**Site Coordinates:** 

N 36º41'44.02863"

W 107º58'18.35629"

|             |                  | 5     | Sam                         | plin       | ıg                     |            |              |   |                           |  |  |
|-------------|------------------|-------|-----------------------------|------------|------------------------|------------|--------------|---|---------------------------|--|--|
| Depth (ft.) | Sample Depth     | Time  | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |                           | Comp                                     | eletion Results                              |
| -2-         |                  |       | C/0V/                       |            |                        |            |              | Ground Surface  | tive Cover                |  |  |
| -           | 0-<br>0.5'<br>   |       | G/2V/<br>2E/3J<br>G/2V/     |            | 0.4<br>57ºF            |            | 100          | Clayey Silt (ML) Low plasticity, stiff, damp, brown                   | Aluminum Protective Cover | Pad - 4'x4'x6"                           | 3orehole                                     |
| 2-          | 2'               |       | 2E/3J                       |            | 0.4<br>57ºF            |            | 60           | Clayey Silt (ML)<br>Similar to above                                  | Alc                       | Steel Reinforced Concrete Pad - 4'x4'x6" | aded Joints J                                |
| 4-          |                  |       |                             |            | 0.2<br>57ºF            |            | 90           | Sandy Silt (ML) Low plasticity, fine grain sand, compact, damp, brown |                           | Steel Reinfor                            | 4" Sch. 40 PVC w/Threaded Joints <sup></sup> |
| 6-          |                  |       |                             |            | 0.3<br>57ºF            |            | 60           | Sandy Silt (ML)<br>Similar to above                                   |                           |  | 4" Sch. c                                    |
| 8-          |                  |       |                             |            | 0.4<br>57ºF            |            | 70           | Sandy Silt (ML)<br>Similar to above                                   |                           | Cement/Bentonite Grout                   |  |
| 10-         |                  | :     |                             |            | 0.3<br>57ºF            |            | 90           | Clayey Silt (ML)<br>Low plasticity, firm, damp, brown                 |                           | Cement/Ben                               |  |
| RP          | l<br>S<br>I Camp | Craft | Road                        | <u> </u>   |                        |            |              | Sheet: 1 of 4   | 1                         |  | 512/347-7588                                 |



Well No.: MW-64 (AOC 24 -7)

Start Date: 4/7/2009

Finish Date: 4/7/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

**Drilling Method:** Hollow-Stem Auger **Sampling Method:** Split Spoon

Comments: N36º41.736' W107º58.304'

Elev., TOC (ft. msl): 5552.285

Total Depth: 50.25' bgl

Elev., PAD (ft. msl): 5549.043 Elev., GL (ft. msl): 5549.111

**Ground Water:** Not Encountered

**Site Coordinates:** 

N 36º41'44.02863"

W 107º58'18.35629"

|             |              | S    | Sam                         | plir       | ng                     |            |              |   |                                  |
|-------------|--------------|------|-----------------------------|------------|------------------------|------------|--------------|---|----------------------------------|
| Depth (ft.) | Sample Depth | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Completion Results               |
|             |              |      |                             |            | 0.4<br>57ºF            |            | 80           | Sandy Silt (ML) Low plasticity, fine grain sand, compact, damp, brown, trace gravel |                                  |
| 14-         |              |      |                             |            | 0.4<br>57ºF            |            | 20           | Sandy Silt (ML)<br>Similar to above   |                                  |
| 16          |              |      |                             |            | 0.1<br>57ºF            |            | 100          | Sandy Silt (ML)<br>Similar to above   | /Threaded Joints T               |
| 18-         |              |      |                             |            | 0.5<br>57ºF            |            | 100          | Sandy Silt (ML)<br>Similar to above, loose, more sand                               | 4" Sch. 40 PVC w/Threaded Joints |
| 20 -        |              |      |                             |            | 0.3<br>57ºF            |            | 100          | Silty Sand (SM)<br>Very fine grain, loose, damp, brown                              | 4" Sch. 40 PVC                   |
| 24          |              |      |                             |            | 0.1<br>57ºF            |            | 100          | Silty Sand (SM) Similar to above, light brown/tan                                   |                                  |
|             |              |      |                             |            | 0.1<br>57ºF            |            | 100          | Silty Sand (SM)<br>Similar to above   |                                  |
| 26          |              |      |                             |            |                        |            |              | Silty Sand (SM)<br>Similar to above   |                                  |

RPS 404 Camp Craft Road Austin, Texas 78746

Sheet: 2 of 4

512/347-7588 512/347-8243 fax



Well No.: MW-64 (AOC 24 -7)

Start Date: 4/7/2009

Finish Date: 4/7/2009

Client: Western Refining Southwest, Inc. Total Depth: 50.25' bgl Site: SWMU Group #3, Bloomfield Refinery **Ground Water:** Not Encountered

> Elev., TOC (ft. msl): 5552.285 Elev., PAD (ft. msl): 5549.043 Elev., GL (ft. msl): 5549.111

> > Site Coordinates:

N 36º41'44.02863" W 107º58'18.35629"

**Drilling Rig:** CME 75 Drilling Method: Hollow-Stem Auger Sampling Method: Split Spoon

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: Enviro-Drill, Inc.

Comments: N36º41.736' W107º58.304'

|              |              | S    | am                          | plin       | g                      |            |              |   |        |   |
|--------------|--------------|------|-----------------------------|------------|------------------------|------------|--------------|---|--------|---|
| Depth (ft.)  | Sample Depth | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |        | Completion Results                      |
| 28           |              | i    |                             |            | 0.1<br>57ºF            |            | 100          |   |        |   |
|              |              |      | ٠                           |            | 0.3<br>57ºF            |            | 100          | Silty Sand (SM)<br>Very fine grain, loose, damp, tan                          | 28.5'  |   |
| 30-          |              |      |                             |            | 0.2<br>57ºF            |            | 100          | Silty Sand (SM)<br>Similar to above, decrease in silt                         | 31.75' | ded Joints                              |
| 32           |              |      |                             |            | 0.4<br>57ºF            |            | 100          | Silty Sand (SM)<br>Similar to above   |        | @ [:::i   :::i                          |
| 34-          |              |      |                             |            | 0.9<br>57ºF            |            | 100          | Silty Sand (SM)<br>Similar to above   | 34'    | ed 0.01" Scree                          |
| 36-          |              |      |                             |            | 3.4<br>57ºF            |            | 100          | Silty Sand (SM) Fine grain, compact, damp, brown, trace gravelly sand at base |        | Sch. 40 PVC Slotted 0.01" Screen w/Thre |
| -            |              |      |                             |            |                        | 2 ° ° ° °  | 0            | Gravelly Sand (SW)  |        | ‡ }···⊨≕··· o                           |
| -<br>40<br>- |              |      |                             |            | 4.4<br>68ºF            |            | 50           | Gravelly Sand (SW) Medium to coarse grain, loose, damp, brown, coarse gravel  |        |   |
| =            | 39-<br>42'   |      | G/2V/<br>2E/3J              |            | 1.2<br>68ºF            |            | 50           | Gravelly Sand (SW)<br>Similar to above  |        |   |

404 Camp Craft Road Austin, Texas 78746

Sheet: 3 of 4

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Well No.: MW-64 (AOC 24 -7)

Start Date: 4/7/2009 Finish Date: 4/7/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Drilling Method: Hollow-Stem Auger

Sampling Method: Split Spoon

Comments: N36º41.736' W107º58.304'

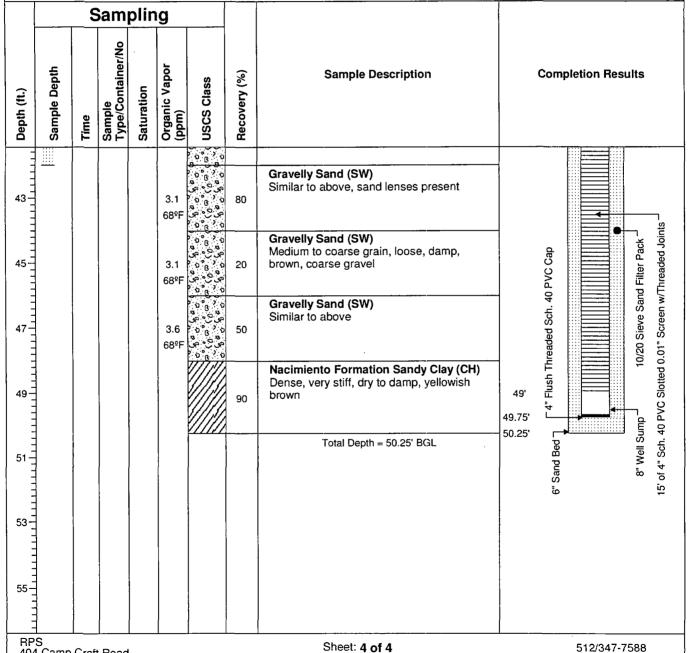
Total Depth: 50.25' bgl Ground Water: Not Encountered

Elev., TOC (ft. msl): 5552.285 Elev., PAD (ft. msl): 5549.043 Elev., GL (ft. msl): 5549.111

**Site Coordinates:** 

N 36º41'44.02863"

W 107º58'18.35629"



404 Camp Craft Road Austin, Texas 78746

Sheet: 4 of 4

512/347-8243 fax



**LOG OF BORING** 

512/347-8243 fax

Boring No.: AOC 25-1 Start Date: 4/23/2009 Total Depth: 2' bgl

**Ground Water:** Not Encountered Finish Date: 4/23/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.741' W107º58.429' Elev., TOC (ft. msl): --

Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5544.772

**Site Coordinates:** 

**N** 36º41'44.32802" **W** 107º58'25.68687"

|                 |                | Sa     | amp                          | lin        | g                      |            |              |  |   |
|-----------------|----------------|--------|------------------------------|------------|------------------------|------------|--------------|--|---|
| Depth (ft.)     | Sample Depth   | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Douth (#)                               |
|                 |                |        |                              |            | <del> </del>           |            |              | Ground Surface   | -0                                      |
| 0-              | 0-             | 1600   | G/2V/<br>2E/3J               |            | 5.5<br>82ºF            |            | 100          | Gravelly Silty Sand (SM) Fine grain, compact, dry to damp, brown |   |
| -               | 1.5-           | 1610   | G/2V/                        |            | 5.5                    |            |              |  | =                                       |
| 2-              | 2'             | 1010   | 2E/3J                        | ł .        | 82ºF                   |            |              | Total Depth = 2' BGL   | <del></del> 2                           |
| =               |                |        |                              |            |                        |            |              | · • • • • • • • • • • • • • • • • • • •                          | Ē.                                      |
| =               |                |        |                              |            |                        |            |              |  | -                                       |
| 4-              |                |        |                              |            |                        |            |              |  |   |
|                 |                |        |                              |            |                        |            |              |  | Ė.                                      |
| =               |                |        |                              |            |                        |            |              |  | E                                       |
| =               |                |        |                              |            |                        |            |              |  | E                                       |
| 6-              |                |        |                              |            |                        |            |              |  | -6                                      |
| -               |                |        |                              |            |                        |            |              |  |   |
| =               |                |        |                              |            |                        |            |              |  | E                                       |
| 8-              |                |        |                              |            |                        |            |              |  | -8                                      |
| =               |                |        |                              |            |                        |            |              | •  |   |
| -               |                |        |                              |            |                        |            |              |  | =                                       |
|                 |                |        |                              |            |                        |            |              |  | Ē,                                      |
| 10 <del>-</del> |                | '      |                              |            |                        |            |              |  | [-1<br>-                                |
| -               |                |        |                              |            |                        |            |              |  | -                                       |
| -               |                |        |                              |            |                        |            |              |  | <u></u>                                 |
| 12-             |                |        |                              |            |                        |            |              |  | 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| -               |                |        |                              |            |                        |            |              |  | -                                       |
| -               |                |        |                              |            |                        |            |              |  | E                                       |
| RI              | PS<br>4 Camp C | J      |                              | I          | I                      |            | l            |  | 512/347-7588                            |
| 40              | 4 Camp C       | ratt H | load                         |            |                        |            |              | Sheet: <b>1 of 1</b>   | 512/347-8243 fax                        |



Well No.: MW-60 (AOC 25 -2)

512/347-7588

512/347-8243 fax

Start Date: 4/5/2009 Finish Date: 4/5/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

404 Camp Craft Road

Austin, Texas 78746

Sampling Method: Split Spoon

**Drilling Method:** Hollow-Stem Auger/ODEX

Comments: Hydroexcavated to 8' bgl. N36º41.754' W107º58.434'

Elev., PAD (ft. msl): 5544.003 Elev., GL (ft. msl): 5544.007 Site Coordinates:

Total Depth: 45.5' bgl

Ground Water: Not Encountered

Elev., TOC (ft. msl): 5543.711

N 36º41'45.37028"

W 107º58'25.98617"

|             |              | S            | Sam                         | plir       | ng                     |            |              |  |   |
|-------------|--------------|--------------|-----------------------------|------------|------------------------|------------|--------------|--|---|
| Depth (ft.) | Sample Depth | Time         | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Completion Results  |
| -2-         |              |              | CANA                        |            |                        |            |              | Ground Surface   | ve Cover  |
| 0           | —0.5<br>&Dup | 1645<br>1700 | 4E/6J<br>G/2V/              |            | 0.1<br>53ºF            |            | 100          | Clayey Silt (ML) Low plasticity, very soft, damp, brown        | Aluminum Protective Cover rete Pad - 4'x4'x6" The state Pad - 4'x4'x6" The state Pad - 4'x4'x6" The state Pare Porehole |
| 2           | 2'           |              | 2E/3J                       |            | 0.1<br>53ºF            |            | 100          | Clayey Silt (ML)<br>Similar to above                           | Aluminum Protecti Steel Reinforced Concrete Pad - 4'x4'x6" 40 PVC w/Threaded Joints 8" Diameter Borehole                |
| 4-          |              |              |                             |            |                        |            | 0            | Clayey Silt (ML)<br>Similar to above, no recovery              | Alumi Steel Reinforced Concrete P 4" Sch. 40 PVC w/Threaded Joints 7  |
| 6-          |              |              |                             |            | 0.1<br>53ºF            |            | 100          | Clayey Silt (ML)<br>Similar to above                           | Stee.   |
| 8-          |              | İ            |                             |            | 0.0<br>43ºF            |            | 90           | Clayey Silt (ML) Low plasticity, very soft, damp, brown        | onite Grout   |
| 10-         |              |              |                             |            | 0.0<br>43ºF            |            | 80           | Clayey Silt (ML)<br>Similar to above                           | Cement/Bentonite Grout  |
| 12-         |              |              |                             |            | 0.1<br>43ºF            |            | 100          | Silty Sand (SM) Very fine grain, loose to compact, damp, brown |   |
| 14-<br>BP   |              |              |                             |            |                        |            |              |  |   |



Well No.: MW-60 (AOC 25 -2)

Start Date: 4/5/2009 Finish Date: 4/5/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Sampling Method: Split Spoon

**Drilling Method:** Hollow-Stem Auger/ODEX

Comments: Hydroexcavated to 8' bgl. N36º41.754' W107º58.434'

Ground Water: Not Encountered

Elev., TOC (ft. msl): 5543.711 Elev., PAD (ft. msl): 5544.003 Elev., GL (ft. msl): 5544.007

Site Coordinates:

Total Depth: 45.5' bgl

N 36º41'45.37028"

W 107º58'25.98617"

|             |              | 5    | Sam                         | plir       | ng                     |            |              |  |        |  |            |                   |                                     |
|-------------|--------------|------|-----------------------------|------------|------------------------|------------|--------------|--|--------|--|------------|-------------------|-------------------------------------|
| Depth (ft.) | Sample Depth | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   |        | Com  | pletion Re | sults             |                                     |
| 101         |              |      |                             |            | 0.0<br>43ºF            |            | 90           | Silty Sand (SM) Very fine grain, loose to compact, damp, brown |        |  |            |                   |                                     |
| 16-         |              |      |                             |            | 0.2<br>43ºF            |            | 90           | Silty Sand (SM)<br>Similar to above                            |        | oints  | -          |                   | onite Grout <sup>J</sup>            |
| 18-         |              |      |                             |            | 0.4<br>43ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            |        | Sch. 40 PVC w/Threaded Joints ed Joints              |            |                   | Cement/Bentonite Grout <sup>–</sup> |
| 20-         |              |      |                             |            | 0.1<br>43ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            |        | ch. 40 PVC w<br>Joints                               |            |                   | J                                   |
| 22-         |              |      |                             |            | 0.3<br>44ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            |        | 4" Sch. 40 AC Slotted 0.01" Screen w/Threaded Joints |            | Bentonite Pellets |                                     |
| 24-         | :            |      |                             |            | 0.4<br>44ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            | 24.5'  | 0.01" Screen   |            | Bentonit          | Filter Pack                         |
| 26-         |              |      |                             |            | 0.3<br>44ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            | 26.5'  | PVC Slotted  |            |                   | 10/20 Sieve Sand Filter Pack        |
| 28-         |              |      |                             |            | 0.2<br>44ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            | 28.75' | -4" Sch. 40 l  |            |                   | L 10/20                             |
| 30-         |              |      |                             |            | 0.1<br>44ºF            |            | 100          | Silty Sand (SM)<br>Similar to above                            |        |  |            |                   |                                     |

RPS 404 Camp Craft Road Austin, Texas 78746

Sheet: 2 of 3

512/347-7588 512/347-8243 fax



Start Date: 4/5/2009

Well No.: MW-60 (AOC 25 -2)

Client: Western Refining Southwest, Inc.

Total Depth: 45.5' bgl

Site: SWMU Group #3, Bloomfield Refinery

Ground Water: Not Er

Ground Water: Not Encountered Finish Date: 4/5/2009 Elev., TOC (ft. msl): 5543.711 Elev., PAD (ft. msl): 5544.003

Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

Site Coordinates:

Elev., GL (ft. msi): 5544.007

N 36º41'45.37028" W 107º58'25.98617"

Sampling Method: Split Spoon

**Drilling Method:** Hollow-Stem Auger/ODEX

Comments: Hydroexcavated to 8' bgl. N36º41.754' W107º58.434'

|                  | · · ·                   | 5             | Sam                         | plir       | ıg                     |                                  |              |  |   |                                  |
|------------------|-------------------------|---------------|-----------------------------|------------|------------------------|----------------------------------|--------------|--|---|----------------------------------|
| Depth (ft.)      | Sample Depth            | Time          | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class                       | Recovery (%) | Sample Description   | Comp  | pletion Results                  |
|                  |                         |               |                             |            |                        |                                  |              |  |   |                                  |
| 33-              |                         |               | ,                           |            | 3.6<br>44ºF            |                                  | 100          | Silty Sand (SM) Very fine grain, loose to compact, damp, brown   | oints   | <b>-</b>                         |
|                  |                         |               |                             |            |                        |                                  |              | Sand (SP) Fine to medium grain, loose, damp, brown   | ided Jo   |                                  |
| 35               |                         |               |                             |            | 2.5<br>44ºF            | ه دی<br>می ده دی                 | 100          | Gravelly Sand (SW)  Medium to coarse grain, compact, damp,   | /Threa  | ) ack                            |
| 37               | 36-<br>38'              | 1715          | G/2V/<br>2E/3J              |            | 4.2<br>44ºF            | 0°6'0<br>0'6'0<br>0'6'0<br>0'6'0 | 80           | brown, coarse to fine gravel  Gravelly Sand (SW)  Similar to above                                     | 5' of 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints eaded Sch. 40 PVC Cap |                                  |
|                  |                         |               |                             |            |                        | 08,00                            | 10           | Gravelly Sand (SW)<br>Similar to above   | tted 0.0  | Sieve                            |
| 39               |                         |               |                             |            |                        | 0°6'0                            | 0            | Gravelly Sand (SW) Similar to above, no recovery   | /C Slol   | 10/20                            |
| 41               |                         |               |                             |            |                        | ۵°،۵°<br>می ۲۰۰۵<br>۵°،۵°،۵°     | 50           | Gravelly Sand (SW)<br>Similar to above   | ich. 40 P\  |                                  |
| 43               |                         |               |                             |            |                        |                                  | 0            | Gravelly Sand (SW) Similar to above, no recovery   | 54.<br>54.<br>54.<br>15° of 4" Sch. 40 PVC Slo<br>Flush Threaded Sch. 40 PVC Cap  |                                  |
| 45               |                         |               |                             |            |                        |                                  | 100          | Nacimiento Formation Weathered Sandstone/Sandstone (SS) Fine grain, dense, damp, light yellowish brown | 45' +   | dwn                              |
| 47               |                         |               |                             |            |                        |                                  |              | Total Depth = 45.5' BGL  | 45.5'   | 8" Well Sump                     |
| RP<br>404<br>Aus | S<br>I Camp<br>stin, Te | Craf<br>xas 7 | Road<br>8746                | <u> </u>   |                        |                                  |              | Sheet: 3 of 3  |   | 512/347-7588<br>512/347-8243 fax |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

Austin, Texas 78746

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.815' W107º58.249'

# **LOG OF BORING**

512/347-8243 fax

Boring No.: AOC 26-1 Start Date: 4/20/2009

Finish Date: 4/20/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5540.088

**Ground Water:** Not Encountered

Site Coordinates: N 36º41'48.90866"

W 107º58'14.97772"

|             |               | Sa     | amp                          | lin        | g                      |            |              |  |   |
|-------------|---------------|--------|------------------------------|------------|------------------------|------------|--------------|--|---|
| Depth (ft.) | Sample Depth  | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                                     | Depth (ft.)   |
| 0-          | O-            |        |                              |            |                        |            |              | Ground Surface   | -0  |
|             | 0-            |        | G/2V/<br>2E/4J<br>G/2V/      |            | 5.6<br>72ºF<br>3.5     |            | 100          | Clayey Silt (ML) Very fine grain, compact, damp, brown | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   |
| 2           |               |        | 2E/4J                        |            | 72ºF                   |            |              | Total Depth = 2' BGL                                   | -2<br>  |
| 6-          |               |        |                              |            |                        |            |              |  | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 8-          |               |        |                              |            |                        |            |              |  | -<br>-<br>-<br>8<br>-<br>-<br>-<br>-  |
| 10-         |               |        |                              |            |                        |            |              |  |   |
| 12-         |               |        |                              |            |                        |            |              |  | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-           |
| RF<br>40    | S<br>4 Camp C | raft F | Road                         |            |                        | •          |              | Sheet: 1 of 1  | 12/347-7588   |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.811' W107º58.247'

# **LOG OF BORING**

Boring No.: AOC 26-2 Start Date: 4/20/2009 Finish Date: 4/20/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5540.054

**Ground Water:** Not Encountered

Site Coordinates: N 36º41'48.62399"

W 107º58'14.85771"

|                |                               | Sa              | amp                          | lin        | g                      |            |              |  |   |
|----------------|-------------------------------|-----------------|------------------------------|------------|------------------------|------------|--------------|--|---|
| Depth (ft.)    | Sample Depth                  | Time            | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description                                     | Depth (ft.)   |
| 0-             | n_                            |                 |                              |            |                        |            |              | Ground Surface   |   |
|                | 0.5'                          |                 | G/2V/<br>2E/4J<br>G/2V/      |            | 4.6<br>72ºF<br>3.9     |            | 100          | Clayey Silt (ML) Very fine grain, compact, damp, brown | -<br>-<br>-<br>-<br>-   |
| 2              | 2'                            |                 | 2E/4J                        |            | 72ºF                   |            |              | Total Depth = 2' BGL                                   | -2  |
| 4-             | į ,                           |                 |                              |            |                        |            |              |  | -<br>-<br>-4 :<br>-<br>-<br>-<br>-  |
| 6              |                               |                 |                              |            |                        |            |              |  | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 8-1            |                               |                 |                              |            |                        |            |              |  | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 10-            |                               |                 |                              |            |                        |            |              |  | -<br>10<br>-<br>-<br>-<br>-<br>-  |
| 12             |                               |                 |                              |            |                        |            |              |  | -<br>12<br><br><br><br><br>   |
| RF<br>40<br>Au | PS<br>4 Camp C<br>Istin, Texa | raft R<br>s 787 | load<br>46                   |            | •                      |            |              | Sheet: 1 of 1  | 512/347-7588<br>512/347-8243 fax  |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

404 Camp Craft Road

Austin, Texas 78746

Driller: N/A
Drilling Rig: N/A

Drilling Method: Hand Auger

Sampling Method: Auger Bucket Comments: N36°41.809' W107°58.244'

#### LOG OF BORING

512/347-7588

512/347-8243 fax

Boring No.: AOC 26-3 Start Date: 4/20/2009

Finish Date: 4/20/2009

Total Depth: 2' bgl Ground Water: Not Encountered

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Elev., GL (ft. msl): 5543.638

Site Coordinates: N 36º41'48.41610"

W 107º58'14.64503"

| Sample Depth Time Sample Type/ Containe/No. Saturation Organic Vapor (ppm) USCS Class USCS Class uoitdiacsed elder   | Depth (ft.)                              |
|--|--|
| Samp Samp Contain Cont | De                                       |
| 0 - Ground Surface   | -0                                       |
| 0.5'   1250 G/2V/   4.3   4.3   Very fine grain, compact, damp to moist, brown   | 2  |
| 2- 1.5- 1300 G/2V/ 7.2 Total Double 3' PCI   | -  |
| 2 - 2'   | 2  |
|  | E  |
|  | E  |
|  | -4                                       |
|  | <u> </u>                                 |
|  | <u> </u>                                 |
|  | -<br>-6                                  |
|  | =  |
|  | E  |
| 8-   | -<br>8                                   |
|  | -  |
|  | <del>-</del>                             |
|  | F 40                                     |
|  | F 10                                     |
|  | - 4<br>- 4<br>- 6<br>- 6<br>- 10<br>- 12 |
|  | -<br>-<br>                               |
|  | [-12]<br>-                               |
|  | <u> </u>                                 |
| ppe  | F  |



Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

404 Camp Craft Road Austin, Texas 78746

**Drilling Method:** Hand Auger **Sampling Method:** Auger Bucket **Comments:** N36°41.811' W107°58.243'

# **LOG OF BORING**

512/347-7588

512/347-8243 fax

Boring No.: AOC 26-4 Start Date: 4/20/2009 Finish Date: 4/20/2009

Elev., TOC (ft. msl): -Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5540.587

**Ground Water:** Not Encountered

Site Coordinates: N 36º41'48.70583" W 107º58'14.43626"

|             | _            | Sa   | amp                          | lin        | g                      |            |              |   |  |
|-------------|--------------|------|------------------------------|------------|------------------------|------------|--------------|---|--|
| Depth (ft.) | Sample Depth | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Depth (ft.)                                  |
| 0-          | O-           |      |                              |            |                        |            |              | Ground Surface  | -0   |
|             | 0-           |      | G/2V/<br>2E/4J               |            | 4.5<br>74ºF            |            | 100          | Clayey Silt (ML) Very fine grain, loose to compact, damp, brown |  |
| 2-          | 2'           | 1335 | G/2V/                        |            | 4.1                    |            |              |   | -2   |
| 6-1         |              |      | 2E/4J                        |            | 74ºF                   |            |              | Total Depth = 2' BGL  | -6   |
| 12-         |              |      |                              |            |                        |            |              |   | -10<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>12 |



Job No.: 354 - Bloomfield, NM Geologist: Tracy Payne

Driller: N/A

Drilling Rig: N/A

**Drilling Method:** Hand Auger Sampling Method: Auger Bucket Comments: N36º41.816' W107º58.220'

# LOG OF BORING

Boring No.: AOC 26-5 Start Date: 4/20/2009 Finish Date: 4/20/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --Elev., GL (ft. msl): 5540.206

**Ground Water:** Not Encountered

Total Depth: 2' bgl

Site Coordinates: N 36º41'48.96076"

W 107º58'13.11816"

|                |                          | Sa              | amp                          | lin        | g                      |            |              |   |                             |                                      |
|----------------|--------------------------|-----------------|------------------------------|------------|------------------------|------------|--------------|---|-----------------------------|--------------------------------------|
| Depth (ft.)    | Sample Depth             | Time            | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  |                             | Depth (ft.)                          |
| 0-             | 0-                       |                 |                              |            |                        |            |              | Ground Surface  | -                           | -0                                   |
|                | 0.5'                     | 1530            | G/2V/<br>2E/4J               |            | 9.2<br>77ºF            |            | 100          | Clayey Silt (ML) Very fine grain, loose to compact, dry to moist, brown | -                           | -                                    |
|                | 1.5-                     | 1545            | G/2V/                        |            | 15.2                   |            |              |   | Ī                           | _                                    |
| 2-             | 2'                       | }               | 2E/4J                        |            | 77ºF                   |            | <del></del>  | Total Depth = 2' BGL  |                             | _2<br>-                              |
| 4-             |                          |                 |                              |            |                        |            |              |   |                             | -<br>-<br>-<br>-<br>-<br>-<br>-<br>4 |
| 6-             |                          |                 |                              |            |                        |            |              |   |                             | -4                                   |
| 8-             |                          |                 |                              |            |                        |            |              |   |                             |                                      |
| 10-            |                          |                 |                              |            |                        |            |              |   |                             | <br>10                               |
| 12-            |                          |                 |                              |            |                        |            |              |   |                             | -8<br>                               |
| Rf<br>40<br>Au | S<br>A Camp Custin, Texa | raft F<br>s 787 | load<br>'46                  |            |                        | 1          | <u> </u>     |   | 2/347-7588<br>2/347-8243 fa | ax                                   |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Austin, Texas 78746

Driller: N/A **Drilling Rig:** N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.818' W107º58.210'

# **LOG OF BORING**

512/347-8243 fax

Boring No.: AOC 26-6 Start Date: 4/20/2009 Finish Date: 4/20/2009

Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msi): 5540.025

**Ground Water:** Not Encountered

Site Coordinates: N 36º41'49.08555"

W 107º58'12.57862"

|             |                | Sa   | amp                          | lin        | g                      |            |              |   |   |
|-------------|----------------|------|------------------------------|------------|------------------------|------------|--------------|---|---|
| Depth (ft.) | Sample Depth   | Time | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Depth (ft.)   |
| 0-          | O-             |      |                              |            |                        |            |              | Ground Surface  | -0  |
| -           | 0-             |      | G/2V/<br>2E/4J<br>G/2V/      |            | 9.3<br>77ºF<br>6.6     |            | 100          | Clayey Silt (ML) Very fine grain, loose to compact, dry to moist, brown | -<br>-<br>-<br>-<br>-<br>-<br>-   |
| 2           |                | .505 | 2E/4J                        |            | 77ºF                   |            |              | Total Depth = 2' BGL  | 2<br>2<br>  |
| 6           |                |      |                              |            |                        |            |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 8-          |                |      |                              |            |                        |            |              |   |   |
| 10-         |                |      |                              |            |                        |            |              |   |   |
| 12-         | S<br>04 Camp C |      |                              |            |                        |            |              | Sheet: 1 of 1   | -   |



Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Austin, Texas 78746

Driller: N/A

Drilling Rig: N/A

Drilling Method: Hand Auger Sampling Method: Auger Bucket Comments: N36º41.809' W107º58.211'

# LOG OF BORING

512/347-8243 fax

Boring No.: AOC 26-7 Start Date: 4/20/2009

Finish Date: 4/20/2009

Ground Water: Not Encountered Elev., TOC (ft. msl): --Elev., PAD (ft. msl): --

Total Depth: 2' bgl

Elev., GL (ft. msl): 5540.360

Site Coordinates: N 36º41'48.54564"

W 107º58'12.67447"

|             |               | Sa     | amp                          | lin        | g                      |            |              |   |   |
|-------------|---------------|--------|------------------------------|------------|------------------------|------------|--------------|---|---|
| Depth (ft.) | Sample Depth  | Time   | Sample Type/<br>Containe/No. | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description  | Depth (ft.)   |
| 0-          |               |        |                              |            |                        |            |              | Ground Surface  | -0  |
| -           | 0.5'          |        | G/2V/<br>2E/4J<br>G/2V/      |            | 5.5<br>77ºF<br>6.1     |            | 100          | Clayey Silt (ML) Very fine grain, loose to compact, dry to moist, brown | -   |
| 2           | 2'            |        | 2E/4J                        |            | 77ºF                   |            |              | Total Depth = 2' BGL  | -4  |
| 6           |               |        |                              |            |                        |            |              |   | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 8-          |               |        |                              |            |                        | :          |              | ·   | -8  |
| 10          |               |        |                              |            |                        |            |              |   | -<br>-<br>-<br>10<br>-<br>-<br>-<br>-   |
| 12-         |               |        |                              |            |                        |            |              |   | -<br>-<br>-<br>12   |
| RI<br>40    | S<br>4 Camp C | raft F | Road                         | •          |                        |            |              | Sheet: 1 of 1   | 347-7588  |



Well No.: MW-65 (AOC 26-8)

Start Date: 4/16/2009

Finish Date: 4/16/2009

Client: Western Refining Southwest, Inc.

Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75

Drilling Method: Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.826' W107º58.244'

Total Depth: 44.25' bgl

Ground Water: Saturated @ 36' bgl

Elev., TOC (ft. msl): 5539.517 Elev., PAD (ft. msl): 5539.941 Elev., GL (ft. msl): 5539.902

Site Coordinates:

N 36º41'49.18120"

W 107º58'15.39107"

| Sample Description Completion Re  | sults                            |
|---|----------------------------------|
| Sample Depth Time Sample Depth Sample Type/Container/No Saturation Organic Vapor (ppm) USCS Class Recovery (%) Recovery (%) |                                  |
| 10   10   10   10   10   10   10   10   | 4" Sch. 40 PVC w/Threaded Joints |

404 Camp Craft Road Austin, Texas 78746 Sheet: 1 of 3

512/347-7588 512/347-8243 fax



Well No.: MW-65 (AOC 26-8)

Start Date: 4/16/2009 Finish Date: 4/16/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Drilling Method: Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.826' W107º58.244'

Total Depth: 44.25' bgl Ground Water: Saturated @ 36' bgl

Elev., TOC (ft. msl): 5539.517 Elev., PAD (ft. msl): 5539.941

Elev., GL (ft. msl): 5539.902

Site Coordinates:

N 36º41'49.18120"

W 107º58'15.39107"

|             |              | S    | Sam                         | plir       | ng                     |            |              |  |  |
|-------------|--------------|------|-----------------------------|------------|------------------------|------------|--------------|--|--|
| Depth (ft.) | Sample Depth | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Completion Results   |
| 15-         |              |      |                             |            | 2.1<br>46ºF            |            | 70           | Sandy Silt (ML) Very fine grain, compact to loose, damp, brown, trace clay   |  |
| 17          |              |      |                             |            | 2.1<br>46ºF            |            | 80           | Sandy Silt (ML)<br>Similar to above  | oints T  |
| 9,          |              |      |                             |            | 1.8<br>45ºF            |            | 90           | Silty Sand (SM) Very fine grain, loose, damp, light brown  | 4" Sch. 40 PVC w/Threaded Joints ad Joints  Cement/Bentonite Grout |
| 11 =        |              |      |                             |            | 1.2<br>44ºF            |            | 80           | Silty Sand (SM) Similar to above, tan sand in seams, calcareous  | ich. 40 PVC v  |
| 3-          |              |      |                             |            | 1.1<br>44ºF            |            | 80           | Silty Sand (SM)<br>Similar to above  | 53.2; 4" S "Hrreaded J WThreaded J Bentonite Pellets               |
| 5-          |              |      |                             |            | 1.3<br>44ºF            |            | 80           | Silty Sand (SM)<br>Similar to above  | 0.01" Screen   |
| 7-          |              |      |                             |            | 2.4<br>45ºF            |            | 80           | Clayey Silty Sand (SC/SM) Very fine grain, compact, damp, brown, calcareous  | Slotted  |
| 9-          |              |      |                             |            | 11<br>46ºF             |            | 80           | Clayey Silty Sand (SC/SM) Similar to above, faint odor Sand (SW) Fine to medium grain, loose, darnp, brown, faint odor | 4" Sch. 40 PVC   |
| RP          | S            |      |                             |            | 46ºF                   | 0 0 0      |              | Fine to medium grain, loose, darnp, brown,   | 512/347-75 <b>8</b>  |

404 Camp Craft Road Austin, Texas 78746



Well No.: MW-65 (AOC 26-8)

Total Depth: 44.25' bgl

Elev., PAD (ft. msl): 5539.941

Elev., GL (ft. msl): 5539.902

Start Date: 4/16/2009

**Site:** SWMU Group #3, Bloomfield Refinery **Job No.:** 354 - Bloomfield, NM

Client: Western Refining Southwest, Inc.

Geologist: Tracy Payne
Driller: Enviro-Drill, Inc.
Drilling Rig: CME 75

Ground Water: Saturated @ 36' bgl Elev., TOC (ft. msl): 5539.517 Finish Date: 4/16/2009

Drilling Method: Hollow-Stem Auger/ODEX

Site Coordinates: N 36º41'49.18120"

**W** 107º58'15.39107"

Sampling Method: Split Spoon

Comments: N36º41.826' W107º58.244'

|             | Sampling     |  |                | plin                | ıg                 |   |     |   |  |                                |    |                             |                     |
|-------------|--------------|--|----------------|---------------------|--------------------|---|-----|---|--|--------------------------------|----|-----------------------------|---------------------|
| Depth (ft.) | Sample Depth | Sample Depth Time Sample Type/Container/No Saturation Organic Vapor (ppm) USCS Class |                | Recovery (%)        | Sample Description | ,                                       | Com | pletion Resu  | ılts   |                                |    |                             |                     |
| -           |              |  |                |                     | 20.8<br>44ºF       | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 80  | Gravelly Sand (SW) Fine to coarse grain, gravelly at base, damp to moist, odor, gray  |  |                                |    |                             |                     |
| 32          |              |  |                |                     | 58.7<br>48ºF       | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 60  | Gravelly Sand (SW) Fine to coarse grain, damp, gravelly, gray, strong odor, trace dark to black clay  | oints  |                                |    |                             | @ 36' bgl           |
| 34          | 32-<br>36'   | 1430   | G/2V/<br>2E/4J | .96                 | 145<br>47ºF        | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 80  | Gravelly Sand (SW)<br>Similar to above, odor  | /Threaded Jo   |                                |    |                             | Saturated @ 36' bgl |
| 36-         | ::           |  |                | <b>V</b> ERT (1997) |                    | 500,000,000,000,000,000,000,000,000,000 | 10  | Gravelly Sand (SW) Similar to above, moist to saturated, strong hydrocarbon odor  | 01" Screen w   |                                | •- | ack _                       | Ī                   |
| 38-         |              |  |                |                     |                    |   | 10  | Gravelly Sand (SW) Similar to above, saturated, black   | 15' of 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints | Flush Threaded Sch. 40 PVC Cap |    | 0/20 Sieve Sand Filter Pack |                     |
| 40-         |              |  |                |                     |                    |   | 70  | Sand (SW) Fine to coarse grain, compact, saturated, dark gray, odor   | 4" Sch. 40 P   | hreaded Sch.                   |    | 10/20 Sieve                 |                     |
| 44-         |              |  |                |                     |                    |   |     | Sandy Clay/Clayey Sand (CL/SC) Fine grain, very stiff, damp, yellowish brown  Nacimiento Formation Sandy Clay/Clayey Sand (CL/SC) Similar to above, becomes very dense, greenish gray  Total Depth = 44.25' BGL | 43°<br>44.25°  | 6" Sand Bed                    | •  | 8" Well Sump                |                     |

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Well No.: MW-66 (AOC 26-9)

Start Date: 4/16/2009 Finish Date: 4/20/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. Drilling Rig: CME 75

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.818' W107º58.234'

Total Depth: 43.25' bgl

Ground Water: Saturated @ 38' bgl

Elev., TOC (ft. msl): 5544.625 Elev., PAD (ft. msl): 5542.030 Elev., GL (ft. msl): 5541.979

Site Coordinates:

N 36º41'48.97462"

W 107º58'14.05858"

|             | Sampling                 |      | Sampling                    |            |                        |            |              |  |  |
|-------------|--------------------------|------|-----------------------------|------------|------------------------|------------|--------------|--|--|
| Depth (ft.) | Sample Depth             | Time | Sample<br>Type/Container/No | Saturation | Organic Vapor<br>(ppm) | USCS Class | Recovery (%) | Sample Description   | Completion Results   |
| -2-<br>-0-  | <del>;;;;</del> 0-       | 0055 | G/2V/<br>2E/4J              |            |                        |            |              | Ground Surface   | ad - 4'x4'x6" \( \frac{1}{2} \) and - 4'x4'x6" \( \frac{1}{2} \) a |
| 2           | 0-<br>0.5'<br>1.5-<br>2' |      | 2E/4J<br>G/2V/<br>2E/4J     | i          | 8.6<br>66ºF            |            | 100          | Clayey Silt (ML) Low plasticity, firm, damp, brown             |  |
| -           | 2                        |      | 2E/4J                       |            | 10.5<br>66ºF           |            | 100          | Clayey Silt (ML)<br>Similar to above                           | Aluminu Aluminu ed Concrete Pad - 4'x aded Joints 3" Diameter Borehole   |
| 4-          |                          |      |                             |            | 10.5<br>66ºF           |            | 60           | Clayey Silt (ML)<br>Similar to above                           | Aluminum Pr Steel Reinforced Concrete Pad - 4'x4'x6"  4" Sch. 40 PVC w/Threaded Joints   |
| 6-          |                          |      |                             | :          | 9.0<br>66ºF            |            | 70           | Clayey Silt (ML)<br>Similar to above                           | St 40  |
| 8           |                          |      |                             |            | 10.0<br>66ºF           |            | 90           | Sandy Silt (ML) Very fine grain, compact to loose, damp, brown | onite Grout  |
| 10-         |                          |      |                             |            | 8.3<br>66ºF            |            | 10           | Sandy Silt (ML)<br>Similar to above                            | Cement/Bentonite Grout   |
| 12-         |                          |      |                             |            | 8.2<br>66ºF            |            | 70           | Sandy Silt (ML)<br>Similar to above                            |  |

404 Camp Craft Road Austin, Texas 78746

Sheet: 1 of 3

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Well No.: MW-66 (AOC 26-9)

Total Depth: 43.25' bgl

Ground Water: Saturated @ 38' bgl

Start Date: 4/16/2009

Client: Western Refining Southwest, Inc.
Site: SWMU Group #3, Bloomfield Refinery

Finish Date: 4/20/2009

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne

Driller: Enviro-Drill, Inc.

Elev., PAD (ft. msl): 5542.030 Elev., GL (ft. msl): 5541.979

Elev., TOC (ft. msl): 5544.625 Elev., PAD (ft. msl): 5542.030

Drilling Rig: CME 75

404 Camp Craft Road Austin, Texas 78746 Site Coordinates:

.

512/347-8243 fax

**Drilling Method:** Hollow-Stem Auger/ODEX

N 36º41'48.97462"

W 107º58'14.05858"

Sampling Method: Split Spoon Comments: N36º41.818' W107º58.234'

| Sampling   | Sampling                |   |   |
|--|-------------------------|---|---|
| Sample Depth Time Sample Type/Container/No Saturation Organic Vapor (ppm)                          | USCS Class Recovery (%) | Sample Description  | Completion Results                                    |
| 9.6<br>66°F  | 80                      | Sandy Silt (ML) Very fine grain, compact to loose, damp, brown  |   |
| 9.5<br>66°F  | 90                      | Sandy Silt (ML)<br>Similar to above   | oints 7   |
| 19 — 8.8<br>66°F   | 90                      | Sandy Silt (ML)<br>Similar to above, tan and brown  | readed Joints readed Joints  Cement/Bentonite Grout   |
| 21 - 10.9 66°F   | 80                      | Sandy Silt (ML) Similar to above, increase in sand Silty Sand (SM) Very fine grain, compact to loose, damp, | w/Threaded Joints                                     |
| 23 - 10.4 68ºF   | 90                      | light brown Silty Sand (SM) Similar to above  | creen w/Thres   |
| 25 — 10.0<br>68ºF  | 100                     | Silty Sand (SM)<br>Similar to above   | C Slotted 0.01" Screen w/Th                           |
| 27—<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | 80                      | Silty Sand (SM)<br>Similar to above   | 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints |
| 29 7.9 68°F  | 70                      | Silty Sand (SM) Fine to medium grained, compact, damp, brown, trace gravel, clayey                          | 4" Sc   |



Well No.: MW-66 (AOC 26-9)

512/347-8243 fax

Start Date: 4/16/2009

Finish Date: 4/20/2009

Client: Western Refining Southwest, Inc. Site: SWMU Group #3, Bloomfield Refinery

Job No.: 354 - Bloomfield, NM

Geologist: Tracy Payne Driller: Enviro-Drill, Inc. **Drilling Rig: CME 75** 

Austin, Texas 78746

**Drilling Method:** Hollow-Stem Auger/ODEX

Sampling Method: Split Spoon

Comments: N36º41.818' W107º58.234'

Total Depth: 43.25' bgl

Ground Water: Saturated @ 38' bgl

Elev., TOC (ft. msl): 5544.625 Elev., PAD (ft. msl): 5542.030 Elev., GL (ft. msl): 5541.979

**Site Coordinates:** 

N 36º41'48.97462"

W 107º58'14.05858"

|             |  | 5    | Sam                         | plir                | ng                     |  |              |  |   |                                     |             |                    |                     |
|-------------|--|------|-----------------------------|---------------------|------------------------|--|--------------|--|---|-------------------------------------|-------------|--------------------|---------------------|
| Depth (ft.) | Sample Depth   | Time | Sample<br>Type/Container/No | Saturation          | Organic Vapor<br>(ppm) | USCS Class   | Recovery (%) | Sample Description   | (   | Com                                 | pletion Res | uits               |                     |
| 31          |  |      |                             |                     | 5.6<br>68ºF            | ره وي (روي المرابع المرابع المرابع المرابع المرابع المرابع المرابع المرابع المرابع المرابع المرابع المرابع الم | 90           | Silty Clayey Sand (SM/SC) Fine to medium grain, compact, damp, brown, trace gravel, clayey Gravelly Sand (SW)  |   |                                     |             |                    |                     |
| 33          |  |      |                             |                     | 6.3<br>68ºF            | ),   | 100          | Fine to medium grain, loose, damp, brown, coarse gravel  Gravelly Sand (SW) Similar to above   | Joints  |                                     | <b>A</b>    |                    |                     |
| 35          |  |      |                             |                     | 25.3<br>68ºF           |  | 30           | Gravelly Sand (SW) Similar to above  Gravelly Sand (SW)  | n w/Threaded  |                                     |             |                    | Saturated @ 38' bgl |
| 37-         | 36-<br>38'   | 1520 | G/2V/<br>2E/4J              | 38.                 | 3939<br>75°F           |  | 70           | Medium to coarse grain, loose, damp to moist, brown and gray, coarse gravel, odor  | 0.01" Scree   | /C Cap                              | •           | Pack               | Saturate            |
| 39          |  | *    |                             | <b>M</b> 6333333333 |                        |  | 50           | Gravelly Sand (SW) Similar to above, saturated, odor   | PVC Slotted   | d Sch. 40 P\                        |             | e Sand Filter Pack | -                   |
| 41-         |  |      |                             | \$555555            |                        |  | 100          | Sand (SP) Medium grain, loose, saturated, gray, odor  Nacimiento Formation Sandy Silty Clay (CL) Low to moderate plasticity, stiff to very stiff, dry, grayish green | 15 of 4" Sch. 40 PVC Slotted 0.01" Screen w/Threaded Joints | ☐ 4" Flush Threaded Sch. 40 PVC Cap |             | mp 10/20 Sieve     |                     |
| 45-         |  |      |                             |                     |                        |  |              | Total Depth = 43.25' BGL   | 43.25'  | 6" Sand Bed                         |             | 8" Well Sump       |                     |
|             | RPS<br>404 Camp Craft Road Sheet: <b>3 of 3</b> 512/347-7588 |      |                             |                     |                        |  |              |  |   |                                     |             |                    |                     |

# Appendix F

**Field Methods** 

#### **Field Methods**

Pursuant to Section IV of the Order, an investigation of soils and ground water was conducted to determine and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil borings and monitoring wells were installed at the SWMU No. 4 Transportation Terminal Sump, SWMU No. 5 Heat Exchanger Bundle Cleaning Area, AOC No. 22 Product Loading Rack and Crude Receiving Loading Racks, AOC No. 23 Southeast Holding Ponds, AOC No. 24 Tank Areas 41 and 43, AOC No. 25 Auxiliary Warehouse and 90-Day Storage Area, and AOC No. 26 Tank Areas 44 and 45.

The soil borings were drilled using hollow-stem auguring (HSA) method or air rotary-ODEX method. The drilling equipment was decontaminated between each borehole using a high pressure potable water wash. All soil borings were drilled to a minimum depth of 10 feet with at least one boring at each of the individual SWMUs/AOCs drilled to the top of saturation, with the exception of SWMU No. 5 where surface soil (i.e., 0-0.5' and 1.5-2') samples were collect. Soil samples were collected continuously and logged by a qualified geologist in accordance with USCS nomenclature. As shown on the boring logs the data recorded included the lithologic interval, symbol, percent recovery and a sample description of the cuttings and core samples, and field screening results. Samples obtained from the borings were screened in the field on 2 foot intervals for evidence of contaminants. Field screening results were used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds. The headspace vapor screening was conducted using a MiniRae 2000 portable VOC monitor PGM-7600. The instrument was calibrated at the beginning of each work day to a concentration of 100 ppm isobutylene.

Soil samples were collected using split-spoon samplers. The split-spoon samplers were decontaminated between each use using a potable water rinse, an Alconox wash and then a distilled water rinse. In the event that more than one SWMU/AOC was investigated during the day a new batch of wash water and rinse water was prepared prior to decontamination. The decontamination water was collected in buckets and placed in open top 55-gallon drums, which were sealed at the end of each work day. Each drum was labeled. Soil cuttings were also placed in open top 55-gallon drums and were sealed when not in use.

Soil borings completed as permanent monitoring wells were drilled to the top of bedrock (Nacimiento Formation). The depth to separate phase hydrocarbon, if present, and ground water

was measured prior to purging the wells of potentially stagnant ground water. Monitoring wells were purged of a minimum of three well volumes prior to sample collection. Field measurements of ground water stabilization parameters included pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature. Ground water samples were collected with disposable bailers and immediately poured directly into clean laboratory supplied sample containers.

The instrument used to measure ground water stabilization parameters was an Ultrameter 6P manufactured by Myron L Company. The calibration solutions used at the beginning of each day are as follows:

- 4.0 pH solution;
- 7.0 pH solution;
- 10.0 pH solution; and
- 1.413 mS/cm conductivity solution.

There were no field conditions encountered during the sampling event that affected procedural or sample testing results.

# Appendix G

**Laboratory Chromatograms** 

(SO)

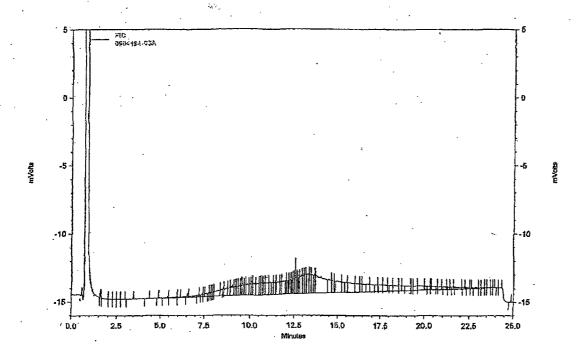
Instument GC-17A FID#2 (Offline) Sample IQ: 0904194-03A Vial #: 51

.

User: System

Data Descritpion: 20x Dilution

Method: H:\EZsemi\8015dro\Data 2008\Methods\FID #2\DRO FID #2 090319.met File: H:\EZsemi\8015dro\Data 2008\Data\090417F\0904194-03A 04-18-09 8-15-07 AM.dat Aguired: 04/18/09 8:25:01 AM



| FID Results Name   | Retention Time | Area                      | ug/mi                       |
|--------------------|----------------|---------------------------|-----------------------------|
| DRO                |                | 165556                    | 53.102                      |
| MRO<br>DNOP        |                | 238876<br>8372            | 35,997<br><del>2,2</del> 63 |
| · · ·              |                | Dv.                       | vol-Recovered<br>to Diluter |
| AnalystReviewed By |                | Single Point<br>200ppm Mo | From<br>tor Oil             |
|                    |                | nro -> 5                  | 2. c                        |

MRO -> (2.12

Sauple: Aoc 22-16 (1.5-2.01) - DRO

(54)

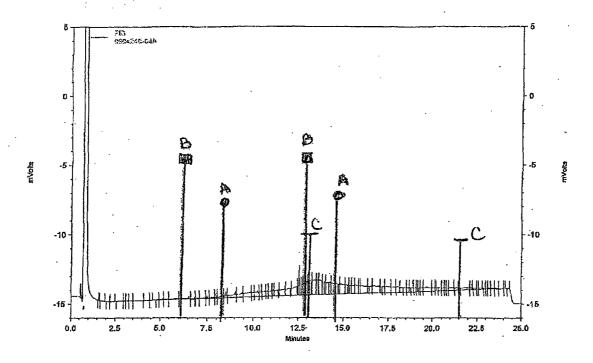
Instument GC-17A FID#2 (Offline) Sample ID: 0904240-04A

User: System

Data Descritpion: 20x Dilution

Method: H:\EZsemi\8015dro\Data 2008\Methods\FID #2\DRO FID #2 090319.met File: H:\EZsemi\8015dro\Data 2008\Data\0904240-04A 04-19-09 4-43-56 AM.dat

Aquired: 04/19/09 4:53:51 AM



| FID Results<br>Name | Retention Time      | Area           | ug/ml                                |
|---------------------|---------------------|----------------|--------------------------------------|
| DRO ·               |                     | 66985          | 23,783                               |
| MRO<br>DNOP         | Suple: A = >50%.    | 204658<br>5118 | 30.620<br>1.418,<br>ONE PET RECORDED |
| Analyst             | B = 40%<br>C = 750% |                | Due to Douted                        |

Single Point From 200ppm Motor Oil DRO -> 20.43

MRO -> 53.22

(ab Report: 0904240-04 Sample 10: AOC 22-11 (1.5-2.

Instument: GC-17A FID#2 (Offline)

Vial #: 75

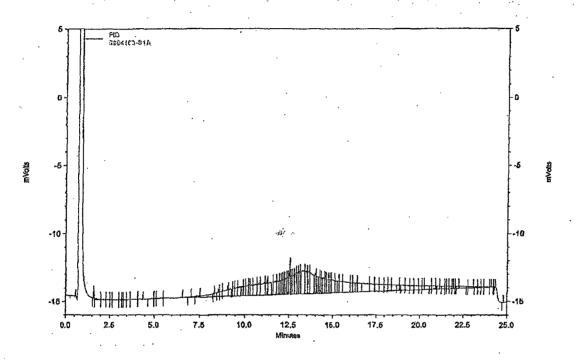
Data Descritpion: 20x Dilution

User: System

Sample ID: 0904153-01A

Method: H:\EZseml8015dro\Data 2008\Methods\FID #2\DRO FID #2 090319.met File: H:\EZsemi\8015dro\Data 2008\Data\0904153-01A 04-12-09 10-03-52 AM.dat

Aquired: 04/12/09 10:13:47 AM



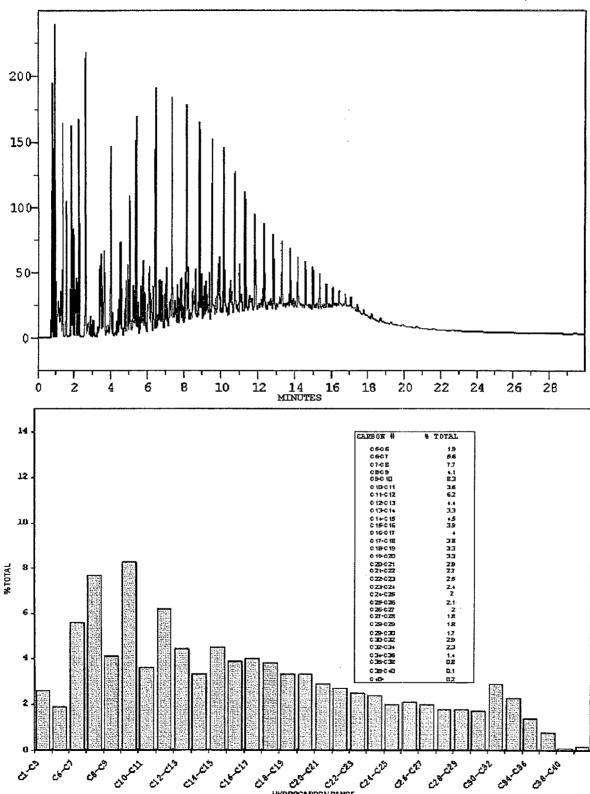
| FID Results<br>Name | Retention Time | Area                                  | ug/mi      |
|---------------------|----------------|---------------------------------------|------------|
| DRO                 |                | 121867                                | 40.132     |
| MRO<br>DNOP         |                | 291208<br>8324                        | 43.651<br> |
| Analyst             |                | Single Point<br>200ppm Mot<br>DRO → 3 | or Oil     |
|                     | ·              | MRO → 8                               | 8.55       |

Scenple: AOC 22-14(1.5-2.0')

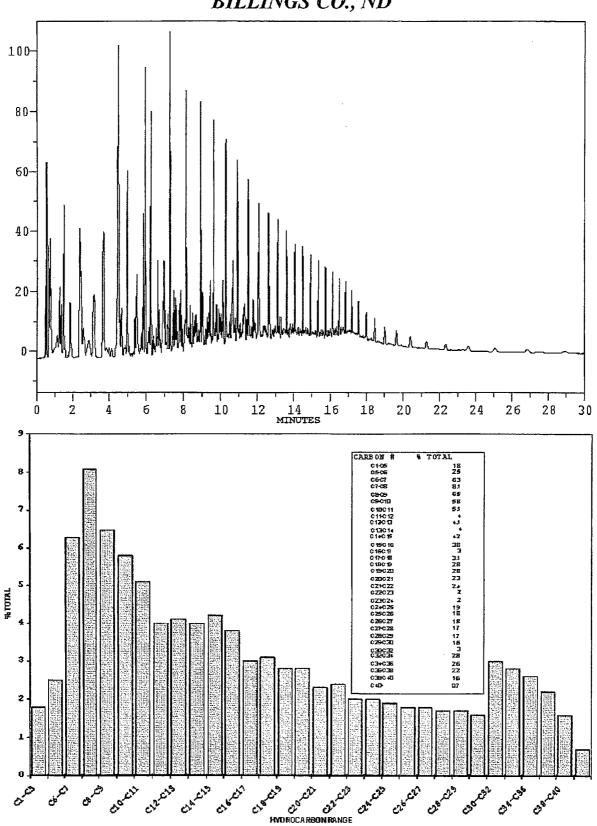
(Report: 0904153)



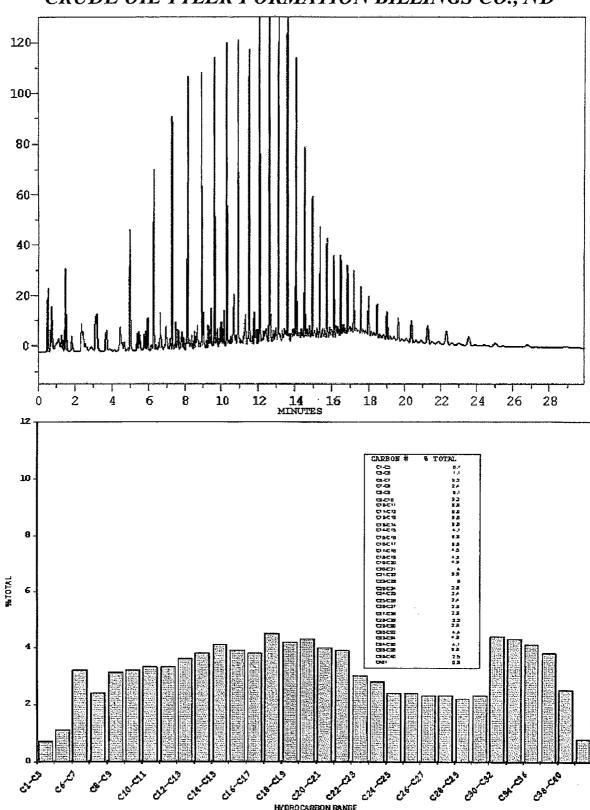
### CRUDE OIL SUSSEX FORMATION CAMPBELL CO., WY

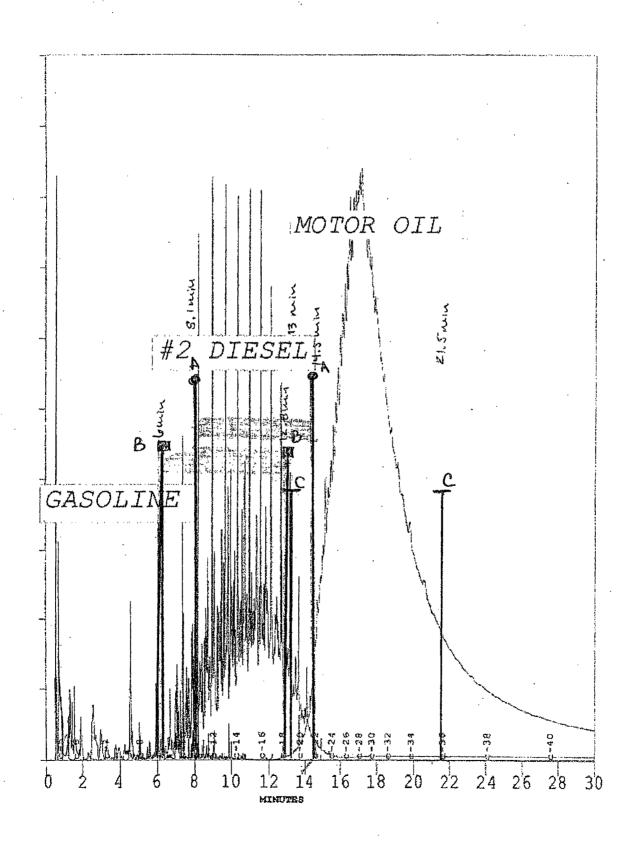


# CRUDE OIL MISSION CANYON FORMATION BILLINGS CO., ND



### CRUDE OIL TYLER FORMATION BILLINGS CO., ND





## Appendix H

**Quality Assurance/Quality Control Review** 

### 1.0 Data Validation Introduction

This summary presents data verification results for soil and ground water samples collected from soil boring and monitoring wells installed at the Bloomfield Refinery in accordance with the approved Investigation Work Plan - Group 3. The data review was performed in accordance with the procedures specified in the Order issued by NMED (NMED, 2007), USEPA Functional Guidelines for Organic and Inorganic Data Review, and quality assurance and control parameters set by the project laboratory Hall Environmental Analysis Laboratory, Inc.

A total of 109 soil samples and 18 ground water samples were collected between April 2009 and July 2009 in accordance with the Group 3 Investigation Work Plan. Soil and ground water samples were submitted to Hall Environmental Analysis Laboratory for the following parameters in accordance with the approved Work Plan:

- Volatile organic compounds (VOCs) by USEPA Method 8260B;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Gasoline, diesel, and motor oil range organics by SW-846 Method 8015B;
- Ethanol by SW-846 Method 8015B (AOC 26 samples only);
- Total recoverable metals (Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, vanadium, and zinc) by SW846 Method 6010/6020;
- Cyanide by SW-846 method 9012; and
- Mercury by EPA Method 7470.

In addition as stated in the approved Work Plan, ground water samples submitted to Hall Environmental Analysis Laboratory were analyzed for the following additional analytes:

- Anions (chloride, Nitrate/Nitrite, and sulfate) by USEPA Method 300.0;
- Alkalinity (total alkalinity, carbonate, and bicarbonate) by USEPA Method 310.1;
- Dissolved metals (iron, calcium, magnesium, potassium, and sodium) by USEPA Method 6010B; and
- Total dissolved solids by SM-2540C

Additional analytes reported by the lab, including the analysis of ethanol for designated soil samples, were not required by the Work Plan, and therefore are not listed in their

entirely in the summary above. The soil and ground water sample analyses were completed as required by the approved Group 3 Site Investigation Work Plan, with the following exceptions:

### Soil Sample Exceptions:

- AOC 22-12 (36-37.75') was inadvertently not analyzed for cyanide due to laboratory miscommunication;
- AOC 22-13 (37-39') was not analyzed for total metals due to limited sample recovery.
- AOC 22-13 (37-39') was not analyzed for SVOCs due to limited sample recovery.

### **Ground Water Sample Exceptions:**

- NO<sub>2</sub>+NO<sub>3</sub> was reported for sample MW-59, MW-60, MW-61, MW-62, MW-63, MW-64, MW-65, and MW-66 for at least one sample event in order to report results within the accepted holding time.
- Dissolved manganese was not reported for sample MW-61, MW-62, and MW-65; however total manganese was reported for each of the above mentioned samples.

Additionally, 80 quality assurance samples consisting of trip blanks, field blanks, equipment rinsate blanks, and field duplicates were collected and analyzed as part of the investigation activities. Table A-1 presents a summary of the sample identifications, laboratory sample identifications, and requested analytical parameters.

### 2.0 Quality Control Parameters Reviewed

Sample results were subject to a Level II data review that includes an evaluation of the following quality control (QC) parameters:

- Chain-of-Custody;
- Sample Preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks, trip blanks, field blanks, and equipment rinsate blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;
- Duplicates (field duplicate, laboratory duplicate); and
- Other Applicable QC Parameters.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives are defined below:

- J+ The analyte was positively identified; however, the result should be considered an estimated value with a potential high bias.
- J- The analyte was positively identified; however, the result should be considered an estimated value with a potential low bias.
- UJ The reporting limit is considered an estimated value.
- R Quality control indicates that the data is not usable.

Results qualified as "J+", "J-", or "UJ" are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, per EPA guidelines.

Results for the performance monitoring events that required qualification based on the data verification are summarized in Table A-2.

### 2.1 Chain-Of-Custody

The chain-of-custody documentation associated with project samples was found to be complete. Chain-of-custodies included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

### 2.2 Sample Preservation and Temperature Upon Laboratory Receipt

Samples collected were received preserved and intact by Hall Environmental Laboratories, Inc. Samples were received by the laboratory at a temperature of 6.0 degrees Celsius or lower. Data qualification on lower temperature samples was not required.

### 2.3 Holding Times

All samples were extracted and analyzed within method-specified holding time limits with the exception of the following:

 Orthophosphate was analyzed past its holding time by over 10 days for numerous ground water samples collected from the new monitoring wells. Associated field sample results were rejected, and qualified "R." Orthophosphate was not a required analyte per the approved Work Plan.

### 2.4 Blank Contamination

### 2.4.1 Method Blank

Method blanks were analyzed at the appropriate frequency. Target compounds were not detected in the method blanks, with the exception of the following:

- Methylene chloride was detected in numerous analytical method blanks. Associated field sample detections of methylene chloride were most likely the result of laboratory contamination. The analytical laboratory noted issues with their new air ventilation system during the same time frame the samples for Group 3 were being analyzed. This issue was further confirmed by the methylene chloride detections in numerous field method blanks. Refer to Section 2.4.4 Common Laboratory Contaminants for additional data qualification information.
- Acetone was detected in numerous analytical method blanks. Associated field sample
  detections of acetone were most likely the result of laboratory contamination. The
  analytical laboratory noted issues with their new air ventilation system during the same
  time frame the samples for Group 3 were being analyzed. This issue was further
  confirmed by the acetone detections in numerous field method blanks. Refer to Section
  2.4.4 Common Laboratory Contaminants for additional data qualification information.

### 2.4.2 Trip Blank

Trip blanks were analyzed at the appropriate frequency as specified in the Order. Target compounds were not detected in the trip blanks.

### 2.4.3 Field Blanks/Equipment Rinsate Blank

Field and equipment rinsate blanks were collected at the appropriate frequency as specified in the Group 3 Investigation Work Plan. Target compounds were not detected in the field blanks and equipment rinsate blank, with the exception of the following:

- Bromodichloromethane was detected in several field and equipment rinsate blanks.
   Data qualification was not required because associated samples were non-detect for this analyte.
- Bromoform was detected in the following field and equipment blanks:

```
    EBS-041509 at 1.3 ug/L
    FB-042009 at 1.1 ug/L
    FB-042309 at 1.0 ug/L
    FB-041509 at 1.5 ug/L
    FB-051409 at 1.0 ug/L
```

Data qualification was not required because associated field samples were non-detect for this analyte.

- Chloroform was detected in several field and equipment rinsate blanks. Associated field samples with detected concentrations of chloroform less than 10 time the blank concentration were qualified "J+" to account for a potential high bias.
- Dibromochloromethane was detected in several field and equipment blanks. Data qualification was not required because associated field samples were non-detect for this analyte.
- Chloride was detected in the following field and equipment blanks:

```
    EBW-051209 at 2.2 mg/L
    EBW-051309 at 2.5 mg/L
    EBW-051409 at 2.2 mg/L
    EBW-071509 at 1.8 mg/L
    EBW-071609 at 0.62 mg/L
```

- Data qualification was not required because detected concentrations in associated field samples were more than 10 times the blank detected concentration for this analyte.
- Sulfate was detected in the following field and equipment blanks:

- EBW-051309 at 1.0 mg/L - FB-051209 at 0.52 mg/L - EBW-051409 at 1.1 mg/L - FB-051309 at 0.99

### mg/L

- EBW-071509 at 1.0 mg/L FB-051409 at 1.0 mg/L
- EBW-071609 at 1.0 mg/L FB-071509 at 1.0 mg/L

Data qualification was not required because associated sample results were at concentrations greater than 10 times the blank detected concentration for this analyte.

- Manganese was detected in field blank FB-071509 (0.0034 mg/L). Data qualification
  was not required because associated samples results were of concentrations greater
  than 10 times the field blank concentration for this analyte.
- Zinc was detected in field blank FB-051309 (0.021 mg/L). The associated field sample results for MW-63 and MW-64 were qualified "J+" to account for a potential high bias.

### 2.4.4 Common Laboratory Contaminants

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, and methylene chloride. Common laboratory contaminants for SVOC analysis include phthalates. Analytical results were qualified if the detected sample concentration is less than 10 times the method reporting limit.

- Methylene chloride was detected in several soil samples at concentrations less than 10 times the method reporting limit; therefore the associated field data results were qualified "J+" due to potential laboratory contamination.
- Acetone was detected in several soil samples at concentrations less than 10 times the method reporting limit; therefore the associated data results were qualified "J+" due to potential laboratory contamination.

### 2.5 Surrogate Recovery

Surrogate recoveries for the organic and inorganic analyses were performed at the required frequency and were within laboratory acceptance limits, with the following exceptions:

 Surrogate recovery for DNOP (0%) was below the lower acceptance limit of 61.7% for the following field samples:

```
- AOC 22-14 (1.5-2.0')
- SWMU 4-1 (6-8')
- AOC 24-6 (1.5-2.0') - AOC 22-13 (37-39')
- AOC 22-13 (0-0.5') - AOC 22-16 (1.5-2.0')
- AOC 22-11 (1.5-2.0') - AOC 22-4 (1.5-2.0')
- SWMU 5-1 (0-0.5') - SWMU 5-3 (0-0.5')
```

Low surrogate recovery was due to required sample dilution for analytical analysis; therefore data qualification was not required.

- Surrogate recovery for BFB (218%) was above the upper acceptance limit of 123% for sample AOC 22-4 (1.5-2.0'). Associated data was qualified "J+" to account for the potential high bias.
- Surrogate recovery for BFB (206%) was above the upper acceptance limit of 123% for sample AOC 22-13 (0-0.5'). Associated data was qualified "J+" to account for a potential high bias.
- Surrogate recovery for BFB (364%) was above the upper acceptance limit of 123% for sample AOC 22-13 (18-20'). Associated field data result was qualified "J+" to account for a potential high bias.
- Surrogate recovery for BFB (279%) was above the upper acceptance limit of 123% for sample AOC 22-13 (37-39'). Associated data was qualified "J+" to account for a potential high bias.
- Surrogate recovery for BFB (304%) was above the upper acceptance limit of 123% for sample AOC 22-15 (34-36'). Associated data was qualified "J+" to account for the potential high bias.
- Surrogate recovery for BFB (311%) was above the upper acceptance limit of 122% for sample MW-60. Associated field data was qualified "J+" to account for the potential high bias.
- Surrogate recovery for 2,4,6-Tribromophenol (24.7%) was below the lower acceptance limits of 35.5% for soil sample SWMU 4-1 (6-8). Data qualification was not required because all other acid and base/neutral fractions were within acceptance limits.
- Surrogate recover for 2,4,6-tribromophenol (30.4%) was below the lower acceptance limit of 35.5% for sample AOC 22-4 (1.5-2.0'). Data qualification was not required and all other surrogates were within acceptance limits.
- Surrogate recovery for 2,4,6-Tribromophenol (32.4%) was below the lower acceptance limit of 35.5% for soil sample AOC 22-13 (1.5-2.0'). Data qualification was not required because all other acid and base/neutral fractions were within acceptance limits.
- Surrogate recovery for 2,4,6-Tribromophenol (32.4%) was below the lower acceptance limits of 35.5% for soil sample AOC 22-13 (1.5-2.0). Data qualification was not required because all other acid and base/neutral fractions were within acceptance limits.
- Surrogate recovery for 2,4,6-Tribromophenol (0%), 2-Fluorophenol (0%), and Nitrobenzene-d5 (0%) were below the lower acceptance limits of 16.6%, 9.5%, and 14.6%, respectively. The low recovery was due to the required dilution for sample analysis; therefore data qualification was not required.
- Surrogate recovery for 2,4,6-Tribromophenol (5.44%) and 2-Fluorophenol (0%) were below the lower acceptance limit of 16.6% and 9.54%, respectively, for ground water sample MW-66. Data qualification was not required because all other acid and base/neutral fractions were within acceptance limits.

- Surrogate recovery for 2,4,6-Tribromophenol (8.94%) was below the lower acceptance limit of 16.6% for ground water sample MW-66. Data qualification was not required because all other acid and base/neutral fractions were within acceptance limits.
- Surrogate recovery for 2-Fluorophenol (0%) was below the lower acceptance limit of 9.54% for ground water sample MW-65 and MW-65 (DUP). Data qualification was not required because all other acid and base/neutral fractions were within acceptance limits.
- Surrogate recovery for 4-Bromofluorobenzene (116%) was above the upper acceptance limit of 111% for sample AOC 22-13 (32-34.5'). Data qualification was not required because remaining acid and base/neutral fractions were within acceptance limits.
- Surrogate recoveries for 4-Bromofluorobenzene (125%) and dibromofluoromethane (114%) were above the upper acceptance limits of 111% and 105%, respectively for field sample AOC 22-13 (18-20'). Data qualification was not required because the other two surrogates were within acceptance limits.
- Surrogate recoveries for 4-Bromofluorobenzene (145%) was above the upper acceptance limits of 130% for field sample AOC 22-13 (0-0.5'). Data qualification was not required because other three surrogates were within acceptance limits.
- Surrogate recoveries for 4-Bromofluorobenzene (67.9%) and Toluene-d8 (68.4%) were below the lower acceptance limits of 70% for sample AOC 22-16 (36-38'). Data qualification was not required because other surrogates were within acceptance limits.
- Surrogate recovery for 4-Bromofluorobenzene (48.1%) was below the lower acceptance limit of 70% for sample AOC 22-15 (34-36'). Data qualification was not required because the other three surrogates were within acceptance limits.
- Surrogate recovery for 4-Bromofluorobenzene (114%) was above the upper acceptance limit of 111% for sample AOC 22-4 (1.5-2.0'). Data qualification was not required because the other three surrogates were within acceptance limits.
- Surrogate recoveries for 4-Bromofluorobenzene (136%) and Toluene-d8 (132%) were above the upper acceptance limits of 130% for analytical bath 18990. Data qualification was not required because other surrogates were within acceptance limits.
- Surrogate recovery for 4-Terphenyl-d14 was below the lower acceptance limit of 22% for sample MW-60. The surrogate recovery was caused by emulsion of the sample during extraction. Data qualification was not required because all other surrogates were within acceptance limits.
- Surrogate recovery for Phenol-d5 (36.3%) is below the lower acceptance limit of 37.6% for sample AOC 22-9 (0-0.5'). Data qualification was not required because the other surrogates were within acceptance limits.
- Surrogate recovery for Toluene-d8 was below the lower acceptance limit of 70% for samples AOC 22-12 (0-0.5') DUP, AOC 22-12 (36-37.75'), and AOC 22-12 (32-35').
   Data qualification was not required because the other three surrogates were within acceptance limits.

- Surrogate recovery for toluene-d8 (67.8%) is below the lower acceptance limit of 70% for sample AOC 22-8 (0-0.5'). Data qualification was not required because the other surrogates were within acceptance limits.
- Surrogate recovery for toluene-d8 (69.4%) was below the lower acceptance limit of 70% for sample AOC 22-11 (0-0.5'). Data qualification was not required because the other surrogates were within acceptance limits.

### 2.6 LCS Recovery and Relative Percent Difference

LCS/LCS duplicates were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J+" to account for a potential high bias.
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J-" for detected results) to account for a potential low bias.

LCS/LCSD percent recoveries and relative percent differences (RPDs) were within acceptance limits except for the following:

- The LCS recovery for 1,1-Dichloroethene (93.9%) and trichloroethene (88.1%) was below the lower acceptance limit of 97.9% and 90.5%, respectively, for analytical batch 33138. The associated field data was non-detect, and therefore qualified "UJ" to account for potential low bias.
- The LCS percent recovery for 1,1-Dichloroethene (95.6%) was below the lower limit of 97.9% for analytical batch 33198. The associated field data was non-detect, and therefore was qualified "UJ" to account for a potential low bias.
- The LCS recovery for 1,1-Dichloroethene (132%) was above the upper acceptance limit of 130% for analytical batch 18946. Data qualification was not required because all associated field samples were non-detect.
- The LCS recovery for 1,1-Dichloroethene (86.1%) was below the lower acceptance limit of 97.9% for analytical batch R33263. The associated field data was non-detect, and therefore qualified "UJ" to account for a potential low bias.
- The LCS recovery for 4-Bromofluorobenzene (136%) and toluene-d8 (132%) were above the upper acceptance limit of 130% for analytical batch 18990. Data

qualification was not required because other two surrogates were within acceptance limits.

- The LCS percent recovery for 4-bromofluorobenzene (137%) and dibromofluoromethane (131%) was above the upper acceptance limit of 130% for analytical batch 19000. Data qualification was not required because the other two surrogates were within limits.
- The LCS percent recovery for chlorobenzene (80.2%) was below the lower acceptance limit of 80.7% for analytical batch R34645. Associated field sample results were qualified "UJ" to account for a potential low bias.
- The LCS percent recovery for trichloroethene (142%) was above the upper acceptance limit of 130% for batch 18838. Data qualification was not required because all associated field samples were non-detect.
- The LCS percent recovery for trichloroethene (140%) was above the upper acceptance limit of 130% for batch 19000. Data qualification was not required because all associated field samples were non-detect.
- The LCS recovery for Antimony (121%) was above the upper acceptance limit of 115% for analytical batch ICPMS4-c\_090414A. Data qualification was not required because all associated samples were non-detect.
- The LCS recovery for Antimony (116%) was above the upper acceptance limit of 115% for batch ICPMS4-C\_090415A. Data qualification was not required because all associated samples were non-detect.
- The LCS percent recovery for chloride (112%) was above the upper acceptance limit of 110% for analytical batch 33842. Associated field sample results were qualified "J+" to account for a potential high bias.
- The LCS percent recovery for fluoride (112% and 120%) was above the upper acceptance limit of 110% for analytical batch R33842 and R33861, respectively. Associated field sample results were qualified "J+" to account for a potential high bias.

### 2.7 MS/MSD Recovery and Relative Percent Difference

MS/MSD samples were performed at the required frequency and were evaluated by the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits but the analyte was not detected in the associated analytical batch, then data qualification was not required.
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, then analyte results were qualified "J+" to account for a potential low bias.

- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch.
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

MS/MSD percent recoveries and RPDs were within acceptance limits except for the following:

- MS/MSD recoveries for Antimony (14.1% / 14.5%) were below the lower The acceptance limit of 75% for analytical batch 18855. Associated field sample results for Antimony were non-detect. Data qualification "UJ" was required to indicate a potential bias for the associated samples.
- The MS/MS duplicate percent recoveries for Antimony (19.9%/32.7%) were below the lower acceptance limit of 75% for analytical batch 18890. The associated field data was qualified "UJ" to account for potential low bias.
- The MS duplicate recovery for selenium (71.3%) and antimony (12.3%) were below the respective low acceptance limit of 75%. Data qualification was not required because the MS recovery and relative percent difference were within acceptance limits.
- The MS/MS duplicate percent recoveries for Antimony (20.3% / 0%) and Selenium (50.6% / 57.6%) were below the lower acceptance limit of 75% for analytical batch 18924. The associated field data was qualified "UJ" to account for potential low bias.
- The MS/MS duplicate recovery for antimony (16.3%/14.6%) were below the lower acceptance limit of 75% for analytical batch 18967. Associated field data results was non-detect; therefore the results were qualified "UJ" for potential low bias.
- The MS/MS duplicate recoveries for antimony (14.6% / 16.3%) were below the lower acceptance limit of 75% for analytical batch 18967. Associated field data was qualified "UJ" for potential low bias.
- The MS/MSD recovery for antimony (25.9%/22.8%) and selenium (57.5%/51.0%) were below the lower acceptance limit of 75% for analytical batch 19089. Associated field samples were non-detect and where therefore qualified "UJ" to account for potential low bias.
- The MS/MSD recovery for antimony (72%/73%) was below the lower acceptance limit of 75% for analytical batch B09071596. Ground water field data was qualified "UJ" for nondetects (MW-64) and "J-" for detected concentrations (MW-66) to account for a potential low bias.
- The MS duplicate recovery for cyanide (111%) was above the upper acceptance limit of 110% for analytical batch B09041656-005MSD. Data qualification was not required because the MS percent recovery was within acceptance limits.
- The MS duplicate percent recovery for cyanide (112%) was above the upper acceptance limit of 110% for analytical batch B09041381-001. Data qualification was not required because the MS percent recovery was within limits.

- The MS duplicate recovery for cyanide (113%) was above the upper acceptance limit of 110% for analytical batch B09042019-006. Data qualification was not required by the MS percent recovery was within acceptance limits.
- The MS recovery for cyanide (89%) was below the lower acceptance limit of 90% for analytical batch 09051460-001. Data qualification was not required because the MSD recovery was within limits.
- The MSD recovery for cyanide (114% and 113%) was above the upper acceptance limit of 110% for analytical batch B09051459 and B09051454. Data qualification was not required because MS recoveries were within acceptance limits.
- The MS/MSD recovery for cyanide (111%/112%) was above the upper acceptance limit of 110% for analytical batch B09051662. Data qualification was not required because the associated field samples were non-detect.
- The MS/MSD recovery for cyanide (81%/82%) was below the lower acceptance limit of 90% for analytical batch AUTOAN201-B\_090720A. Associated field data was qualified "UJ" for associated ground water samples to account for a potential low bias.
- The MS/MSD recoveries for cyanide (114%/114%) were above the upper acceptance limit of 110% for analytical batch B09051662-002. Data qualification was not required because all associated field data was non-detect.
- The MS/MSD recoveries for cyanide (117%/117%) were above the upper acceptance limit of 110% for analytical batch B09051671-001. Data qualification was not required because all associated field data was non-detect.
- The MS recovery for selenium (67.9%) was below the lower acceptance limit of 75% for analytical batch 18967. Data qualification was not required because the MS duplicate recovery was within limits.
- The MS recovery for selenium (67.9%) was below the lower acceptance limit of 75% for analytical batch 18967. Data qualification was not required because the MSD recoveries were within acceptance limits.
- The MS/MS duplicate recovery for mercury (152%/133%) was above the upper acceptance limit of 125% for analytical batch 18995. Data qualification was not required because associated sample results were non-detect.
- The MSD recovery for trichloroethene (85.8%) was below the lower acceptance limit of 87.1% for analytical batch R33223. Data qualification was not required because the associated MS recovery was within the acceptance limits.
- The MS duplicate recovery for Gasoline Range Organics (121%) was above the upper acceptance limit of 120% for analytical batch R33224. Data qualification was not required since the MS and relative percent difference were within acceptance limits.
- The MS/MSD percent recoveries for 2,4-Dinitrotoluene (0%), N-Nitrosodi-n-prypylamine (0%), and 1,2,4-Trichlorobenzene (0%) were below the lower acceptance limits of 28%, 28%, and 17.9% respectively, for analytical batch 18828. The relative percent

- differences were within limits. The associated field sample data was qualified "UJ" to account for potential low bias.
- The MS/MSD surrogate recoveries for 2,4,6-tribromophenol (31.3%/26.0%) and phenold5 (34.0%/34.1%) were below the lower acceptance limit of 35.5% and 37.6%, respectively for analytical batch 18828. Data qualification was not required because the remaining surrogates were within acceptance limits.
- The MS/MSD recoveries for benzene (79.6%/80%) and 1,1-Dichloroethene (83.1%/84.4%) were below the lower acceptance limit of 84.9% and 88%, respectively for analytical batch R34645. The associated field data was qualified UJ to account for the potential low bias.
- The MS/MS duplicate relative percent difference for analytical batch R33310 (17.8%)
  was above the acceptance limit of 15%. Data qualification was not required because the
  MS/MSD percent recoveries were within acceptance limits.
- The MSD recoveries for toluene (78.1%) and trichloroethene (86.0%) were below the lower acceptance limits of 80.3% and 87.1%, respectively. Data qualification was not required because MS recoveries were within acceptance limits.
- The MS recovery for trichloroethene (115%) was above the upper acceptance limit of 114% for analytical batch 33452. Data qualification was not required because the associated sample results were non-detect.
- The MS recovery for trichloroethene (115%) was above the upper acceptance limit of 114% for analytical batch 33452. Data qualification was not required because the associated field sample results were non-detect.
- The MS duplicate recovery for BFB (118%) was above the upper acceptance limit of 116% for analytical batch R33510. Data qualification was not required because the MS recovery was within acceptance limits.
- The MS/MSD recovery for gasoline range organics (124%/124%) was above the upper acceptance limit of 120% for analytical batch 33529. Data qualification was not required because the associated field samples were non-detect.
- The MS/MS duplicate recovery for gasoline range organics (138%/143%) was above the upper acceptance limit of 115% for analytical batch 33820. Associated field data for MW-59 and MW-60 was qualified J+ due to potential high bias.

### 2.8 Duplicates

### 2.8.1 Field Duplicates

Field duplicates were collected at a rate of 10 percent and submitted for analysis. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table A-3. The field duplicates were evaluated by the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 35 percent for soil and 25 percent for ground water samples.
- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.
- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits except for the following:

- Chromium for field sample AOC 25-2 (0-0.5');
- Lead for field sample AOC 22-8 (1.5-2.0');
- TPH-MRO, 1,2,4-trimethylbenzene, and barium for field sample AOC 26-8 (0-1.0');
- Chromium and lead for field sample AOC 26-3 (1.5-2.0');
- Acetone for field sample AOC 23-1 (0-0.5');
- Chromium, cobalt, and zinc for field sample AOC 24-4 (1.5-2.0');
- Arsenic for field sample MW-65; and
- Iron for field sample MW-63.

### 2.9 Other Applicable qc parameters

### 2.9.1 Calibration

- The 5 ppb continuing standard had a high recovery for acetone at 142.7%. Data qualification was not required because the percent different between the initial and continuing RRFs was less than 25%.
- Bis(2-ethylbexyl)phthalate failed high on the opening standard at 142%. The laboratory acceptance range is 60-140% of the expected value. Data qualification was not required because all other calibration standard recoveries were within acceptance limits.

### 3.0 Completeness Summary

Two types of completeness were calculated for this project: contract and technical. The following equations were used to calculate the two types of completeness:

% Contract Completeness = 
$$\left(\frac{\text{Number of contract compliant results}}{\text{Number of reported results}}\right) \times 100$$

% Technical Completeness = 
$$\left(\frac{\text{Number of usable results}}{\text{Number of reported results}}\right) \times 100$$

The overall contract completeness, which includes the evaluation of protocol and contract deviations, which includes the evaluation of the QC parameters listed in Section 2.0, was approximately 94 percent for soil analysis and 96 percent for ground water analysis. The technical completeness attained for Group 3 RCRA Investigation activities was 100 percent. The completeness results are provided in Table A-4. The analytical results for the required analytes per the approved Group 3 Work Plan were considered usable for the intended purposes and the project DQOs have been met.

# TABLE A-1 Sampling and Analysis Schedule

Table A-1
Sampling and Analysis Schedule
Group 3 Investigation Report
Western Refining Southwest, Inc. - Bloomfield Refinery

| Sample ID                              | Lab ID      | Date Collected | Sample Type   |
|--|-------------|----------------|---------------|
| EBS-040509                             | 0907095-01  | 4/5/2009       | EB-Soil       |
| AOC 25-2 (0-0.5')                      | 0904095-02  | 4/5/2009       | N             |
| AOC 25-2 (0-0.5')-DUP                  | 0904095-03  | 4/5/2009       | N             |
| Methanol Blank                         | 0904095-04  | na             | MB            |
| Trip Blank                             | 0904095-05  | na             | TB            |
| AOC 25-2 (36-38')                      | 0904095-06  | 4/5/2009       | N             |
| AOC 25-2 (1.5-2.0')                    | 0904095-07  | 4/5/2009       | N             |
| FB-040509                              | 0904095-08  | 4/5/2009       | FB            |
| SWMU 4-1 (0-0.5')                      | 0904098-01  | 4/6/2009       | N ·           |
| SWMU 4-1 (1.5-2.0')                    | 0904098-02  | 4/6/2009       | N             |
| SWMU 4-1 (6-8')                        | 0904098-03  | 4/6/2009       | N             |
| Methanol Blank                         | 0904098-04  | na             | MB            |
| Trip Blank                             | 0904098-05  | na             | TB            |
| FB-040609                              | 0904098-06  | 4/6/2009       | FB            |
| EBS-040609                             | 0904098-07  | 4/6/2009       | EB-Soil       |
| SWMU 4-1 (36-38')                      | 0904107-01  | 4/6/2009       | N             |
| AOC 24-7 (0-0.5')                      | 0904107-02  | 4/7/2009       | N             |
| AOC 24-7 (1.5-2.0')                    | 09047107-03 | 4/7/2009       | N             |
| FB-040709                              | 0904107-04  | 4/7/2009       | FB            |
| EBS-040709                             | 0904107-05  | 4/7/2009       | EB-Soil       |
| Methanol Blank                         | 0904107-06  | na             | MB            |
| Trip Blank                             | 0904107-07  | na             | TB            |
| AOC 24-7 (39-42')                      | 0904143-01  | 4/7/2009       | 1B<br>N       |
| AOC 24-7 (39-42)                       | 0904143-01  | 4/8/2009       | N             |
| AOC 24-5 (0-0.5') DUP                  | 0904143-03  | 4/8/2009       | N             |
| AOC 24-5 (1.5-2.0')                    | 0904143-04  | 4/8/2009       | N             |
| Methanol Blank                         | 0904143-05  | na             | MB            |
| AOC 24-6 (0-0.5')                      | 0904143-06  | 4/8/2009       | N             |
| AOC 24-6 (0-0.5)                       | 0904143-07  | 4/8/2009       | N             |
| AOC 24-0 (1.5-2.0')                    | 0904153-01  | 4/8/2009       | N             |
| AOC 22-14 (1.3-2.0) AOC 22-14 (0-0.5') | 0904153-01  | 4/8/2009       | N             |
| FB 040809                              | 0904153-02  | 4/8/2009       | FB            |
|  | 0904153-04  |                | <del></del>   |
| Methanol Blank EBS-040809              | 0904153-04  | na<br>4/8/2009 | MB<br>EB-Soil |
| Trip Blank                             | 0904153-06  |                |               |
|  | 0904155-01  | na<br>4/8/2009 | TB            |
| AOC 22-13 (1.5-2.0')                   |             |                | N             |
| AOC 22-13 (32-34.5')                   | 0904155-02  | 4/8/2009       | N             |
| AOC 22-13 (18-20')                     | 0904155-03  | 4/8/2009       | N             |
| AOC 22-13 (37-39')                     | 0904155-04  | 4/8/2009       | N N           |
| Methanol Blank                         | 0904155-05  | na             | MB            |
| AOC 22-13 (GW)                         | 0904155-06  | 4/9/2009       | N             |
| AOC 22-13 (0-0.5')                     | 0904155-07  | 4/8/2009       | N             |
| Trip Blank                             | 0904155-08  | na             | TB            |
| FB-040909                              | 0904155-08  | 4/9/2009       | FB            |
| AOC 22-12 (0-0.5')                     | 0904193-01  | 4/13/2009      | N             |
| AOC 22-12 (0-0.5)-DUP                  | 0904193-02  | 4/13/2009      | N             |
| AOC 22-12 (1.5-2.0')                   | 0904193-03  | 4/13/2009      | N             |
| AOC 22-12 (32-35')                     | 0904193-04  | 4/13/2009      | . N           |
| AOC 22-12 (36-37.75')                  | 0904193-05  | 4/13/2009      | N             |
| Methanol Blank                         | 0904193-06  | <u> na </u>    | MB            |
| Trip Blank                             | 0904193-07  | na             | TB            |
| EBS-041309                             | 0904193-08  | 4/13/2009      | EB-Soil       |
| FB-041309                              | 0904194-01  | 4/13/2009      | FB            |
| AOC 22-16 (0-0.5')                     | 0904194-02  | 4/13/2009      | N             |
| AOC 22-16 (1.5-2.0')                   | 0904194-03  | 4/13/2009      | N             |
| Trip Blank                             | 0904194-04  | na             | TB            |
| Methanol Blank                         | 0904194-05  | na             | MB            |
| AOC 22-12 (GW)                         | 0904212-01  | 4/14/2009      | N             |
| Trip Blank                             | 0904212-02  | na             | TB            |
| AOC 22-16 (36-38')                     | 0904212-03  | 4/14/2009      | N             |
| Methanol Blank                         | 0904212-04  | na             | MB            |
| AOC 22-8 (1.5-2.0')                    | 0904214-01  | 4/13/2009      | N             |
| AOC 22-8 (1.5-2.0') DUP                | 0904214-01  | 4/13/2009      | N             |
| AOC 22-8 (1.3-2.0) DOF                 | 0904214-02  | 4/13/2009      | N             |
| ·                                      | 0904214-03  |                | <del></del>   |
| Methanol Blank                         | 0904214-04  | na             | MB            |

# Table A-1 Sampling and Analysis Schedule Group 3 Investigation Report Western Refining Southwest, Inc. - Bloomfield Refinery

| Sample ID                                | Lab ID                   | Date Collected         | Sample Type |
|--|--------------------------|------------------------|-------------|
| AOC 22-9 (1.5-2.0')                      | 0904214-05               | 4/13/2009              | N N         |
| AOC 22-7 (1.5-2.0')                      | 09042014-06              | 4/13/2009              | N           |
| AOC 22-7 (0-0.5')                        | 0904214-07               | 4/13/2009              | N           |
| AOC 22-8 (0-0.5')                        | 0904214-08               | 4/13/2009              | N           |
| AOC 22-10 (0-0.5')                       | 0904240-01               | 4/14/2009              | N           |
| AOC 22-10 (1.5-2.0')                     | 0904240-02               | 4/14/2009              | N           |
| AOC 22-11 (0-0.5')                       | 0904240-03               | 4/14/2009              | N           |
| AOC 22-11 (1.5-2.0')                     | 0904240-04               | 4/14/2009              | N           |
| FB-041409                                | 0904240-05               | 4/14/2009              | FB          |
| EBS-041409                               | 0904240-06               | 4/14/2009              | EB-Soil     |
| Trip Blank                               | 0904240-07               | na                     | TB          |
| Methanol Blank                           | 0904240-08               | na                     | MB          |
| AOC 22-15 (1.0-0.5')                     | 0904241-01               | 4/15/2009              | N           |
| AOC 22-15 (1.5-2.0')                     | 0904241-02               | 4/15/2009              | N           |
| AOC 22-15 (1.5-2.0') DUP                 | 0904241-03               | 4/15/2009              | N_          |
| Methanol Blank                           | 0904241-04               | na                     | MB          |
| AOC 22-15 (30-32')                       | 0904241-05               | 4/15/2009              | N           |
| FB-041509                                | 0904241-06               | 4/15/2009              | FB          |
| Trip Blank                               | 0904241-07               | na                     | TB          |
| AOC 22-15 (34-36')                       | 0904241-08               | 4/15/2009              | N           |
| EBS-041509                               | 0904241-09               | 4/15/2009              | EB-Soil     |
| AOC 26-8 (0-1.0')                        | 0904265-01               | 4/16/2009              | N           |
| AOC 26-8 (0-1.0') DUP                    | 0904265-02               | 4/16/2009              | N           |
| AOC 26-8 (1.5-2.0')                      | 0904265-03               | 4/16/2009              | N           |
| Methanol Blank                           | 0904265-04               | na                     | MB          |
| Trip Blank                               | 0904265-05               | na<br>4/16/2000        | TB          |
| FB-041609                                | 0904265-06               | 4/16/2009              | FB          |
| EBS-041609                               | 0904265-07               | 4/16/2009              | EB-Soil     |
| AOC 26-8 (32-36')<br>AOC 22-1 (1.5-2.0') | 0904265-08<br>0904266-01 | 4/16/2009<br>4/15/2009 | N           |
|  |                          |                        | N N         |
| AOC 22-1 (0-0.5')                        | 0904266-02               | 4/15/2009              | N N         |
| AOC 22-2 (0-0.5')<br>AOC 22-2 (1.5-2.0') | 0904266-04               | 4/15/2009<br>4/15/2009 | N N         |
| AOC 22-3 (0-0.5')                        | 0904266-05               | 4/15/2009              | N           |
| AOC 22-3 (0-0.5)                         | 0904266-06               | 4/15/2009              | N           |
| AOC 22-4 (0-0.5')                        | 0904266-07               | 4/15/2009              | N           |
| AOC 22-4 (0.53)                          | 0904266-08               | 4/15/2009              | N           |
| Methanol Blank                           | 0904266-09               | na                     | MB          |
| AOC 26-3 (0-0.5')                        | 0904311-01               | 4/20/2009              | N           |
| AOC 26-3 (1.5-2.0')                      | 0904311-02               | 4/20/2009              | N           |
| AOC 26-3 (1.5-2.0') DUP                  | 0904311-03               | 4/20/2009              | N           |
| AOC 26-4 (0-0.5')                        | 0904311-04               | 4/20/2009              | N           |
| AOC 26-4 (1.5-2.0')                      | 0904311-05               | 4/20/2009              | N           |
| Methanol Blank                           | 0904311-06               | na                     | MB          |
| EBS-042009                               | 0904311-07               | 4/20/2009              | EB-Soil     |
| Trip Blank                               | 0904311-08               | na                     | TB          |
| AOC 26-9 (0-0.5')                        | 0904315-01               | 4/20/2009              | N           |
| AOC 26-9 (1.5-2.0')                      | 0904315-02               | 4/20/2009              | N           |
| AOC 26-1 (0-0.5')                        | 0904315-03               | 4/20/2009              | N           |
| AOC 26-1 (1.5-2.0')                      | 0904315-04               | 4/20/2009              | N           |
| FB-042009                                | 0904315-05               | 4/20/2009              | FB          |
| AOC 26-2 (0-0.5')                        | 0904315-06               | 4/20/2009              | N           |
| AOC 26-2 (1.5-2.0')                      | 0904315-07               | 4/20/2009              | N           |
| Trip Blank                               | 0904315-08               | na                     | TB          |
| Methanol Blank                           | 0904315-09               | na<br>4/20/2000        | MB          |
| AOC 26-5 (0-0.5')                        | 0904356-01               | 4/20/2009              | N           |
| AOC 26-5 (1.5-2.0')                      | 0904356-02               | 4/20/2009              | N           |
| AOC 26-6 (0-0.5')                        | 0904356-03               | 4/20/2009              | N           |
| AOC 26-6 (1.5-2.0')                      | 0904356-04               | 4/20/2009              | N           |
| AOC 26-7 (0-0.5')                        | 0904356-05               | 4/20/2009              | N           |
| AOC 26-7 (1.5-2.0')                      | 0904356-06               | 4/20/2009              | N           |
| AOC 26-9 (36-38')                        | 0904356-08               | 4/20/2009              | N           |
| AOC 23-1 (0-0.5')                        | 0904359-01               | 4/21/2009              | N           |
| AOC 23-1 (0-0.5') DUP                    | 0904359-02               | 4/21/2009              | N           |
| AOC 23-1 (1.5-2.0')                      | 0904359-03               | 4/21/2009              | N           |
| AOC 24-1 (0-0.5')                        | 0904397-01               | 4/23/2009              | N           |

Table A-1
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Western Refining Southwest, Inc. - Bloomfield Refinery

| Sample ID                               | Lab ID       | Date Collected  | Sample Type |
|---|--------------|-----------------|-------------|
| AOC 24-1 (1.5-2.0')                     | 0904397-02   | 4/23/2009       | N<br>N      |
| AOC 24-1 (1.3-2.0)<br>AOC 24-2 (0-0.5') | 0904397-02   | 4/23/2009       | N           |
| AOC 24-2 (0-0.3)                        | 0904397-03   | 4/23/2009       | N N         |
| AOC 24-2 (1.5-2.0)                      | 0904397-05   | 4/23/2009       | N           |
| AOC 24-3 (0-0.3)                        | 0904397-06   | 4/23/2009       | N           |
| AOC 24-3 (1.3-2.0)                      | 0904397-07   | 4/23/2009       | N           |
| AOC 24-4 (0-0.5)                        | 0904397-08   | 4/23/2009       | N           |
| AOC 24-4 (1.5-2.0) DUP                  | 0904397-09   | 4/23/2009       | N           |
| Methanol Blank                          | 0904397-09   | na              | MB          |
| FB-042109                               | 0904397-10   | 4/21/2009       | FB          |
| FB-042209                               | 0904399-01   | 4/22/2009       | FB          |
| EBS-042209                              | 0904399-02   | 4/22/2009       | EB-Soil     |
|   | 0904099-03   | 4/21/2009       | EB-Soil     |
| EBS-042109                              | 0904399-04   |                 | TB          |
| Trip Blank                              |              | na              |             |
| Methanol Blank                          | 0904399-06   | na<br>4/22/2009 | MB<br>N     |
| AOC 23-1 (52-53')                       | 0904399-07   |                 |             |
| EBS-042309                              | 0904414-01   | 4/23/2009       | EB-Soil     |
| FB-042309                               | 0904414-02   | 4/23/2009       | FB          |
| Trip Blank                              | 0904414-03   | na              | TB          |
| Methanol Blank                          | 0904414-04   | na              | MB          |
| AOC 25-1 (0-0.5')                       | 0904414-05   | 4/23/2009       | N_          |
| AOC 25-1 (1.5-2.0')                     | 0904414-06   | 4/23/2009       | N           |
| SWMU 5-1 (0-0.5')                       | 0904415-01   | 4/23/2009       | N           |
| SWMU 5-1 (1.5-2.0')                     | 0904415-02   | 4/23/2009       | N           |
| SWMU 5-2 (0-0.5')                       | 0904415-03   | 4/23/2009       | N           |
| SWMU 5-2 (1.5-2.0')                     | 0904415-04   | 4/23/2009       | N           |
| SWMU 5-3 (0-0.5')                       | 0904415-05   | 4/23/2009       | N           |
| SWMU 5-3 (1.5-2.0')                     | 0904415-06   | 4/23/2009       | N           |
| SWMU 5-4 (0-0.5')                       | 0904415-07   | 4/23/2009       | N           |
| SWMU 5-4 (1.5-2.0')                     | 0904415-08   | 4/23/2009       | N           |
| SWMU 5-5 (0-0.5')                       | 0904415-09   | 4/23/2009       | N           |
| Methanol Blank                          | 0904415-10   | na              | MB_         |
| AOC 22-5 (0-0.5')                       | 0904416-01   | 4/23/2009       | N           |
| AOC 22-5 (1.5-2.0')                     | 0904416-02   | 4/23/2009       | N           |
| AOC 22-6 (0-0.5')                       | 0904416-03   | 4/23/2009       | N           |
| AOC 22-6 (1.5-2.0')                     | 0904416-04   | 4/23/2009       | N           |
| SWMU 5-5 (1.5-2.0')                     | 0904416-05   | 4/23/2009       | N           |
| SWMU 5-5 (1.5-2.0') DUP                 | 0904416-06   | 4/23/2009       | N           |
| SWMU 5-6 (0-0.5')                       | 0904416-07   | 4/23/2009       | N           |
| SWMU 5-6 (1.5-2.0')                     | 0904416-08   | 4/23/2009       | N           |
| Methanol Blank                          | 0904416-09   | na              | MB          |
| MW-62                                   | 0905247-01   | 5/13/2009       | N           |
| EBW-051209                              | 0905247-02   | 5/12/2009       | EB-Water    |
| MW-61                                   | 0905247-03   | 5/13/2009       | N           |
| Trip Blank                              | 0905247-04   | na              | TB          |
| FB-051209                               | 0905247-05   | 5/12/2009       | FB          |
| MW-59                                   | 0905297-01   | 5/14/2009       | N           |
| EBW-051409                              | 0905297-02   | 5/14/2009       | EB-Water    |
| MW-60                                   | 0905297-03   | 5/14/2009       | N           |
| FB-051409                               | 0905297-04   | 5/14/2009       | FB          |
| Trip Blank                              | 0905297-05   | na              | TB          |
| MW-66                                   | 0905258-01   | 5/12/2009       |             |
|   |              |                 | N           |
| Trip Blank                              | 0905258-02   | na              | TB          |
| MW-65                                   | 0905258-03   | 5/12/2009       | N           |
| MW-65 (DUP)                             | 0905258-04   | 5/12/2009       | N           |
| MW-64                                   | 0905299-01   | 5/13/2009       | N           |
| FB-051309                               | 0905299-02   | 5/13/2009       | FB          |
| MW-63                                   | 0905299-03   | 5/13/2009       | N           |
| EBW-051309                              | 0905299-04   | 5/13/2009       | EB-Water    |
| Trip Blank                              | 0905299-05   | na              | TB          |
| MW-64                                   | 0907285-01   | 7/15/2009       | N           |
| Trip Blank                              | 0907285-02   | na              | TB          |
| MW-66                                   | 0907285-03   | 7/15/2009       | N           |
| MW-63                                   | 0907286-01   | 7/15/2009       | N           |
| TAT AL -02                              | 1 0201200-01 | 111312009       | L 1N        |

### Table A-1 Sampling and Analysis Schedule **Group 3 Investigation Report** Western Refining Southwest, Inc. - Bloomfield Refinery

| Sample ID   | Lab ID     | Date Collected | Sample Type |
|-------------|------------|----------------|-------------|
| Trip Blank  | 0907286-02 | na             | TB          |
| MW-63 (DUP) | 0907286-03 | 7/15/2009      | N           |
| MW-61_      | 0907314-01 | 7/16/2009      | N           |
| Trip Blank  | 0907314-02 | na             | TB          |
| MW-65       | 0907314-03 | 7/16/2009      | N           |
| MW-59       | 0907314-04 | 7/16/2009      | N           |
| MW-62       | 0907315-01 | 7/16/2009      | N           |
| EBW-071509  | 0907315-02 | 7/15/2009      | EB-Water    |
| FB-071509   | 0907315-03 | 7/15/2009      | FB          |
| Trip Blank  | 0907315-04 | na             | TB          |
| EBW-071609  | 0907318-01 | 7/16/2009      | EB-Water    |
| FB-071609   | 0907318-02 | 7/16/2009      | FB          |
| TW-01       | 0907559-01 | 7/29/2009      | N           |
| Trip Blank  | 0907559-02 | na             | TB          |

Notes:

VOCs = Volatile Organic Compounds

N = Normal field sample

FD = Field duplicate

na = not applicable

TB = Trip Blank EB = Equipment Blank

MB = Methanol Blank

## TABLE A-2 Qualified Data

| Sample 1D             | Date Collected | Analyte                | Result  | Units     | Matri | Matrix Qualifier | Comments   |
|-----------------------|----------------|------------------------|---------|-----------|-------|------------------|--|
| AOC 22-13 (0-0.51)    | 4/8/2009       | 1,1-Dichloroethene     | < 1.10  | μg/Kg-dry | Soil  | m                | Qualified due to low LCS recovery                    |
| AOC 22-13 (1.5-2.0')  | 4/8/2009       | 1,1-Dichloroethene     | < 1.0   | mg/Kg     | Soil  | m                | Qualified due to low LCS recovery                    |
| AOC 22-13 (18-20')    | 4/8/2009       | 1,1-Dichloroethene     | < 0.50  | mg/Kg     | Soil  | m                | Qualified due to low LCS recovery                    |
| AOC 22-13 (32-34.5')  | 4/8/2009       | 1,1-Dichloroethene     | < 0.050 | mg/Kg     | Soil  | m                | Qualified due to low LCS recovery                    |
| AOC 22-13 (37-39')    | 4/8/2009       | 1,1-Dichloroethene     | < 5.0   | mg/Kg     | Soil  | UI               | Qualified due to low LCS recovery                    |
| AOC 22-16 (36-38')    | 4/14/2009      | 1,1-Dichloroethene     | < 0.965 | μg/Kg-dry | Soil  |                  | Qualified due to low LCS recovery                    |
| MW-62                 | 7/16/2009      | 1,1-Dichloroethene     | < 1.0   | µg/L      | ĞW    | UJ               | Qualified due to low MS/MSD recovery                 |
| SWMU 4-1 (0-0.5')     | 4/6/2009       | 1,1-Dichloroethene     | < 0.050 | mg/Kg     | Soil  | m                | Qualified due to low LCS recovery                    |
| SWMU 4-1 (0-0.5')     | 4/6/2009       | 1,1-Dichloroethene     | < 0.933 | =         | Soil  | m                | Qualified due to low LCS recovery                    |
| SWMU 4-1 (1.5-2.0')   | 4/6/2009       | 1,1-Dichloroethene     | < 0.050 |           | Soil  | U                | Qualified due to low LCS recovery                    |
| SWMU 4-1 (1.5-2.0')   | 4/6/2009       | 1,1-Dichloroethene     | < 0.991 | =         | Soil  | m                | Qualified due to low LCS recovery                    |
| SWMU 4-1 (36-38')     | 4/6/2008       | 1,1-Dichloroethene     | < 1.02  | ug/kg-dry | Soil  | m                | Qualified due to low LCS recovery                    |
| SWMU 4-1 (6-8')       | 4/6/2009       | 1,1-Dichloroethene     | < 0.10  | mg/Kg     | Soil  | m                | Qualified due to low LCS recovery                    |
| AOC 22-13 (0-0.5')    | 4/8/2009       | 1,2,4-Trichlorobenzene | < 1.10  | μg/Kg-dry | Soil  | u                | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (1.5-2.0')  | 4/8/2009       | 1,2,4-Trichlorobenzene | < 1.0   | mg/Kg     | Soil  | m                | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (18-20')    | 4/8/2009       | 1,2,4-Trichlorobenzene | < 0.50  | mg/Kg     | Soil  | _ m              | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (32-34.5')  | 4/8/2009       | 1,2,4-Trichlorobenzene | < 0.050 | mg/Kg     | Soil  | m                | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (0-0.5')    | 4/8/2009       | 2,4-Dinitrotoluene     | < 2.5   | mg/Kg     | Soil  | m                | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (1.5-2.0')  | 4/8/2009       | 2,4-Dinitrotoluene     | < 5.0   | mg/Kg     | Soil  | UJ               | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (18-20')    | 4/8/2009       | 2,4-Dinitrotoluene     | < 0.50  | mg/Kg     | Soil  | U                | Qualified due to low MS/MSD recovery                 |
| AOC 22-13 (32-34.5')  | 4/8/2009       | 2,4-Dinitrotoluene     | < 0.50  | mg/Kg     | Soil  | n                | Qualified due to low MS/MSD recovery                 |
| AOC 22-12 (32-35')    | 4/13/2009      | Acetone                | 30.1    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 22-12 (36-37.75') | 4/13/2009      | Acetone                | 21.0    | µg/Kg-dry | Soil  | ĵ+               | Qualified due to potential laboratory contamination. |
| AOC 23-1 (0-0.5')     | 4/21/2009      | Acetone                | 13.6    | ug/Kg-dry | Soil  | )+               | Qualified due to potential laboratory contamination. |
| AOC 23-1 (0-0.5') DUP | 4/21/2009      | Acetone                | 25.4    | μg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 23-1 (1.5-2.0')   | 4/21/2009      | Acetone                | 26.2    | µg/Kg-dry | Soil  | T+               | Qualified due to potential laboratory contamination. |
| AOC 23-1 (52-53')     | 4/22/2009      | Acetone                | 16.2    | μg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 24-7 (39-42')     | 4/7/2009       | Acetone                | 7.80    | µg/Kg-dry | Soil  | ÷ſ               | Qualified due to potential laboratory contamination. |
| AOC 25-1 (0-0.5')     | 4/23/2009      | Acetone                | 176     | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 25-1 (1.5-2.0')   | 4/23/2009      | Acetone                | 33.9    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 25-2 (36-38')     | 4/5/2009       | Acetone                | 4.21    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-1 (0-0.5')     | 4/20/2009      | Acetone                | 15.9    | µg/Kg-dry | Soil  | +ſ               | Qualified due to potential laboratory contamination. |
| AOC 26-1 (1.5-2.0')   | 4/20/2009      | Acetone                | 9.75    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-2 (0.0.5')     | 4/20/2009      | Acetone                | 15.3    | μg/Kg-dry | Soil  | ţ,               | Qualified due to potential laboratory contamination. |
| AOC 26-2 (1.5-2.0')   | 4/20/2009      | Acetone                | 9.01    | ug/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-4 (1.5-2.0')   | 4/20/2009      | Acetone                | 5.06    | µg/Kg-dry | Soil  | ÷                | Qualified due to potential laboratory contamination. |
| AOC 26-5 (0-0.5')     | 4/20/2009      | Acetone                | 44.8    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-5 (1.5-2.0')   | 4/20/2009      | Acetone                | 7.14    | µg/Kg-dry | Soil  | )+               | Qualified due to potential laboratory contamination. |
| AOC 26-6 (0-0.5')     | 4/20/2009      | Acetone                | 49.8    | µg/Kg-dry | Soil  | -f               | Qualified due to potential laboratory contamination. |
| AOC 26-6 (1.5-2.0)    | 4/20/2009      | Acetone                | 6.34    | ug/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-7 (0-0.5')     | 4/20/2009      | Acetone                | 78.0    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-7 (1.5-2.0°)   | 4/20/2009      | Acetone                | 25.8    | µg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-9 (0-0.5')     | 4/20/2009      | Acetone                | 7.73    | μg/Kg-dry | Soil  | J+               | Qualified due to potential laboratory contamination. |
| AOC 26-9 (1.5-2.0)    | 4/20/2009      | Acetone                | 6.71    | ug/Kg-dry | Soil  | ţ                | Qualified due to potential laboratory contamination. |
| SWMU 5-1 (0-0.5')     | 4/23/2009      | Acetone                | 8.35    | μg/Kg-dry | _     | ±,               | Qualified due to potential laboratory contamination. |
| SWMU 5-1 (1.5-2.0)    | 4/23/2009      | Acetone                | 5.74    | µg/Kg-dry | Soil  | ±                | Qualified due to potential laboratory contamination. |

| SWMU 5-2 (0-0.5')      | 4/23/2009 | Acetone                       | 7.89   | ug/Kg-dry | Soil | ±              | Oualified due to potential Jaboratory contamination. |
|------------------------|-----------|-------------------------------|--------|-----------|------|----------------|--|
| SWMU 5-2 (1.5-2.0')    | 4/23/2009 | Acetone                       | 6.05   | µg/Kg-dry | Soil | ±              | Qualified due to potential laboratory contamination. |
| SWMU 5-3 (0-0.5')      | 4/23/2009 | Acetone                       | 8.43   | µg/Kg-dry | Soil | ÷,             | Qualified due to potential laboratory contamination. |
| SWMU 5-3 (1.5-2.0')    | 4/23/2009 | Acetone                       | 7.89   | µg/Kg-dry | Soil | )+             | Qualified due to potential laboratory contamination. |
| SWMU 5-4 (0-0.5')      | 4/23/2009 | Acetone                       | 11.1   | μg/Kg-dry | Soil | +f             | Qualified due to potential laboratory contamination. |
| SWMU 5-4 (1.5-2.0')    | 4/23/2009 | Acetone                       | 19.6   | μg/Kg-dry | Soil | ±,             | Qualified due to potential laboratory contamination. |
| SWMU 5-5 (0-0.5')      | 4/23/2009 | Acetone                       | 20.7   | μg/Kg-dry | Soil | +              | Qualified due to potential laboratory contamination. |
| AOC 22-7 (0-0.5')      | 4/13/2009 | Antimony                      | < 2.5  | mg/Kg     | Soil | Ω              | Qualified due to low MS/MSD recovery.                |
| AOC 22-7 (1.5-2.0)     | 4/13/2009 | Antimony                      | < 2.5  | _         | Soil | m_             | Qualified due to low MS/MSD recovery.                |
| AOC 22-8 (1.5-2.0)     | 4/13/2009 | Antimony                      | < 2.5  | Ц         | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 22-8 (1.5-2.0) DUP | 4/13/2009 | Antimony                      | < 2.5  | mg/Kg     | Soil | în_            | Qualified due to low MS/MSD recovery.                |
| AOC 22-9 (0-0.5)       | 4/13/2009 | Antimony                      | < 2.5  | mg/Kg     | Soil | ın _           | Qualified due to low MS/MSD recovery.                |
| AOC 22-9 (1.5-2.0')    | 4/13/2009 | Antimony                      | < 2.5  | H         | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 23-1 (0-0.5')      | 4/21/2009 | Antimony                      | < 2.5  |           | Soil | m_             | Qualified due to low MS/MSD recovery.                |
| AOC 23-1 (0-0.5') DUP  | 4/21/2009 | Antimony                      | < 2.5  | Щ         | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 23-1 (1.5-2.0')    | 4/21/2009 | Antimony                      | < 2.5  |           | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 23-1 (52-53')      | 4/22/2009 | Antimony                      | 42.5   | mg/Kg     | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 25-2 (0-0.5')      | 4/5/2009  | Antimony                      | < 12   | mg/Kg     | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 25-2 (0-0.5')-DUP  | 4/5/2009  | Antimony                      | < 2.5  | <u> </u>  | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 25-2 (1.5-2.0)     | 4/5/2009  | Antimony                      | < 2.5  | L         | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 25-2 (36-38')      | 4/5/2009  | Antimony                      | < 2.5  | _         | Soil | n              | Qualified due to low MS/MSD recovery.                |
| AOC 26-3 (0-0.5')      | 4/20/2009 | Antimony                      | < 12   | mg/Kg     | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 26-3 (1.5-2.0')    | 4/20/2009 | Antimony                      | < 12   | mg/Kg     | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 26-3 (1.5-2.0) DUP | 4/20/2009 | Antimony                      | < 13   | mg/Kg     | Soil | m              | Qualified due to low MS/MSD recovery.                |
| AOC 26-4 (0-0.5')      | 4/20/2009 | Antimony                      | < 12   | mg/Kg     | Soil | m_             | Qualified due to low MS/MSD recovery.                |
| AOC 26-4 (1.5-2.0')    | 4/20/2009 | Antimony                      | < 13   | mg/Kg     | Soil | m              | Qualified due to low MS/MSD recovery.                |
| MW-63                  | 7/15/2009 | Antimony                      | <0.001 | mg/L      | ΜĐ   | m              | Qualified due to low MS/MSD recovery.                |
| MW-63 (DUP)            | 7/15/2009 | Antimony                      | <0.001 | mg/L      | GW   | m              | Qualified due to low MS/MSD recovery.                |
| MW-64                  | 7/15/2009 | Antimony                      | <0.001 | mg/L      | GW   | Ωì             | Qualified due to low MS/MSD recovery.                |
| MW-66                  | 7/15/2009 | Antimony                      | 0.004  | mg/L      | GW   | -f             | Qualified due to low MS/MSD recovery.                |
| SWMU 5-6 (1.5-2.0')    | 4/23/2009 | Antimony                      | < 2.5  | mg/Kg     | Soil | ΩĨ             | Qualified due to low MS/MSD recovery.                |
| MW-62                  | 7/16/2009 | Benzene                       | < 1.0  | µg/L      | ΒW   | M              | Qualified due to low MS/MSD recovery.                |
| MW-61                  | 5/13/2009 | Chloride                      | - 67   | mg/L      | GW   | +f             | Qualified due to high LCS recovery.                  |
| MW-62                  | 5/13/2009 | Chloride                      | 15     | mg/L      | ΒM   | +,             | Qualified due to high LCS recovery.                  |
| MW-62                  | 5/13/2009 | Chlorobenzene                 | < 1.0  | µg/L      | ΒM   | Ω              | Qualified due to low LCS recovery.                   |
| MW-60                  | 5/14/2009 | Chloroform                    | 1.2    | ng/L      | ΜS   | <del>1</del> + | Qualified due to equipment blank detection.          |
| MW-63                  | 7/15/2009 | Cyanide                       | <0.005 | mg/L      | GW   | Ωì             | Qualified due to low MS/MSD recovery.                |
| MW-63 (DUP)            | 7/15/2009 | Cyanide                       | <0.005 | mg/L      | ΒW   | ΩĨ             | Qualified due to low MS/MSD recovery.                |
| MW-64                  | 7/15/2009 | Cyanide                       | <0.005 | mg/L      | ΜS   | UJ             | Qualified due to low MS/MSD recovery.                |
| MW-66                  | 7/15/2009 | Cyanide                       | <0.005 |           | MS   | ſſ             | Qualified due to low MS/MSD recovery.                |
| MW-65                  | 5/12/2009 | Fluoride                      | 0.21   | mg/L      | MS   | +ſ             | Qualified due to high LCS recovery                   |
| MW-65 (DUP)            | 5/12/2009 | Fluoride                      | 0.22   | mg/L      | GW   | 1+             | Qualified due to high LCS recovery                   |
| MW-66                  | 5/12/2009 | Fluoride                      | 0.22   | mg/L      | GW   | +ſ             | Qualified due to high LCS recovery                   |
| AOC 22-13 (0-0.5')     | 4/8/2009  | Gasoline Range Organics (GRO) | 180    | mg/Kg     | Soil | J+             | Qualified due to high surrogate recovery             |
| AOC 22-13 (18-20')     | 4/8/2009  | Gasoline Range Organics (GRO) | 1300   | mg/Kg     | Soil | J+             | Qualified due to high surrogate recovery             |
| AOC 22-13 (37-39')     | 4/8/2009  | Gasoline Range Organics (GRO) | 2500   | mg/Kg     | Soil | ±,             | Qualified due to high surrogate recovery             |
| AOC 22-15 (34-36)      | 4/15/2009 | Gasoline Range Organics (GRO) | 15     | mg/Kg     | Soil | J+             | Qualified due to high surrogate recovery             |

| MW-59<br>MW-60<br>AOC 22-1 (0.0.5)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-11 (10-0.5) | 5/14/2009  | Gasoline Range Organics (GRO) | 2.6  | Wo.       | AND. | J+         | Qualified due to high MS/MSD recovery                              |
|---|------------|-------------------------------|------|-----------|------|------------|--|
| MW-60<br>AOC 22-1 (0.0.5)<br>AOC 22-1 (1.5-2.0)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-11 (10-6.5)           | \$/14/2009 | 1                             |      | 11/Z/11   | 5    |            |  |
| AOC 22-1 (0.0.5)<br>AOC 22-1 (1.5-2.0)<br>AOC 22-10 (0-0.5)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-11 (0-0.5)                       | 10021110   | Gasoline Range Organics (GRO) | 0.15 | mg/L      | ΒW   | Ţ+         | Qualified due to high surrogate recovery, and high MS/MSD recovery |
| AOC 22-1 (1.5-2.0)<br>AOC 22-10 (0-0.5)<br>AOC 22-10 (1.5-2.0)<br>AOC 22-11 (0-0.5)   | 4/15/2009  | Methylene chloride            | 8.24 | ug/kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| AOC 22-10 (0-0.5')<br>AOC 22-10 (1.5'-2.0')<br>AOC 22-11 (0-0.5')   | 4/15/2009  | Methylene chloride            | 10.3 | ug/kg-dry | Soil | ÷.         | Qualified due to potential laboratory contamination.               |
| AOC 22-10 (1.5-2.0')  | 4/14/2009  | Methylene chloride            | 10.6 | μg/Kg-dry | Soil | <u>]</u> + | Qualified due to potential laboratory contamination.               |
| AOC 22-11 (0-0 5)   | 4/14/2009  | Methylene chloride            | 9.42 | μg/Kg-dry | Soil | <u>+</u>   | Qualified due to potential laboratory contamination.               |
| ( C.O. O. T. T. O. O. T. T.   | 4/14/2009  | Methylene chloride            | 9.64 | μg/Kg-dry | Soil | Ŧ,         | Qualified due to potential laboratory contamination.               |
| AOC 22-11 (1.5'-2.0')   | 4/14/2009  | Methylene chloride            | 11.4 | μg/Kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| AOC 22-12 (0-0.5')  | 4/13/2009  | Methylene Chloride            | 92.9 | μg/Kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| AOC 22-12 (0-0.5') DUP  | 4/13/2009  | Methylene Chloride            | 5.77 | μg/Kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| AOC 22-12 (1.5-2.0)   | 4/13/2009  | Methylene Chloride            | 7.36 | μg/Kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| (AOC 22-12 (32-35')   | 4/13/2009  | Methylene Chloride            | 7.43 | μg/Kg-dry | Soil | +ſ         | Qualified due to potential laboratory contamination.               |
| AOC 22-12 (36-37.75')   | 4/13/2009  | Methylene Chloride            | 8.30 | μg/Kg-dry | Soil | +f         | Qualified due to potential laboratory contamination.               |
| AOC 22-13 (0-0.5')  | 4/8/2009   | Methylene Chloride            | 14   | ug/kg-dry | Soil | )+         | Qualified due to potential laboratory contamination.               |
| AOC 22-14 (1.5-2.0')  | 4/8/2009   | Methylene Chloride            | 2.02 | ug/kg-dry | Soil | +f         | Qualified due to potential laboratory contamination.               |
| AOC 22-15 (1.0-1.5')  | 4/15/2009  | Methylene chloride            | 16.3 | μg/Kg-dry | Soil | +f         | Qualified due to potential laboratory contamination.               |
| AOC 22-15 (1.5-2.0')  | 4/15/2009  | Methylene chloride            | 11.0 | µg/Kg-dry | Soil | +ſ         | Qualified due to potential laboratory contamination.               |
| AOC 22-15 (1.5-2.0') DUP  | 4/15/2009  | Methylene chloride            | 60'6 | µg/Kg-dry | Soil | _ +ſ       | Qualified due to potential laboratory contamination.               |
| AOC 22-15 (30-32')  | 4/15/2009  | Methylene chloride            | 12.1 | µg/Kg-dry | Soil | +ſ         | Qualified due to potential laboratory contamination.               |
| AOC 22-15 (34-36')  | 4/15/2009  | Methylene chloride            | 15.6 | ug/Kg-dry | Soil | ±,         | Qualified due to potential laboratory contamination,               |
| AOC 22-16 (0-0.5')  | 4/13/2009  | Methylene Chloride            | 8.85 | ug/Kg-dry | Soil | ±          | Qualified due to potential laboratory contamination.               |
| AOC 22-16 (1.5-2.0')  | 4/13/2009  | Methylene Chloride            | 7.26 | ug/Kg-dry | ᆫ    | ±,         | Oualified due to potential laboratory contamination.               |
| AOC 22-16 (36-38')  | 4/14/2009  | Methylene Chloride            | 13.2 | μg/Kg-dry | _    | ±,         | Qualified due to potential laboratory contamination.               |
| AOC 22-2 (0-0.5')   | 4/15/2009  | Methylene chloride            | 7.26 | ug/kg-drv | ┞    | ±          | Oualified due to notential laboratory contamination                |
| AOC 22-2 (1.5-2.0')   | 4/15/2009  | Methylene chloride            | 9.35 | ug/kg-dry | Soil | +ſ         | Oualified due to potential Jaboratory contamination.               |
| AOC 22-3 (0-0.5')   | 4/15/2009  | Methylene chloride            | 8.30 | ug/kg-dry | Soil | )+f        | Qualified due to potential laboratory contamination.               |
| AOC 22-3 (1.5'-2.0')  | 4/15/2009  | Methylene chloride            | 11.0 | ug/kg-dry | Soil | +ſ         | Qualified due to potential laboratory contamination.               |
| AOC 22-4 (0-0.5')   | 4/15/2009  | Methylene chloride            | 8.26 | ug/kg-dry | Soil | +1         | Qualified due to potential laboratory contamination.               |
| AOC 22-5 (0-0.5')   | 4/23/2009  | Methylene chloride            | 2.02 | ug/kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| AOC 22-5 1.5-2.0')  | 4/23/2009  | Methylene chloride            | 2.22 | ug/kg-dry | Soil | ]+         | Qualified due to potential laboratory contamination.               |
| AOC 22-6 (1.5-2.0')   | 4/23/2009  | Methylene chloride            | 7.05 | ug/kg-dry | Soil | )+         | Qualified due to potential laboratory contamination                |
| AOC 22-7 (0-0.5')   | 4/13/2009  | Methylene chloride            | 9.29 | μg/Kg-dry | Soil | J+         | Qualified due to potential laboratory contamination.               |
| AOC 22-7 (1.5-2.0)  | 4/13/2009  | Methylene chloride            | 12.3 | µg/Kg-dry | Soil | )+<br>(    | Qualified due to potential laboratory contamination.               |
| AOC 22-8 (0-0.5')   | 4/13/2009  | Methylene chloride            | 3.29 | μg/Kg-dry | Soil | )+         | Qualified due to potential laboratory contamination.               |
| AOC 22-8 (1.5-2.0)  | 4/13/2009  | Methylene chloride            | 9.01 | μg/Kg-dry | Soil | +ſ         | Qualified due to potential laboratory contamination.               |
| AOC 22-8 (1.5-2.0) DUP  | 4/13/2009  | Methylene chloride            | 8.71 | μg/Kg-dry | Soil | )+         | Qualified due to potential laboratory contamination.               |
| AOC 22-9 (0-0.5)  | 4/13/2009  | Methylene chloride            | 8.83 | μg/Kg-dry | Soil | +ſ         | Qualified due to potential laboratory contamination.               |
| AOC 22-9 (1.5-2.0')   | 4/13/2009  | Methylene chloride            | 11.1 | μg/Kg-dry | Soil | ]+         | Qualified due to potential laboratory contamination.               |
| AOC 23-1 (0-0.5)  | 4/21/2009  | Methylene chloride            | 8.75 | μg/Kg-dry | Soil | ±,         | Qualified due to potential laboratory contamination.               |
| AOC 23-1 (0-0.5') DUP   | 4/21/2009  | Methylene chloride            | 8.12 | μg/Kg-dry | Soil | 1+         | Qualified due to potential laboratory contamination.               |
| AOC 23-1 (1.5-2.0')   | 4/21/2009  | Methylene chloride            | 8.91 | μg/Kg-dry | Soil | +          | Qualified due to potential laboratory contamination.               |
| AOC 23-1 (52-53')   | 4/22/2009  | Methylene Chloride            | 113  | μg/Kg-dry | Soil | )+         | Qualified due to potential laboratory contamination.               |
| AOC 24-1 (0-0.5')   | 4/23/2009  | Methylene chloride            | 2.59 | ug/kg-dry | Soil | ÷,         | Qualified due to potential laboratory contamination.               |
| AOC 24-1 (1.5-2.0')   | 4/23/2009  | Methylene chloride            | 2.77 | ug/kg-dry | Soil | ±,         | Qualified due to potential laboratory contamination.               |
| AOC 24-2 (0-0.5')   | 4/23/2009  | Methylene chloride            | 3.11 | ug/kg-dry | Soil | Ť,         | Qualified due to potential laboratory contamination.               |
| AOC 24-2 (1.5-2.0')   | 4/23/2009  | Methylene chloride            | 4.46 | ug/kg-dry | Soil | +          | Qualified due to potential laboratory contamination.               |

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| 4652009         Motor Oil Range Organiss (MRO)         4000         mg/Kg         Soil         J.           4822009         N-Nitrosodi-r-propylamine         < 2.0         mg/Kg         Soil         UJ           4822009         N-Nitrosodi-r-propylamine         < 2.0         mg/Kg         Soil         UJ           5/1422099         N-Nitrosodi-r-propylamine         < 0.20         mg/Kg         Soil         UJ           5/1422099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           5/1422099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           5/1422099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/1622099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/1622099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/1622099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/1622099         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/1622099         Phosphorus, Ort  | SWMU 5-6 (1.5-2.0°)     | 4/23/2009 | Methylene chloride                | 2.52    | ug/kg-dry | Soil | +f       | Qualified due to potential laboratory contamination. |
|--|-------------------------|-----------|-----------------------------------|---------|-----------|------|----------|--|
| 1,13 (10.0.5)  | SWMU 4-1 (6-8')         | 4/6/2009  | Motor Oil Range Organics (MRO)    | 4000    | mg/Kg     | Soil | J- 1     | Qualified due to low surrogate recovery              |
| 1,13 (1,5.2.0)   | AOC 22-13 (0-0.5')      | 4/8/2009  | N-Nitrosodi-n-propylamine         | < 1.0   | mg/Kg     | Soil | m        | Qualified due to low MS/MSD recovery                 |
| 1,13 (18-20)   | AOC 22-13 (1.5-2.0')    | 4/8/2009  | N-Nitrosodi-n-propylamine         | < 2.0   | mg/Kg     | Soil | m        | Qualified due to low MS/MSD recovery                 |
| \$\sigma_{1}(32.34.5)  | AOC 22-13 (18-20')      | 4/8/2009  | N-Nitrosodi-n-propylamine         | < 0.20  | mg/Kg     | Soil | U        | Qualified due to low MS/MSD recovery                 |
| Si142009   Phosphorus, Orthophosphate (As P)   C 0.50   mg/L   GW   R  | AOC 22-13 (32-34.5')    | 4/8/2009  | N-Nitrosodi-n-propylamine         | < 0.20  | mg/Kg     | Soil | UJ       | Qualified due to low MS/MSD recovery                 |
| 7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     5/13/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     8/10/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     8/10/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     9/10/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     9/10/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     9/10/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   UJ     9/10/2009   Selenium   < 1.1   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/kg   Soil   UJ     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/L   GW   J +     9/10/2009   Trichlorochene (TCE)   < 0.50   mg/L   GW   J | MW-59                   | 5/14/2009 | Phosphorus, Orthophosphate (As P) | < 0.50  | mg/L      | GW   | R        | Rejected due to analyzed past holding time           |
| S/14/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/13/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/15/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/15/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/15/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   R     S/15/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   I     S/15/2009   Phosphorus, Orthophosphate (As P)   <0.50   mg/L   GW   I     S/15/2009   Selenium   <13   mg/Kg   Soil   UJ     S/15/2009   Trichloroethene (TCE)   <0.050   mg/Kg   Soil   UJ     S/15/2009   Trichloroethene (TCE)   <0.050   mg/Kg   Soil   UJ     S/15/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ     S/13/2009   Trichloroethene (TCE)   <0.051   mg/Kg   Soil   UJ    | MW-59                   | 7/16/2009 | _                                 | < 0.50  | mg/L      | GW   | R        | Rejected due to analyzed past holding time           |
| 5/13/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   R     7/16/2009   Phosphorus, Orthophosphate (As P)   < 0.50   mg/L   GW   IV     7/16/2009   Selentium   < 1.2   mg/Kg   Soil   UJ     7/16/2009   Selentium   < 1.3   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   UJ     7/16/2009   Trichloroethene (TCE)   < 0.931   mg/Kg   Soil   U | MW-60                   | 5/14/2009 | ı                                 | < 0.50  | mg/L      | GW   | R        | Rejected due to analyzed past holding time           |
| 7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-61                   | 5/13/2009 | ı~                                | < 0.50  | mg/L      | ΜS   | R        | Rejected due to analyzed past holding time           |
| 5/13/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           5/13/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-61                   | 7/16/2009 | $\sim$                            | < 0.50  | mg/L      | МÐ   | R        | Rejected due to analyzed past holding time           |
| 7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           5/13/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-62                   | 5/13/2009 | . –                               | < 0.50  | mg/L      | МĐ   | R        | Rejected due to analyzed past holding time           |
| 5/13/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           5/12/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-63                   | 7/16/2009 |                                   | < 0.50  | mg/L      | МÐ   | R        | Rejected due to analyzed past holding time           |
| 5/12/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-64                   | 5/13/2009 | . –                               | < 0.50  | mg/L      | ΜĐ   | ×        | Rejected due to analyzed past holding time           |
| 7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-65                   | 5/12/2009 | 1 –                               | < 0.50  | mg/L      | ΩM   | 2        | Rejected due to analyzed past holding time           |
| 7/16/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           9         4/20/2009         Phosphorus, Orthophosphate (As P)         < 0.50  | MW-65                   | 7/16/2009 | ١-                                | < 0.50  | mg/L      | MD   | R        | Rejected due to analyzed past holding time           |
| 5/12/2009         Phosphorus, Orthophosphate (As P)         < 0.50         mg/L         GW         R           0)         4/20/2009         Selenium         < 12  | MW-65 (DUP)             | 7/16/2009 | _                                 | < 0.50  | mg/L      | МĐ   | R        | Rejected due to analyzed past holding time           |
| (a)         4/20/2009         Selenium         <12         mg/Kg         Soil         UJ           (a)         4/20/2009         Selenium         <12  | MW-66 ·                 | 5/12/2009 | ı                                 | < 0.50  | mg/L      | ΜS   | ×        | Rejected due to analyzed past holding time           |
| (9)         4/20/2009         Selenium         <12         mg/Kg         Soil         UJ           (1)         4/20/2009         Selenium         <13  | AOC 26-3 (0-0.5')       | 4/20/2009 | ı                                 | < 12    | mg/Kg     | Soil | m        | Qualified due to low MS/MSD recovery                 |
| Of DUP         4/20/2009         Selenium         <13         mg/Kg         Soil         UJ           O         4/20/2009         Selenium         <12   | AOC 26-3 (1.5-2.0')     | 4/20/2009 | Selenium                          | < 12    | mg/Kg     | Soil | UI       | Qualified due to low MS/MSD recovery                 |
| (1)         4/20/2009         Selenium         < 12         mg/Kg         Soil         UJ           (2)         4/20/2009         Selenium         < 13  | AOC 26-3 (1.5-2.0') DUP | 4/20/2009 | Selenium                          | < 13    | mg/Kg     | Soil | U        | Qualified due to low MS/MSD recovery                 |
| (a)         4/20/2009         Selenium         < 13         mg/Kg         Soil         UJ           2.0)         4/23/2009         Selenium         < 13   | AOC 26-4 (0.0.5')       | 4/20/2009 | Selenium                          | < 12    | mg/Kg     | Soil | UJ       | Qualified due to low MS/MSD recovery                 |
| 2.0)         4/23/2009         Selenium         <13         mg/Kg         Soil         UJ           2.0)         4/23/2009         Trichloroethene (TCE)         <13   | AOC 26-4 (1.5-2.0')     | 4/20/2009 | Selenium                          | < 13    | mg/Kg     | Soil | ſ'n      | Qualified due to low MS/MSD recovery                 |
| 2.0)         4/23/2009         Selenium         < 13         mg/Kg         Soil         UJ           5)         4/6/2009         Trichloroethene (TCE)         < 0.050   | SWMU 5-5 (1.5-2.0')     | 4/23/2009 | Selenium                          | < 13    | mg/Kg     | Soil | Ω        | Qualified due to low MS/MSD recovery                 |
| 5)         4/6/2009         Trichloroethene (TCE)         < 0.050         mg/Kg         Soil         UJ           5)         4/6/2009         Trichloroethene (TCE)         < 0.933  | SWMU 5-6 (1.5-2.0')     | 4/23/2009 | Selenium                          | < 13    | mg/Kg     | Soil | ÚJ       | Qualified due to low MS/MSD recovery                 |
| 5)         4/6/2009         Trichloroethene (TCE)         < 0.933         µg/Kg-dry         Soil         UJ           2.0)         4/6/2009         Trichloroethene (TCE)         < 0.050  | SWMU 4-1 (0-0.5')       | 4/6/2009  | Trichloroethene (TCE)             | < 0.050 | mg/Kg     | Soil | UI       | Qualified due to low LCS recovery                    |
| 2.0)         4/6/2009         Trichloroethene (TCE)         < 0.050         mg/Kg         Soil         UJ           2.0)         4/6/2009         Trichloroethene (TCE)         < 0.051  | SWMU 4-1 (0-0.5')       | 4/6/2009  | Trichloroethene (TCE)             | < 0.933 | ug/Kg-dry | Soil | Ω        | Qualified due to low LCS recovery                    |
| 2.0)         4/6/2009         Trichloroethene (TCE)         < 0.991         µg/Kg-dry         Soil         UJ           187)         4/6/2008         Trichloroethene (TCE)         < 1.02   | SWMU 4-1 (1.5-2.0')     | 4/6/2009  | Trichloroethene (TCE)             | < 0.050 | mg/Kg     | Soil | Ω        | Qualified due to low LCS recovery                    |
| 88)         4/6/2008         Trichloroethene (TCE)         < 1.02         µg/Kg-dry         Soil         UJ           9)         4/6/2009         Trichloroethene (TCE)         < 0.10   | SWMU 4-1 (1.5-2.0')     | 4/6/2009  | Trichloroethene (TCE)             | < 0.991 | μg/Kg-dry | Soil | ÚJ       | Qualified due to low LCS recovery                    |
| th         4/6/2009         Trichlorocthene (TCE)         < 0.10         mg/Kg         Soil         UJ           5/13/2009         Trichlorocthene (TCE)         0.074         mg/L         GW         J+           6/1         5/13/2009         Zinc         0.085         mg/L         GW         J+           6/1         4/23/2009         Chromium         4.1         mg/kg         Soil         J-           6/1         4/23/2009         Lead         3.3         mg/kg         Soil         J-           6/1         4/23/2009         Iron         lron         0.028         mg/L         GW         J-           5/12/2009         Arsenic         0.021         mg/L         GW         J-  | SWMU 4-1 (36-38')       | 4/6/2008  | Trichloroethene (TCE)             | < 1.02  | μg/Kg-dry | Soil | ÚĴ       | Qualified due to low LCS recovery                    |
| 5/13/2009         Zinc         0.074         mg/L         GW         J+           5/13/2009         Zinc         0.085         mg/L         GW         J+           1-4 (1.5-2.0)         4/23/2009         Chromium         4.1         mg/kg         Soil         J-           1-4 (1.5-2.0)         4/23/2009         Lead         3.3         mg/kg         Soil         J-           1-4 (1.5-2.0)         4/23/2009         Zinc         Iron         0.028         mg/L         GW         J-           5/12/2009         Arsenic         0.021         mg/L         GW         J-         Iron   | SWMU 4-1 (6-8')         | 4/6/2009  | Trichloroethene (TCE)             | < 0.10  | mg/Kg     | Soil | U        | Qualified due to low LCS recovery                    |
| 5/13/2009         Zinc         0.085         mg/L         GW         J+           1-4 (1.5-2.0)         4/23/2009         Chromium         4.1         mg/kg         Soil         J-           1-4 (1.5-2.0)         4/23/2009         Lead         3.3         mg/kg         Soil         J-           1-4 (1.5-2.0)         4/23/2009         Zinc         18         mg/kg         Soil         J-           7/15/2009         Iron         0.028         mg/L         GW         J-           5/12/2009         Arsenic         0.021         mg/L         GW         J-   | MW-63                   | 5/13/2009 | Zinc                              | 0.074   | mg/L      | GW   | ]+ f     | Qualified due to detection in associated field blank |
| +4 (1.5-2.0)         4/23/2009         Chromium         4.1         mg/kg         Soil         J-           +4 (1.5-2.0)         4/23/2009         Lead         3.3         mg/kg         Soil         J-           +4 (1.5-2.0)         4/23/2009         Zinc         18         mg/kg         Soil         J-           -4 (1.5-2.0)         7/15/2009         Iron         0.028         mg/L         GW         J-           5/12/2009         Arsenic         0.021         mg/L         GW         J-   | MW-64                   | 5/13/2009 | Zinc                              | 0.085   | mg/L      | MΩ   | )+       | Qualified due to detection in associated field blank |
| 1-4 (1.5-2.0)         4/23/2009         Lead         3.3         mg/kg         Soil         J-           1-4 (1.5-2.0)         4/23/2009         Zinc         18         mg/kg         Soil         J-           7/15/2009         Iron         0.028         mg/L         GW         J-           5/12/2009         Arsenic         0.021         mg/L         GW         J-  | AOC 24-4 (1.5-2.0')     | 4/23/2009 | Chromium                          | 4.1     | mg/kg     | Soil | J-       | Qualified due to field duplicate outlier.            |
| 1-4 (1.5-2.0')         4/23/2009         Zinc         18         mg/kg         Soil         J-           7/15/2009         Iron         0.028         mg/L         GW         J-           5/12/2009         Arsenic         0.021         mg/L         GW         J-  | AOC 24-4 (1.5-2.0')     | 4/23/2009 | Lead                              | 3.3     | mg/kg     | Soil |          | Qualified due to field duplicate outlier.            |
| 7/15/2009 Iron 0.028 mg/L GW J- 6/12/2009 Arsenic 0.021 mg/L GW J- 6/12/2009   | AOC 24-4 (1.5-2.0')     | 4/23/2009 | Zinc                              | 18      | mg/kg     | Soil | <u>۲</u> | Qualified due to field duplicate outlier.            |
| 5/12/2009 Arsenic 0.021 mg/L GW J-   | MW-63                   | 7/15/2009 | Iron                              | 0.028   | mg/L      | ΒW   | <u>۲</u> | Qualified due to field duplicate outlier.            |
|  | MW-65                   | 5/12/2009 | Arsenic                           | 0.021   | mg/L      | GW   | J-       | Qualified due to field duplicate outlier.            |

Notes:
mg/L - miligrams per liter
ug/L - microgram per liter
UJ - Estimated reporting limit
J - porential bias

RPD - Relative Percent Difference MS/MSD - Matrix spike/matrix spike duplicate

# TABLE A-3 Field Duplicate Summary

### Table A-3 Field Duplicate Summary Group 3 Investigation Report Western Refining Southwest, Inc. - Bloomfield Refinery

|              | Parameter                             | MW-65<br>Sample Result | MW-65 (DUP)<br>Sample Result | RPD<br>(%) |
|--------------|---------------------------------------|------------------------|------------------------------|------------|
| TPH (mg/L):  | Ethanol                               | <1.0                   | <1.0                         | NC         |
|              | Diesel Range Organics (DRO)           | 14                     | 14                           | 0.0        |
|              | Motor Oil Range Organics (MRO)        | < 5.0                  | < 5.0                        | NC         |
|              | Gasoline Range Organics (GRO)         | 42                     | 44                           | 4.6        |
| VOCs (ug/L): | 1,1,1,2-Tetrachloroethane             | < 20                   | < 20                         | NC NC      |
|              | 1,1,1-Trichloroethane                 | < 20<br>< 40           | < 20                         | NC NG      |
|              | 1,1,2,2-Tetrachloroethane             | < 20                   | < 40                         | NC<br>NG   |
|              | 1,1,2-Trichloroethane                 | < 20                   | < 20<br>< 20                 | NC<br>NC   |
|              | 1,1-Dichloroethane 1,1-Dichloroethene | < 20                   | < 20                         | NC NC      |
|              | 1,1-Dichloropropene                   | < 20                   | < 20                         | NC NC      |
|              | 1,2,3-Trichlorobenzene                | < 20                   | < 20                         | NC         |
|              | 1,2,3-Trichloropropane                | < 40                   | < 40                         | NC .       |
|              | 1,2,4-Trichlorobenzene                | < 20                   | < 20                         | NC         |
|              | 1,2,4-Trimethylbenzene                | 1400                   | 1500                         | 6.9        |
|              | 1,2-Dibromo-3-chloropropane           | < 40                   | < 40                         | NC         |
|              | 1,2-Dibromoethane (EDB)               | < 20                   | < 20                         | NC         |
|              | 1,2-Dichlorobenzene                   | < 20                   | < 20                         | NC         |
|              | 1,2-Dichloroethane (EDC)              | 220                    | 250                          | 12.8       |
|              | 1,2-Dichloropropane                   | < 20                   | < 20                         | NC         |
|              | 1,3,5-Trimethylbenzene                | 500                    | 510                          | 1.9        |
|              | 1,3-Dichlorobenzene                   | < 20                   | < 20                         | NC         |
|              | 1,3-Dichloropropane                   | < 20                   | < 20                         | NC         |
|              | 1,4-Dichlorobenzene                   | < 20                   | < 20                         | NC         |
|              | 1-Methylnaphthalene                   | 150                    | 170                          | 12.5       |
|              | 2,2-Dichloropropane                   | < 40                   | < 40                         | NC         |
|              | 2-Butanone                            | < 200                  | < 200                        | NC         |
|              | 2-Chlorotoluene                       | < 20                   | < 20                         | NC NC      |
|              | 2-Hexanone                            | < 200                  | < 200                        | NC         |
|              | 2-Methylnaphthalene                   | 220                    | 230                          | 4.4        |
|              | 4-Chlorotoluene                       | < 20<br>< 20           | < 20                         | NC<br>NC   |
|              | 4-Isopropyltoluene                    | < 200                  | < 20                         | NC<br>NC   |
|              | 4-Methyl-2-pentanone                  | < 200                  | < 200<br>< 200               | NC<br>NC   |
|              | Acetone<br>Benzene                    | 6800                   | 7100                         | 4.3        |
|              | Bromobenzene                          | < 20                   | < 20                         | NC         |
|              | Bromodichloromethane                  | < 20                   | < 20                         | NC NC      |
|              | Bromoform                             | < 20                   | < 20                         | NC         |
|              | Bromomethane                          | < 20                   | < 20                         | NC         |
|              | Carbon disulfide                      | < 200                  | < 200                        | NC         |
|              | Carbon Tetrachloride                  | < 20                   | < 20                         | NC         |
|              | Chlorobenzene                         | < 20                   | < 20                         | NC         |
|              | Chloroethane                          | < 40                   | < 40                         | NC         |
|              | Chloroform                            | < 20                   | < 20                         | NC         |
|              | Chloromethane                         | < 20                   | < 20                         | NC         |
|              | cis-1,2-DCE                           | < 20                   | < 20                         | NC         |
|              | cis-1,3-Dichloropropene               | < 20                   | < 20                         | NC         |
|              | Dibromochloromethane                  | < 20                   | < 20                         | NC NC      |
|              | Dibromomethane                        | < 20                   | < 20                         | NC NC      |
|              | Dichlorodifluoromethane               | < 20<br>1800           | < 20<br>2000                 | NC<br>10.5 |
|              | Ethylbenzene Hexachlorobutadiene      | < 20                   | < 20                         | NC         |
|              | Isopropylbenzene                      | 84                     | 92                           | 9.1        |
|              | Methyl tert-butyl ether (MTBE)        | 1700                   | 1800                         | 5.7        |
|              | Methylene Chloride                    | < 60                   | < 60                         | NC         |
|              | Naphthalene                           | 480                    | 520                          | 8.0        |
|              | n-Butylbenzene                        | 49                     | 50                           | 2.0        |
|              | n-Propylbenzene                       | 230                    | 240                          | 4.3        |
|              | sec-Butylbenzene                      | < 20                   | < 20                         | NC         |
|              | Styrene                               | < 20                   | < 20                         | NC         |
|              | tert-Butylbenzene                     | < 20                   | < 20                         | NC         |
|              | Tetrachloroethene (PCE)               | < 20                   | < 20                         | NC         |
|              | Toluene                               | 2500                   | 2800                         | 11.3       |
|              | trans-1,2-DCE                         | < 20                   | < 20                         | NC         |
|              | trans-1,3-Dichloropropene             | < 20                   | < 20                         | NC         |
|              | Trichloroethene (TCE)                 | < 20                   | < 20                         | NC         |
|              | Trichlorofluoromethane                | < 20                   | < 20                         | NC         |
|              | Vinyl chloride                        | < 20                   | < 20                         | NC         |
| L            | Xylenes, Total                        | 8500                   | 9200                         | 7.9        |

Table A-3
Field Duplicate Summary
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|               |  | MW-65         | MW-65 (DUP)   | RPD      |
|---------------|--|---------------|---------------|----------|
|               | Parameter                                    | Sample Result | Sample Result | _(%)     |
| SVOCs (ug/L): | 1,2,4-Trichlorobenzene                       | < 10          | < 10          | NC       |
|               | 1,2-Dichlorobenzene                          | < 10          | < 10          | NC       |
|               | 1,3-Dichlorobenzene                          | < 10          | < 10          | NC       |
|               | 1,4-Dichlorobenzene                          | < 10          | < 10          | NC       |
|               | 2,4,5-Trichlorophenol                        | < 10          | < 10          | NCNC     |
|               | 2,4,6-Trichlorophenol                        | < 10          | < 10          | NC_      |
|               | 2,4-Dichlorophenol                           | < 20          | < 20          | NC       |
|               | 2,4-Dimethylphenol                           | 24            | 22            | 8.7      |
|               | 2,4-Dinitrophenol                            | < 20          | < 20          | NC       |
|               | 2,4-Dinitrotoluene                           | < 10          | < 10          | NC       |
|               | 2,6-Dinitrotoluene                           | < 10          | < 10          | NC       |
|               | 2-Chloronaphthalene                          | < 10          | < 10          | NCNC_    |
|               | 2-Chlorophenol                               | < 10          | < 10          | NC       |
|               | 2-Methylnaphthalene                          | 160_          | 150           | 6.5      |
|               | 2-Methylphenol                               | < 10          | < 10          | NC       |
|               | 2-Nitroaniline                               | < 10          | < 10          | NC_      |
|               | 2-Nitrophenol                                | < 10          | < 10          | NC       |
|               | 3,3'-Dichlorobenzidine                       | < 10          | < 10          | NC       |
|               | 3+4-Methylphenol                             | < 10          | < 10          | NC NC    |
|               | 3-Nitroaniline                               | < 10<br>< 20  | < 10          | NC<br>NC |
|               | 4,6-Dinitro-2-methylphenol                   | < 20          | < 20<br>< 10  | NC<br>NC |
|               | 4-Bromophenyl phenyl ether                   | < 10          |               | NC<br>NC |
|               | 4-Chloro-3-methylphenol                      | < 10          | < 10<br>< 10  |          |
|               | 4-Chlorophenyl phenyl ether                  | <10           | < 10          | NC<br>NC |
|               |  | <10           | < 10          | NC<br>NC |
|               | 4-Nitroaniline                               | < 10          | < 10          |          |
|               | 4-Nitrophenol                                | < 10          | < 10          | NC<br>NC |
|               | Acenaphthene                                 | < 10          | < 10          | NC<br>NC |
|               | Acenaphthylene                               | < 10          | < 10          | NC<br>NC |
|               | Aniline                                      | < 10          | < 10          |          |
|               | Anthracene                                   | < 10          | < 10          | NC<br>NC |
|               | Azobenzene                                   | < 10          | < 10          | NC<br>NC |
|               | Benz(a)anthracene                            | < 10          | < 10          | NC<br>NC |
|               | Benzo(a)pyrene                               | < 10          | < 10          | NC<br>NC |
|               | Benzo(b)fluoranthene                         | < 10          | < 10          | NC<br>NC |
|               | Benzo(g,h,i)perylene<br>Benzo(k)fluoranthene | < 10          | < 10          | NC<br>NC |
|               | Benzoic acid                                 | < 20          | < 20          | NC NC    |
|               | Benzyl alcohol                               | < 10          | < 10          | NC NC    |
|               | Bis(2-chloroethoxy)methane                   | < 10          | < 10          | NC<br>NC |
|               | Bis(2-chloroethyl)ether                      | < 10          | < 10          | NC<br>NC |
|               | Bis(2-chloroisopropyl)ether                  | < 10          | < 10          | NC<br>NC |
|               | Bis(2-ethylhexyl)phthalate                   | < 10          | < 10          | NC NC    |
|               | Butyl benzyl phthalate                       | < 10          | < 10          | NC NC    |
|               | Carbazole                                    | <10           | < 10          | NC<br>NC |
|               |  | < 10          | < 10          | NC NC    |
|               | Chrysene                                     | < 10          | < 10          | NC<br>NC |
|               | Dibenz(a,h)anthracene Dibenzofuran           | < 10          | < 10          | NC NC    |
|               | Diethyl phthalate                            | < 10          | < 10          | NC<br>NC |
|               | Dimethyl phthalate                           | < 10          | < 10          | NC<br>NC |
|               | Di-n-butyl phthalate                         | < 10          | < 10          | NC       |
|               | Di-n-octyl phthalate                         | < 10          | < 10          | NC<br>NC |
|               | Fluoranthene                                 | < 10          | < 10          | NC<br>NC |
|               | Fluorene                                     | < 10          | < 10          | NC       |
|               | Hexachlorobenzene                            | < 10          | < 10          | NC NC    |
|               | Hexachlorobutadiene                          | < 10          | < 10          | NC       |
|               | Hexachlorocyclopentadiene                    | < 10          | < 10          | NC       |
|               | Hexachloroethane                             | < 10          | < 10          | NC       |
|               | Indeno(1,2,3-cd)pyrene                       | < 10          | < 10          | NC NC    |
|               | Isophorone                                   | < 10          | < 10          | NC       |
|               | Naphthalene                                  | 370           | 350           | 5.6      |
|               | Nitrobenzene                                 | < 10          | < 10          | NC NC    |
|               | N-Nitrosodimethylamine                       | < 10          | < 10          | NC NC    |
|               | N-Nitrosodi-n-propylamine                    | < 10          | < 10          | NC NC    |
|               | N-Nitrosodiphenylamine                       | < 10          | < 10          | NC<br>NC |
|               | Pentachlorophenol                            | < 20          | < 20          | NC<br>NC |
|               | Phenanthrene                                 | < 10          | < 10          | NC<br>NC |
|               | Phenol                                       | 49            | 49            | 0.0      |
|               | Pyrene                                       | < 10          | < 10          | NC       |
|               | Pyridine                                     | < 10          | < 10          | NC NC    |

### Table A-3 Field Duplicate Summary **Group 3 Investigation Report** Western Refining Southwest, Inc. - Bloomfield Refinery

|                           |                                   | MW-65         | MW-65 (DUP)   | RPD    |
|---------------------------|-----------------------------------|---------------|---------------|--------|
|                           | Parameter                         | Sample Result | Sample Result | (%)    |
| Metals (mg/L):            | Antimony                          | 0.001         | < 0.001       | NC     |
|                           | Arsenic                           | 0.021         | 0.015         | 33.3 * |
|                           | Barium                            | 0.15          | 0.13          | 14.3   |
|                           | Beryllium                         | < 0.0030      | < 0.0030      | NC     |
|                           | Cadmium                           | < 0.0020      | < 0.0020      | NC     |
|                           | Chromium                          | < 0.0060      | < 0.0060      | NC     |
|                           | Cobalt                            | < 0.0060      | < 0.0060      | NC     |
|                           | Cyanide                           | < 0.005       | < 0.005       | NC     |
|                           | Iron                              | 3.5           | 3.6           | 2.8    |
|                           | Lead                              | < 0.0050      | 0.0060        | NC     |
|                           | Mercury                           | < 0.00020     | < 0.00020     | NC     |
|                           | Nickel                            | < 0.010       | < 0.010       | NC     |
|                           | Selenium                          | < 0.050       | < 0.050       | NC     |
|                           | Silver                            | < 0.0050      | < 0.0050      | NC     |
|                           | Vanadium                          | < 0.050       | < 0.050       | NC     |
|                           | Zinc                              | < 0.020       | < 0.020       | NC     |
| General Chemistry (mg/L): | Calcium                           | 230           | 230           | 0.0    |
| , ,                       | Iron                              | 0.98          | 1.1           | 11.5   |
|                           | Magnesium                         | 79            | 79            | 0.0    |
|                           | Potassium                         | 3.8           | 3.7           | 2.7    |
|                           | Sodium                            | 480           | 480           | 0.0    |
|                           | Specific Conductance              | 2900          | 2800          | 3.5    |
|                           | Total Dissolved Solids            | 2300          | 2400          | 4.2    |
|                           | Chloride                          | 140           | 130           | 7.4    |
|                           | Fluoride                          | 0.21          | 0.22          | 4.6    |
|                           | Nitrate (As N)+Nitrite (As N)     | < 1.0         | < 1.0         | NC     |
|                           | Phosphorus, Orthophosphate (As P) | < 0.50        | < 0.50        | NC     |
|                           | Sulfate                           | 790           | 750           | 5.2    |
|                           | Alkalinity, Total (As CaCO3)      | 1000          | 1000          | 0.0    |
|                           | Bicarbonate                       | 1000          | 1000          | 0.0    |
|                           | Carbonate                         | < 2.0         | < 2.0         | NC     |

Notes:

RPD = Relative percent difference; [(difference)/(average)]\* 100

NC = Not calculated; RPD values were not calculated for non-detects

ug/L = micrograms per liter
mg/L = milligrams per liter
\* = Field Duplicate RPD Outlier

Table A-3 Field Duplicate Summary Group 3 Investigation Report Western Refining Southwest, Inc. - Bloomfield Refinery

|             |                                | MW-65         | MW-65 (DUP)   | RPD       |
|-------------|--------------------------------|---------------|---------------|-----------|
|             | Parameter                      | Sample Result | Sample Result | (%)       |
| IPH (mg/L): | Ethanol                        | <1.0          | <1.0          | NC        |
|             | Diesel Range Organics (DRO)    | 14            | 14            | 0.0       |
|             | Motor Oil Range Organics (MRO) | < 5.0         | < 5.0         | NC        |
|             | Gasoline Range Organics (GRO)  | 42            | 44            | 4.6       |
| OCs (ug/L): | 1,1,1,2-Tetrachloroethane      | < 20          | < 20          | NC        |
|             | 1,1,1-Trichloroethane          | < 20          | < 20          | NC        |
|             | 1,1,2,2-Tetrachloroethane      | < 40          | < 40          | NC        |
|             | 1,1,2-Trichloroethane          | < 20          | < 20          | NC        |
|             | 1,1-Dichloroethane             | < 20          | < 20          | NC        |
|             | 1,1-Dichloroethene             | < 20          | < 20          | NC        |
|             | 1,1-Dichloropropene            | < 20          | < 20          | NC        |
|             | 1,2,3-Trichlorobenzene         | < 20          | < 20          | NC        |
|             | 1,2,3-Trichloropropane         | < 40          | < 40          | NC        |
|             | 1,2,4-Trichlorobenzene         | < 20          | < 20          | NC        |
|             | 1,2,4-Trimethylbenzene         | 1400          | 1500          | 6.9       |
|             | 1,2-Dibromo-3-chloropropane    | < 40          | < 40          | NC        |
|             | 1,2-Dibromoethane (EDB)        | < 20          | < 20          | NC NC     |
|             |                                | < 20          | < 20          | NC NC     |
|             | 1,2-Dichlorobenzene            |               |               |           |
|             | 1,2-Dichloroethane (EDC)       | 220           | 250           | 12.8      |
|             | 1,2-Dichloropropane            | < 20          | < 20          | NC NC     |
|             | 1,3,5-Trimethylbenzene         | 500           | 510           | 1.9       |
|             | 1,3-Dichlorobenzene            | < 20          | < 20          | NC        |
|             | 1,3-Dichloropropane            | < 20          | < 20          | NC        |
|             | 1,4-Dichlorobenzene            | < 20          | < 20          | NC        |
|             | 1-Methylnaphthalene            | 150           | 170           | 12.5      |
|             | 2,2-Dichloropropane            | < 40          | < 40          | NC        |
|             | 2-Butanone                     | < 200         | < 200         | NC        |
|             | 2-Chlorotoluene                | < 20          | < 20          | NC        |
|             | 2-Hexanone                     | < 200         | < 200         | NC        |
|             | 2-Methylnaphthalene            | 220           | 230           | 4.4       |
|             | 4-Chlorotoluene                | < 20          | < 20          | NC        |
|             | 4-Isopropyltoluene             | < 20          | < 20          | NC        |
|             | 4-Methyl-2-pentanone           | < 200         | < 200         | NC NC     |
|             |                                | < 200         | < 200         | NC NC     |
|             | Acetone                        | 6800          |               |           |
|             | Benzene                        | < 20          | 7100          | 4.3       |
|             | Bromobenzene                   |               | < 20          | NCNC      |
|             | Bromodichloromethane           | < 20          | < 20          | NC        |
|             | Bromoform                      | < 20          | < 20          | NC        |
|             | Bromomethane                   | < 20          | < 20          | NC        |
| •           | Carbon disulfide               | < 200         | < 200         | NC        |
|             | Carbon Tetrachloride           | < 20          | < 20          | NC        |
|             | Chlorobenzene                  | < 20          | < 20          | NC        |
|             | Chloroethane                   | < 40          | < 40          | NC        |
|             | Chloroform                     | < 20          | < 20          | NC        |
|             | Chloromethane                  | < 20          | < 20          | NC        |
|             | cis-1,2-DCE                    | < 20          | < 20          | NC        |
|             | cis-1,3-Dichloropropene        | < 20          | < 20          | NC        |
|             | Dibromochloromethane           | < 20          | < 20          | NC        |
|             | Dibromomethane                 | < 20          | < 20          | NC        |
|             | Dichlorodifluoromethane        | < 20          | < 20          | NC        |
|             | Ethylbenzene                   | 1800          | 2000          | 10.5      |
|             | Hexachlorobutadiene            | < 20          | < 20          | NC NC     |
|             | Isopropylbenzene               | 84            | 92            | 9.1       |
|             | Methyl tert-butyl ether (MTBE) | 1700          | 1800          | 5.7       |
|             | Methylene Chloride             | < 60          | < 60          | NC NC     |
|             | Naphthalene                    | 480           | 520           | 8.0       |
|             | n-Butylbenzene                 | 49            | 50            | 2.0       |
|             |                                | 230           | 240           | 4.3       |
|             | n-Propylbenzene                | < 20          | < 20          | 4.3<br>NC |
|             | sec-Butylbenzene               |               | <del> </del>  |           |
|             | Styrene                        | < 20          | < 20          | NC NC     |
|             | tert-Butylbenzene              | < 20          | < 20          | NC        |
|             | Tetrachloroethene (PCE)        | < 20          | < 20          | NC        |
|             | Toluene                        | 2500          | 2800          | 11.3      |
|             | trans-1,2-DCE                  | < 20          | < 20          | NC        |
|             | trans-1,3-Dichloropropene      | < 20          | < 20          | NC        |
|             | Trichloroethene (TCE)          | < 20          | < 20          | NC        |
|             | Trichlorofluoromethane         | < 20          | < 20          | NC        |
|             | Vinyl chloride                 | < 20          | < 20          | NC NC     |
|             | Xylenes, Total                 | 8500          | 9200          | 7.9       |

Table A-3
Field Duplicate Summary
Group 3 Investigation Report
Western Refining Southwest, Inc. - Bloomfield Refinery

|              | Parameter                            | MW-65<br>Sample Result | MW-65 (DUP)<br>Sample Result | RPD<br>(%) |
|--------------|--------------------------------------|------------------------|------------------------------|------------|
| VOCs (ug/L): | 1,2,4-Trichlorobenzene               | < 10                   | < 10                         | NC         |
|              | 1,2-Dichlorobenzene                  | < 10                   | < 10                         | NC         |
|              | 1,3-Dichlorobenzene                  | < 10                   | < 10                         | NC         |
|              | 1,4-Dichlorobenzene                  | < 10                   | < 10                         | NC         |
|              | 2,4,5-Trichlorophenol                | < 10                   | < 10                         | NCNC       |
|              | 2,4,6-Trichlorophenol                | < 10                   | < 10                         | NC NC      |
|              | 2,4-Dichlorophenol                   | < 20<br>24             | < 20<br>22                   | NC<br>8.7  |
|              | 2,4-Dimethylphenol 2,4-Dinitrophenol | < 20                   | < 20                         | NC         |
|              | 2,4-Dinitrotoluene                   | < 10                   | < 10                         | NC NC      |
|              | 2,6-Dinitrotoluene                   | < 10                   | < 10                         | NC NC      |
|              | 2-Chloronaphthalene                  | < 10                   | < 10                         | NC         |
|              | 2-Chlorophenol                       | < 10                   | < 10                         | NC         |
|              | 2-Methylnaphthalene                  | 160                    | 150                          | 6.5        |
|              | 2-Methylphenol                       | < 10                   | < 10                         | NC         |
|              | 2-Nitroaniline                       | < 10                   | < 10                         | NC         |
|              | 2-Nitrophenol                        | < 10                   | < 10                         | NC         |
|              | 3,3'-Dichlorobenzidine               | < 10                   | < 10                         | NC         |
|              | 3+4-Methylphenol                     | < 10                   | < 10                         | NC         |
|              | 3-Nitroaniline                       | < 10                   | < 10                         | NC         |
|              | 4,6-Dinitro-2-methylphenol           | < 20                   | < 20                         | NC         |
|              | 4-Bromophenyl phenyl ether           | < 10                   | < 10                         | NC         |
|              | 4-Chloro-3-methylphenol              | < 10                   | < 10                         | NC         |
|              | 4-Chloroaniline                      | < 10                   | < 10                         | NCNC       |
|              | 4-Chlorophenyl phenyl ether          | < 10                   | < 10                         | NC<br>NC   |
|              | 4-Nitroaniline                       | < 10                   | < 10                         | NC NC      |
|              | 4-Nitrophenol                        | < 10<br>< 10           | < 10<br>< 10                 | NC<br>NC   |
|              | Acenaphthene Acenaphthylene          | < 10                   | < 10                         | NC NC      |
|              | Aniline                              | < 10                   | < 10                         | NC<br>NC   |
|              | Anthracene                           | < 10                   | < 10                         | NC         |
|              | Azobenzene                           | < 10                   | < 10                         | NC         |
|              | Benz(a)anthracene                    | < 10                   | < 10                         | NC         |
|              | Benzo(a)pyrene                       | < 10                   | < 10                         | NC         |
|              | Benzo(b)fluoranthene                 | < 10                   | < 10                         | NC         |
|              | Benzo(g,h,i)perylene                 | < 10                   | < 10                         | NC         |
|              | Benzo(k)fluoranthene                 | < 10                   | < 10                         | NC         |
|              | Benzoic acid                         | < 20                   | < 20                         | NC         |
|              | Benzyl alcohol                       | < 10                   | < 10                         | NC         |
|              | Bis(2-chloroethoxy)methane           | < 10                   | < 10                         | NC         |
|              | Bis(2-chloroethyl)ether              | < 10                   | < 10                         | NC         |
|              | Bis(2-chloroisopropyl)ether          | < 10 .                 | < 10                         | NC         |
|              | Bis(2-ethylhexyl)phthalate           | < 10                   | < 10                         | NC         |
|              | Butyl benzyl phthalate               | < 10                   | < 10                         | NC         |
|              | Carbazole                            | < 10                   | < 10                         | NC         |
|              | Chrysene                             | < 10                   | < 10                         | NC NC      |
|              | Dibenz(a,h)anthracene                | < 10<br>< 10           | < 10<br>< 10                 | NC<br>NC   |
|              | Dibenzofuran Diethyl phthalate       | < 10                   | < 10                         | NC NC      |
|              | Dimethyl phthalate                   | < 10                   | < 10                         | NC NC      |
|              | Di-n-butyl phthalate                 | < 10                   | < 10                         | NC NC      |
|              | Di-n-octyl phthalate                 | < 10                   | < 10                         | NC NC      |
|              | Fluoranthene                         | < 10                   | < 10                         | NC         |
|              | Fluorene                             | < 10                   | < 10                         | NC         |
|              | Hexachlorobenzene                    | < 10                   | < 10                         | NC         |
|              | Hexachlorobutadiene                  | < 10                   | < 10                         | NC         |
|              | Hexachlorocyclopentadiene            | < 10                   | < 10                         | NC         |
|              | Hexachloroethane                     | < 10                   | < 10                         | NC NC      |
|              | Indeno(1,2,3-cd)pyrene               | < 10                   | < 10                         | NC         |
|              | Isophorone                           | < 10                   | < 10                         | NC NC      |
|              | Naphthalene                          | 370                    | 350                          | 5.6        |
|              | Nitrobenzene                         | < 10                   | < 10                         | NC         |
|              | N-Nitrosodimethylamine               | < 10                   | < 10                         | NC NC      |
|              | N-Nitrosodi-n-propylamine            | < 10                   | < 10                         | NC NC      |
|              | N-Nitrosodiphenylamine               | < 10<br>< 20           | < 10                         | NC NC      |
|              | Pentachlorophenol  Phenanthrene      | < 20                   | < 20                         | NC NC      |
|              | Phenanthrene<br>Phenol               | 49                     | < 10<br>49                   | NC NC      |
|              | Pyrene                               | < 10                   | < 10                         |            |
|              | Pyridine                             | < 10                   | < 10                         | NC NC      |

### Table A-3 Field Duplicate Summary **Group 3 Investigation Report**

### Western Refining Southwest, Inc. - Bloomfield Refinery

|                           |                                   | MW-65         | MW-65 (DUP)   | RPD    |
|---------------------------|-----------------------------------|---------------|---------------|--------|
|                           | Parameter                         | Sample Result | Sample Result | (%)    |
| Metals (mg/L):            | Antimony                          | 0.001         | <0.001        | NC     |
|                           | Arsenic                           | 0.021         | 0.015         | 33.3 * |
|                           | Barium                            | 0.15          | 0.13          | 14.3   |
|                           | Beryllium                         | < 0.0030      | < 0.0030      | NC     |
|                           | Cadmium                           | < 0.0020      | < 0.0020      | NC     |
|                           | Chromium                          | < 0.0060      | < 0.0060      | NC     |
|                           | Cobalt                            | < 0.0060      | < 0.0060      | NC     |
|                           | Cyanide                           | <0.005        | < 0.005       | NC     |
|                           | Iron                              | 3.5           | 3.6           | 2.8    |
|                           | Lead                              | < 0.0050      | 0.0060        | NC     |
|                           | Mercury                           | < 0.00020     | < 0.00020     | NC     |
|                           | Nickel                            | < 0.010       | < 0.010       | NC     |
|                           | Selenium                          | < 0.050       | < 0.050       | NC     |
|                           | Silver                            | < 0.0050      | < 0.0050      | NC     |
|                           | Vanadium                          | < 0.050       | < 0.050       | NC     |
|                           | Zinc                              | < 0.020       | < 0.020       | NC     |
| General Chemistry (mg/L): | Calcium                           | 230           | 230           | 0.0    |
|                           | Iron                              | 0.98          | 1.1           | 11.5   |
|                           | Magnesium                         | 79            | 79            | 0.0    |
|                           | Potassium                         | 3.8           | 3.7           | 2.7    |
|                           | Sodium                            | 480           | 480           | 0.0    |
|                           | Specific Conductance              | 2900          | 2800          | 3.5    |
|                           | Total Dissolved Solids            | 2300          | 2400          | 4.2    |
|                           | Chloride                          | 140           | 130           | 7.4    |
|                           | Fluoride                          | 0.21          | 0.22          | 4.6    |
|                           | Nitrate (As N)+Nitrite (As N)     | < 1.0         | < 1.0         | NC     |
|                           | Phosphorus, Orthophosphate (As P) | < 0.50        | < 0.50        | NC     |
|                           | Sulfate                           | 790           | 750           | 5,2    |
|                           | Alkalinity, Total (As CaCO3)      | 1000          | 1000          | 0,0    |
|                           | Bicarbonate                       | 1000          | 1000          | 0,0    |
|                           | Carbonate                         | < 2.0         | < 2.0         | NC     |

|Carbonate | Notes:

RPD = Relative percent difference; [(difference)/(average)]\* 100

NC = Not calculated; RPD values were not calculated for non-detects ug/L = micrograms per liter

mg/L = milligrams per liter

\* = Field Duplicate RPD Outlier

## TABLE A-4 Completeness Summaries

### Completeness Summary - Soil Group 3 Investigation Report

### Western Refining Southwest, Inc. - Bloomfield Refinery

|                     | Parameter                      | Total Number of<br>Results | Number of<br>Contractual<br>Compliance | Percent<br>Contractural<br>Compliance | Number of<br>Usable Results | Percent<br>Technical<br>Compliance |
|---------------------|--------------------------------|----------------------------|--|---------------------------------------|-----------------------------|------------------------------------|
| TPH (mg/kg-dry):    | Ethanol                        | . 15                       | 15                                     | 100                                   | 15                          | 100                                |
|                     | Diesel Range Organics (DRO)    | 109                        | 111                                    | 100                                   | , 109                       | 100                                |
|                     | Motor Oil Range Organics (MRO) | 109                        | 110 a                                  | 99.1                                  | 109                         | 100                                |
|                     | Gasoline Range Organics (GRO)  | 109                        | 106 <sup>b</sup>                       | 95.5                                  | 109                         | 100                                |
| VOCs (ug/kg-dry)    | 1,1 Dichloroethene             | 109                        | 98 <sup>c,e</sup>                      | 88.3                                  | 109                         | 100                                |
|                     | 1,2,4-Trichlorobenzene         | 109                        | 107 °                                  | 96.4                                  | 109                         | 100                                |
|                     | Acetone                        | 109                        | 79 <sup>f</sup>                        | 71.2                                  | 109                         | 100                                |
|                     | Methylene chloride             | 109                        | 19 <sup>f</sup>                        | 17.1                                  | 109                         | 100                                |
|                     | Trichloroethene (TCE)          | 109                        | 105 °                                  | 94.6                                  | 109                         | 100                                |
|                     | All remaining VOC analytes     | 109                        | 109                                    | 100.0                                 | 109                         | 100                                |
| SVOCs (mg/kg-dry):  | 2,4-Dinitrotoluene             | 108                        | 106 °                                  | 96.4                                  | 108                         | 100                                |
|                     | N-Nitrosodi-n-propylamine      | 108                        | 106 <sup>e</sup>                       | 96.4                                  | 108                         | 100                                |
|                     | All remaining SVOC analytes    | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
| Metals (mg/kg-dry): | Mercury                        | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Antimony                       | 108                        | 90 °                                   | 81.8                                  | 108                         | 100                                |
|                     | Arsenic                        | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Barium                         | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Beryllium                      | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Cadmium                        | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Chromium                       | 108                        | 109 <sup>d</sup>                       | 99.1                                  | 108                         | 100                                |
|                     | Cobalt                         | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Cyanide                        | 108                        | 106 °                                  | 96.4                                  | 108                         | 100                                |
|                     | Lead                           | 108                        | 109 <sup>d</sup>                       | 99.1                                  | 108                         | 100                                |
|                     | Nickel                         | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Selenium                       | 108                        | 103 °                                  | 93.6                                  | 108                         | 100                                |
|                     | Silver                         | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Vanadium                       | 108                        | 108                                    | 100.0                                 | 108                         | 100                                |
|                     | Zinc                           | 108                        | 109 <sup>d</sup>                       | 99.1                                  | 108                         | 100                                |

### Notes:

Number of samples used in completeness calculations includes field duplicates but does not include equipment rinsate, field, or trip blanks.

Percent Contractural Compliance = (number of contract compliant results / Number of reported results)\*100

Percent Technial Compliance = (Number of usable results / Number of reported results) \* 100

- a = Qualified due to low surrogate recoveries
- b = Qualified due to high surrogate recoveries
- c = Qualified due to low LCS recovery
- d = Qualified due to high field duplicate relative percent difference.
- e = Qualified due to low MS/MSD recovery
- f = Qualified due to potential laboratory contamination.