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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 16, 2009

Mr. Ed Riege
Environmental Manager
Western Refining, Southwest Inc., Gallup Refinery
Route 3, Box 7
Gallup, New Mexico 87301

**RE: NOTICE OF DISAPPROVAL
FACILITY WIDE GROUNDWATER MONITORING WORK PLAN
WESTERN REFINING COMPANY, SOUTHWEST, INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-GRCC-09-001**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) has completed its review of the *Facility Wide Groundwater Monitoring Work Plan* (Work Plan), dated May 11, 2009, submitted on behalf of Western Refining Company, Southwest Inc., Gallup Refinery (Permittee) and hereby issues this Notice of Disapproval (NOD). The Permittee must address the following comments.

Comment 1

The Table of Contents (TOC) does not include all subsections within the Work Plan and some page numbers are inaccurate (e.g., Section 4 is missing subsections 4.1 through 4.4.5.8, TOC shows Section 4.0 beginning on page 23 but it actually begins on page 24). The Permittee must revise the Work Plan to ensure that the TOC corresponds to all sections, subsections, and page numbers within the Work Plan. Additionally, the Permittee must revise the TOC to include the titles of Appendices A through E.

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Comment 2

In Section 1.0 (Introduction), page 7, paragraph 2, the Permittee states “[t]he Plan follows the requirements of the February 9, 2009 letter issued by the New Mexico Environment Department’s Hazardous Waste Bureau (NMED/HWB) and includes the following information (a copy of this letter is provided in Appendix A):” followed by a list of headings from the TOC including the title “Scope of Activities.”

A list of the TOC is not adequate, because it does not include relevant introductory information. The types of activities that will be conducted during the groundwater monitoring events must be summarized in this section. Furthermore, the Work Plan does not have a section or subsection titled “Scope of Activities.” The Permittee must revise the Work Plan to remove the list and instead include a brief description of the proposed work.

Comment 3

In Section 2.2 (Potential Receptors), page 13, paragraph 2, the Permittee states that “[a]t this time, the nearest drinking water wells are located on-site at the south-west areas of the facility, at depths of approximately 3000 feet.” Based on the information provided in the Work Plan, it is unclear which wells the Permittee is referring to. The Permittee must revise the Work Plan to identify the “drinking water wells” by name and include a map depicting their locations.

Comment 4

In Section 2.3 (Type and characteristics of the waste and contaminants and any known and possible sources), page 15, paragraph 6, the Permittee states “[t]here are fourteen Solid Waste Management Units (SWMU) identified at the Gallup Refinery, and one closed Land Treatment Area. These are – RCRA Regulated Units,” the Permittee then lists the SWMUs.

The SWMU list does not identify all of the SWMUs and inaccurately identifies their names. The Permittee must revise the Work Plan to list all SWMUs correctly as identified in Appendix A of the Post-Closure Care Permit (Permit) (e.g., SWMU No. 9 – “Drainage Ditch Near Inactive Landfarm” must be identified as the “Drainage Ditch and the Inactive Landfarm”; SWMU 2 is missing from the list).

Comment 5

In Section 2.4 (Summary of contaminant releases that could contribute to groundwater contamination), page 16, paragraph 2, the Permittee states “[s]eparate Phase Hydrocarbons (SPH) floating on shallow groundwater have been found at the north-east end of the facility, and a system of recovery wells has stopped migration of the SPH and recovered almost all such SPH.” The statement “a system of recovery wells has stopped migration of the SPH and recovered almost all such SPH” is presumptive and has not been demonstrated by the facility since SPH is still detected in the recovery wells. The Permittee must revise this Section to remove the

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statement. This section must summarize contaminant releases that could contribute to groundwater contamination.

Comment 6

In Section 2.4 (Summary of contaminant releases that could contribute to groundwater contamination), page 16, paragraph 5, the Permittee states “[t]here has always been the possibility that the wastewater treatment system of the facility based on aeration lagoons and evaporation ponds may have leaked contaminants into shallow groundwater. However, contaminants have not been found at any substantial levels in groundwater monitoring wells that have been placed next to and around these lagoons and ponds (the GWM series of wells). There is clay in the soil that serves as a natural liner and this clay has clearly prevented any such releases.”

The statements regarding the extent of contamination and related clay properties are presumptive; hydrocarbon contamination has been detected in some wells and in groundwater in and around the wastewater treatment system at concentrations exceeding the Water Quality Commission Control (WQCC) standards (e.g., GWM-1 contains benzene that exceeds the WQCC standard of 0.01 mg/L and groundwater contamination is present in monitoring well NAPIS-2 near the API separator). Additionally, the properties of the clay are not necessarily consistent throughout the facility. The Permittee must revise the Work Plan to remove the statement “[h]owever, contaminants have not been found at any substantial levels in groundwater monitoring wells that have been placed next to and around these lagoons and ponds (the GWM series of wells). There is clay in the soil that serves as a natural liner and this clay has clearly prevented any such releases.”

Comment 7

In Section 2.4 (Summary of contaminant releases that could contribute to groundwater contamination), page 16 and 17, paragraph 6 and 1 respectively, the Permittee states “[u]sing a contaminant transport model developed by the US Environmental Protection Agency, called CHEMFLO, that models the transport of contaminants through unsaturated soils, we have estimated that benzene could not travel more than a few feet into the subsurface under a pond with about 3 feet of standing water even with a very high concentration of benzene.”

The above statement is unsubstantiated; the Permittee cannot make such assertions without valid supporting data. Also, it is not clear if sand stringers in this area were accounted for. This Section must address only known or suspected contaminant releases that may contribute to groundwater contamination. The Permittee must remove the above statement from the Work Plan.

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Comment 8

Figures 3 and 4, on page 18 and 19 show “flow lines and major surface water bodies” located in the vicinity of the refinery. These figures are small, unclear, and difficult to read. Figure 3 contains an arrow that appears to point to the South Fork of the Puerco River; however, it is difficult to see if the arrow is pointing to the South or North Fork of the Puerco River. The Permittee must provide figures of a larger scale that are legible or remove them from the Work Plan.

Comment 9

The Permittee must revise the Work Plan, Figure 6 (Map of Groundwater Flow) as follows:

- a. Include a legend that defines the solid horizontal dark blue lines and the small horizontal light blue dashed lines.
- b. Remove “All Other Exploratory Borings” locations in light blue.
- c. Include the monitoring wells NAPI -1, NAPI-2, NAPI-3 and KA-3 and any other newly installed monitoring wells.

Comment 10

Figure 7 (Well Locations (May 2009)) is cluttered and difficult to read. The Permittee must revise Figure 7 to remove the locations in light blue labeled “All Other Exploratory Borings.” This figure must also include NAPI -1, NAPI-2, NAPI-3, KA-3 and any other newly installed monitoring wells.

Comment 11

In Section 4.0 (Investigation Methods), page 24, the Permittee states “[t]he purpose of this section is to describe the types of activities that will be conducted and the methods that will be used as part of this Plan. This Section borrows liberally from the Plan produced by the Bloomfield Refinery of Western Refining and approved by the NMED/HWB.”

The information in the Work Plan must include only information that is applicable to the Gallup Refinery and include the details of the plan that the Permittee will implement to conduct facility-wide groundwater monitoring. The Permittee must revise Section 4.0 and the subsections to ensure that the contents include only those elements of the plan that are applicable to the Gallup Refinery. (See also Comment 20).

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Comment 12

In Section 4.1 (Groundwater elevation surveys), page 24, paragraph 1, the Permittee states “[g]round water elevation data will be collected from the wells listed in Table 1. As directed by NMED HWB, groundwater elevation data will be collected on a quarterly or annual basis.”

Table 1 has several inaccuracies (e.g., SMW-6 is closed, see Figure 7). NMED has revised Table 3 (see also Comment 23) to include the information from Table 1 as well as the groundwater monitoring requirements. The Permittee must revise the Work Plan to remove Table 1 and revise the above statement to reference the revised Table 3 (or as otherwise designated).

Comment 13

In Section 4.1 (Groundwater elevation surveys), page 24, paragraph 1, the Permittee states “[g]roundwater levels and SPH thickness measurements (from the RW series of wells) will be collected on a quarterly or annual basis to monitor groundwater elevation fluctuations over time.”

The groundwater levels and SPH thickness measurements from the recovery wells must be collected on a quarterly basis. These requirements are established in the revised Table 3. The Permittee must revise the Work Plan to include this requirement. (See also Comment 22)

Comment 14

In Section 4.1 (Groundwater Elevation surveys), page 24, paragraph 2, the Permittee states “[t]he frequency for collection of groundwater elevation data may be adjusted based on review of data collected during the initial four quarters.”

Changes to the frequency for the collection of groundwater elevation data and sampling may only be proposed in the annual revision to the Facility Wide Groundwater Monitoring Plan. The Permittee must revise the above statement to reflect this in the revised Work Plan.

Comment 15

In Section 4.2.1 (Well Purging), pages 24 and 26, the Permittee states “[t]otal purge volume will be determined by monitoring groundwater pH, and specific conductance, dissolved oxygen (DO) concentrations, oxidation-reduction potential (ORP), and temperature after every two gallons or each well volume, whichever is less, has been purged from the well. Field parameters will be measured using a YSI 63 pH/Conductivity hand-held instrument or equivalent. Purging will continue, as needed until the field parameter readings stabilize to within ten percent between readings for three consecutive measurements. Once the readings are within 10%, purging will stop and the well is ready for sample collection.”

Regardless of the field water quality measurements, the Permittee must purge a minimum of two well volumes before collecting a water sample. Field water quality measurements must stabilize

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for a minimum of three consecutive readings before purging may be discontinued. The Permittee must revise the Work Plan to include this requirement.

Comment 16

In Section 4.2.3 (Sample Handling), page 26, the Permittee states “[s]tandard chain-of-custody procedures, as described in Section 4.3 of this plan, will be followed for all samples collected.” Section 4.3 discusses analytical methods; however, the section does not include the chain of custody procedures. The Permittee must revise the Work Plan to correct this discrepancy and refer to the correction section.

Comment 17

In Section 4.2.4 (Decontamination Procedures), page 27, paragraph 3, the Permittee states “[d]econtamination water and rinsate will be contained and disposed of the same way as purge water, as described in Section 4.2.8.” The Work Plan does not include a Section 4.2.8; the Permittee must revise the Work Plan to reference the correct section.

Comment 18

In Section 4.2.7 (Collection of Surface Water Samples), the Permittee addresses the collection of surface water samples at ponds; the section is written as a Standard Operating Procedure. The Permittee does not make it clear whether “ponds” refers to the Evaporation Ponds. The Permittee must revise the Work Plan to specify that the “ponds” refers to the Evaporation Ponds. Additionally, the surface water samples must be collected where water enters into each Evaporation Pond (the inlet location). The steps included in this section must be removed from the Work Plan (see also Comment 31) and this Section must be revised to explain the proposed methods for sample collection from the inlet locations at the Evaporation Pond. The Permittee must revise the Work Plan accordingly.

Comment 19

In Section 4.3 (Analytical Methods), page 29, the Permittee includes a list of compounds and the analytical methods that will be utilized during the groundwater monitoring events. The Permittee also included a Table 2 that provides target analytes and the EPA Method. There are minor differences between the list of the analytical methods specified in the text and Table 2 and the list and the table are repetitive. The Permittee must revise the Work Plan to include one accurate list of analytes/compounds and the EPA methods that will be applied during the groundwater monitoring events (this must be consistent with the revised Table 3) or reference the revised Table 3 which includes the analytical suite and associated test methods. (See also Comment 22)

Comment 20

In Section 4.5.4 (Laboratory Deliverables), page 32, the Permittee states “[a]s stated in the Order, the following will be included in the analytical laboratory reports.” The Permittee must revise

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this Section to remove references to the "Order;" the Permittee has a Post-Closure Care Permit and is not currently subject to an Order. (See also Comment 11)

Comment 21

In Section 5.0 (Monitoring and Sampling Program), page 37, paragraph 2, the Permittee states "[t]he combined data from these investigation areas will be used to establish background groundwater quality, asses groundwater quality beneath and immediately down-gradient of the Facility, and evaluate local groundwater flow conditions."

Background groundwater quality values have not been established at the facility and background values will not be established based on the results of the proposed monitoring. In order to establish background groundwater values, upgradient wells from refinery activities must be installed and a statistically valid number of samples collected and evaluated to establish background concentrations. The Permittee must revise the Work Plan to remove all references to background groundwater quality.

Comment 22

Table 3 (Summary of sampling locations, frequencies, and tests required) on page 39, identifies the sampling requirements for the Work Plan. The table did not include all sampling requirements from items 16 and 19 of the OCD Discharge Plan and the table organization is unclear. Additionally, it is not clear why the Permittee has the NAPI secondary containment as a sample location, because the secondary containment should not contain water. NMED has revised Table 3 to include all sampling requirements, sampling locations and frequencies, and analytical methods. The Permittee must revise the Work Plan to include the attached revised Table 3, which replaces Table 1. The Permittee must justify the need to sample the NAPI secondary containment sample location and revise Table 3 to either include or remove this location. These changes must be reflected in the revised Work Plan. An electronic version of the revised Table 3 is available from NMED upon request.

Comment 23

The Permittee must revise Sections 5.1.2 (Sampling Frequency and Analysis) and Section 5.2.2 (Sampling Frequency and Analyses) to reference the revised Table 3 for the sampling requirements and frequencies or otherwise remove these Sections from the Work Plan. (See also Comment 22)

Comment 24

The Permittee states in Appendix C (Gallup Field Sampling Collection and Handling Procedures), under "Field Data Collection," page 48, paragraph 2, that "[a]ll water/product levels are measured to an accuracy of the nearest 0.01 foot using an electrical Conductivity based meter." On page 49, the Permittee states under "Groundwater Elevation" that "[a]ll water

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product levels are measured using a Dipper T electric water depth tape. The technician records separate phase hydrocarbons (SPH), depth to water (DTW), and total well depth using the tape...[r]ecovery wells with free product are checked using a reel gauge with water and hydrocarbon paste.”

The two statements indicate the use of different instruments to complete the depth to water and depth to product level measurements. The Permittee must revise the Work Plan to address which instrument and methods that will be used to collect measurements for water and product levels.

Comment 25

In Appendix C (Gallup Field Sampling Collection and Handling Procedures), the Permittee makes various statements regarding a meter used for measurements. For example, the Permittee states on page 48 that “[e]lectrical Conductivity (E.C.), pH, and temperature are monitored during purging using a meter” then on page 49 the Permittee states “[w]ater quality parameters are measured using a meter”

The Permittee never states the type of meter(s) that will be used. In the revised Work Plan, all field instruments proposed for use must be identified by name/manufacturer.

Comment 26

The text provided in Appendix C (Gallup Field Sampling Collection and Handling Procedures), page 48 under “Field Data Collection” and page 49 under “Groundwater Elevation” and “Water Quality/Groundwater Sampling” all address similar, if not the same information. The Permittee must revise the Work Plan to combine this information into one section.

Comment 27

In Appendix C (Gallup Field Sampling Collection and Handling Procedures), page 50, paragraph 1, the Permittee states “[t]he water level in the well, total depth of well and thickness of floating product (if any) will be measured using the Dipper T electric water depth tape. A transparent bailer will be used to check for the presence and measure the thickness of floating product. If product is present, a groundwater sample is typically not obtained.”

The two sentences contradict how product will be measured. Additionally, the method(s) of measurement were addressed earlier in Appendix C (see also Comments 24 and 26). A bailer cannot be used to measure product thickness because these measurements will not be accurate to 0.01 foot. The Permittee must revise the Work Plan to clarify the method(s) that will be used to measure the depth to water and product (to be consistent throughout the Work Plan). The Permittee must revise the Work Plan accordingly.

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Comment 28

In Appendix C (Gallup Field Sampling Collection and Handling Procedures), page 50, under "Hand Bailing," the Permittee indicates that NAPIS-1, NAPIS-2, NAPIS-3, and KA-3 are hand bailed. However, on page 50 under "Pumping," the Permittee states all wells are pumped with the exception of the recovery wells. The Permittee must revise the Work Plan to clarify whether NAPIS-1, NAPIS-2, NAPIS-3, and KA-3 will be hand bailed or pumped.

Comment 29

In Appendix C, page 53, "Equipment Calibration Procedures," the Permittee provides step by step instructions regarding calibration. The Permittee does not need to provide the step by step calibration instructions, but must state that all equipment (identify all equipment by name) will be calibrated according to the manufactures specifications. The Permittee must revise the Work Plan accordingly.

Comment 30

The information provided under "Order of Collection" found in Appendix C (Gallup Field Sampling Collection and Handling Procedures), page 51, must reflect the sampling that will be conducted during the facility wide groundwater monitoring events. Cyanide and radionuclides are not included in the analysis and therefore must be removed from the "Order of Collection" list. In addition, TOX must be defined. The Permittee must revise this section accordingly.

Comment 31

In Appendix C (Gallup Field Sampling Collection and Handling Procedures), pages 53 through 55, the Permittee provides the "Guidelines for Sampling at Ponds." The information provided in this Appendix is written as a Standard Operating Procedure and does not explain how the Evaporation Ponds will be sampled. In addition, the sampling objectives will most likely not be completed because the Permittee discusses sampling at depths that will be dictated by study objectives and physical, chemical, and biological characteristics of the water body and compositing or splitting samples (note: water samples should not be composited). Also some of the references within this section of Appendix C are incorrect (e.g., the text on page 54, under the heading "Step 4. Collect sample" references Steps 4A and 4B, which are not present.) The Permittee must either remove this section of Appendix C from the Work Plan or revise this section to explain how Evaporation Pond samples will collected. Samples collected from the Evaporation Ponds must be collected from the inlet of each Evaporation Pond (see also Comment 18). The Permittee must revise Appendix C accordingly.

Comment 32

The Permittee provides "Field Procedures for Purging Monitor Wells" on page 49 of Appendix C. The Permittee states that "the casing volumes are calculated using the formula: One casing volume = $L \times F$ " and states that the variable F is provided on the *Well Volume Sheet* provided at

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the end of this appendix. However, the *Well Volume Sheet* that includes the variable F was not included at the end of the Appendix. The explanation of how the purge volumes are determined is unclear. All the information used to determine the purge volumes must be provided together and not on a sheet provided at the end of the appendix. The Permittee must revise the Work Plan to clarify how the purge volumes are determined and include the information in one location in the Work Plan.

Comment 33

As a general comment, Appendix C is written as a Standard Operating Procedure with language that was taken from a guidance document containing information that is not relevant to the Work Plan and includes contradictory and repetitive information. The Permittee must simplify Appendix C to describe the actual proposed sample collection methods and procedures (i.e., how samples will actually be collected) and remove repetitive information. These corrections must be included in the revised Work Plan.

Comment 34

Appendix D (Data from 2008) includes tables that provide historical analytical data; however, some tables are inaccurate because the titles of the tables do not accurately represent the presented data (e.g., Table D.18 (page 69) states EPA Method 8260B Volatiles; however, the analytical data provided is for metals). The Permittee must revise Appendix D to correct these discrepancies.

Comment 35

The tables provided in Appendix D (Data from 2008) include rows or columns that show the EPA Maximum Contaminant Levels (MCLs) and the Water Quality Commission Control (WQCC) standards. However, most tables do not include all the applicable standards. For example, Table D.22 does not include the WQCC standard or MCL for mercury or selenium. In addition, the tables contain analytical data for diesel range organics but do not include NMED's TPH Screening guideline for DRO in groundwater (unknown oil) of 0.2 mg/L. The Permittee must revise the tables found in Appendix D to include the appropriate standards.

Comment 36

As a general comment to the Work Plan, the Permittee included more information than was necessary; Attachment 1 of NMED's February 9, 2009 letter was meant to be used as a guideline. The Work Plan needs to address only the methods and procedures the Permittee will use to conduct sampling activities during the facility-wide groundwater monitoring plan. Additionally, the Permittee borrowed language from the Bloomfield Order (e.g., sections 4.5 through 4.5.8); the Permittee must revisit the borrowed language and determine if the language is applicable to the Gallup facility and revise the Work Plan accordingly.

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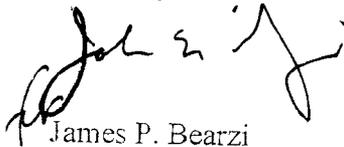
Comment 37

In Appendix B, the Permittee states “[a]ll well logs will be submitted by June 30, 2009.” The Permittee has provided the wells logs electronically. Therefore, this information does not need to be included in the revised Work Plan. The Permittee must revise the Work Plan to remove this Appendix.

The Permittee must address all comments contained in this NOD and submit a revised Work Plan to NMED and OCD on or before March 1, 2010. The revised Work Plan must be accompanied by a response letter that details where all revisions have been made, cross-referencing NMED’s numbered comments.

If you have questions regarding this NOD please contact Kristen Van Horn of my staff at 505-476-6046.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

cc: J. Kieling, NMED HWB
D. Cobrain NMED HWB
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File: Reading File and GRCC 2009 File
HWB-GRCC-09-001



**Gallup Refining Company
 Groundwater Monitoring Schedule
 Revised Table 3**

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
Pilot Effluent	Quarterly (Q)			VOC/ DRO extended/ GRO/BOD/ COD/ WQCC Metals
NAPIS Effluent	Q			Gen Chem/ VOC/ SVOC (Phenol)/ DRO extended/ GRO/ WQCC Metals
AL2 to EP-1	Q			major cations/ major anions/ VOC/ SVOC (Phenol)/ DRO extended/ GRO/ WQCC Metals
Influent to AL-1	Q			VOC/ BOD/ COD/ chlorides/ DRO extended/ GRO/ pH/ phenol
Influent to AL-2	Q			VOC/ BOD/ COD/ chlorides/ DRO extended/ GRO/ pH/ phenol
Influent to Evaporation Pond 1	Q			major cations/ major anions/ pH/ BOD/ COD/ chlorides/ VOC/ SVOC (Phenol)/ DRO extended/ GRO/ WQCC metals
NAPI 2ndary Containment	Q			BTEX/ DRO extended/ GRO/ WQCC Metals or check for fluids
RW-1	Q	X		Measure DTW, DTP
RW-2	Q	X		Measure DTW, DTP
RW-5	Q	X		Measure DTW, DTP
RW-6	Q	X		Measure DTW, DTP

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
OW-1	Q	X	pH, E.C., D.O, ORP, Temp, TDS	visual check for artesian flow conditions; major cations/ major anions/ VOC/DRO extended/ WQCC Metals
OW-10	Q	X	pH, E.C., D.O, ORP, Temp, TDS	Water level measurement of the Sonsela Aquifer water table major cations/ major anions/ VOC/DRO extended/ WQCC Metals
OW-13	Q	X	pH, E.C., D.O, ORP, Temp, TDS	VOC
OW-14	Q	X	pH, E.C., D.O, ORP, Temp, TDS	VOC
OW-29	Q	X	pH, E.C., D.O, ORP, Temp, TDS	VOC
OW-30	Q	X	pH, E.C., D.O, ORP, Temp, TDS	VOC

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
GWM-2	Q	X		Check for water –if water is detected report to OCD & NMED within 24 hours; sample for BTEX + MTBE/ GRO/ DRO extended/ major cations/ major anions
GWM-3	Q	X		Check for water –if water is detected report to OCD & NMED within 24 hours; sample for BTEX + MTBE/ GRO/ DRO extended/ major cations/ major anions
GWM-1	Q	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/DRO extended/ GRO/ WQCC Metals
NAPIS -1 (a)	Q	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ BTEX + MTBE/ SVOC's/ DRO/ GRO/ WQCC Metals
NAPIS -2 (a)	Q	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ BTEX + MTBE/ SVOC's/ DRO/ GRO/ WQCC Metals
NAPIS -3 (a)	Q	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ BTEX + MTBE/ SVOC's/ DRO/ GRO/ WQCC Metals

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
KA-3 (a)	Q	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ BTEX + MTBE/ SVOCs/ DRO/ GRO/ WQCC Metals
Boiler Water & Cooling Tower Blowdown inlet to EP-2	Semi Annual		pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions
Evaporation Pond 1 (b)	Semi-Annual (SA)		pH, E.C., D.O, ORP, Temp, TDS	General Chemistry/ VOC/SVOC/ WQCC 20.6.2.3103 constituents/ BOD/ COD/ E-coli Bacteria/RCRA 8 metals
Evaporation Pond 2 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 3 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 4 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
Evaporation Pond 5 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 6 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 7 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 8 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 9A (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 11 (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
Evaporation Pond 12A (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Evaporation Pond 12B (b)	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
Any temporary pond containing fluid	SA		pH, E.C., D.O, ORP, Temp, TDS	Same as Evaporation Pond 1
BW-1-A	Annual (A)	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-1-B	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-1-C	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
BW-2-A	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-2-B	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-2-C	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-3-A	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-3-B	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
BW-3-C	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
Pond 2 Inlet	A			VOC/ DRO extended/ GRO/ BOD/ COD/ TDS

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
MW-1	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ DRO extended/ GRO/ WQCC metals
MW-4	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ DRO extended/ GRO/ WQCC metals
MW-5	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ DRO extended/ GRO/ WQCC metals
OW-11	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ SVOC/ WQCC metals
OW-12	A	X	pH, E.C., D.O, ORP, Temp, TDS	VOC
SWM-2	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ DRO extended/ GRO/ WQCC metals

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
SWM-4	A	X	pH, E.C., D.O, ORP, Temp, TDS	major cations/ major anions/ VOC/ DRO extended/ GRO/ WQCC metals
PW-2	Every 3 yrs starting in 2008			VOC/ SVOC/ WQCC metals/ cyanide/ nitrates
PW-3	Every 3 yrs starting in 2008			VOC/ SVOC/ WQCC metals/ cyanide/ nitrates
PW-4	Every 3 yrs starting in 2007			VOC/ SVOC/ WQCC metals/ cyanide/ nitrates
Effluent from Old API (storm water separator effluent)	Monthly flow rate measurements to New API Separator			Collect monthly flow rate readings from the Old API to the New API Separator. If effluent is re-routed to any other location than the New API Separator, NMED/OCD must be contacted to determine whether additional sampling and analysis is required.

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section H.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Sampling Location ID	Sampling Frequency	Collect GW elevation, DTW, DTP	Water Quality Parameters	Analytical Suite
All wells including the recovery wells containing separate phase hydrocarbons	Annual sampling event			major cations/major anions/VOC/SVOC/WQCC 20.6.2.3103 Constituents

The Analyte list for EPA Method 8260 must include MTBE

(a) NAPIS 1, NAPIS-2, NAPIS 3: detection of product during quarterly monitoring must comply Section II.F.2 (Twenty-Four Hour Reporting) of NMED Post-Closure Care Permit.

(b) Sample using the State of New Mexico approved analytical methods as required by 20.6.4.14 NMAC, as amended through February 16, 2006 (use Methods: 9221-E and 9221-F, until EPA approves 40 CFR 136 methods (Colilert, Colilert-18, m-ColiBlue24, membrane filter method)). Parameters are subject to change.

WQCC metals include the RCRA 8 metals, must be analyzed as totals and dissolved

Evaporation Pond samples must be collected at the inlet, where wastewater flows into the evaporation pond

Table Notes

Pilot Effluent – Effluent from the Pilot Gas Station to the Aeration Lagoon

Pond 2 Inlet - Sample collected at the inlet to Evaporation Pond 2 from Evaporation Pond 1

NAPIS Effluent – Effluent leaving the New API Separator

AL-2 to EP-1 – sample collection at the inlet from Aeration Lagoon 2 to Evaporation Pond 1 (influent location into EP 1)

NAPIS 1=(KA-1R); NAPIS-2 =(KA-2R), NAPIS 3 =(KA-3R) – monitor wells positioned around NAPIS to detect leakage

DO - dissolved oxygen; ORP - oxygen reduction potential temp - temperature E.C. - electrical or specific conductivity

TDS – total dissolved solids VOC's – volatile organic compounds –EPA Method 8260, must include MTBE

SVOCs – semi volatile organic compounds – EPA Method 8270, must include phenol

DRO – diesel-range organics – EPA Method 8015B (or as modified)

GRO – gasoline range organics – EPA Method 8015B (or as modified)

BTEX – benzene, toluene, ethylbenzene, xylene, plus Methyl Tertiary-Butyl Ether (MTBE) – EPA Method 8021 + MTBE

DTW – depth to water DTP – depth to product EP- Evaporation Pond

BW wells – boundary wells GWM wells - are located around the aeration lagoons to detect leakage

MW – Monitor Well OW – observation well RW – recovery well PW – raw water production well

