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February 26, 2014

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Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg 1
Santa Fe, New Mexico 87505-6303

NMED
Hazardous Waste Bureau

**RE: INVESTIGATION WORK PLAN - SOLID WASTE MANAGEMENT UNIT ("SWMU") NO. 3
EMPTY CONTAINER STORAGE AREA AND HEAT EXCHANGER BUNDLE CLEANING
PAD;
MAP OF SWMUs AND AREAS OF CONCERN
WESTERN REFINING SOUTHWEST, INC. ("WESTERN"), GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-11-002**

Dear Mr. Kieling:

Please find enclosed the subject Investigation Work Plan, which has been prepared pursuant to the recently issued RCRA Post-Closure Care Permit (effective date 12/2/2013) (the "Permit"). You will also find enclosed a map showing the locations of the SWMUs and Areas of Concern ("AOCs") listed in Attachment G of the Permit. Please note that the Permit currently is under appeal including, without limitation, the Permit's identification of the AOCs in Attachment G. Accordingly, these timely submissions under the Permit shall not be deemed as agreement by Western with the identification of the AOCs in Attachment G, or as a change in any position expressed by Western in its comments to NMED on the Permit, and Western reserves all applicable rights and defenses associated with the Permit appeal.

If there are any questions regarding the Investigation Work Plan, please contact Mr. Ed Riege at (505) 722-0217.

Certification

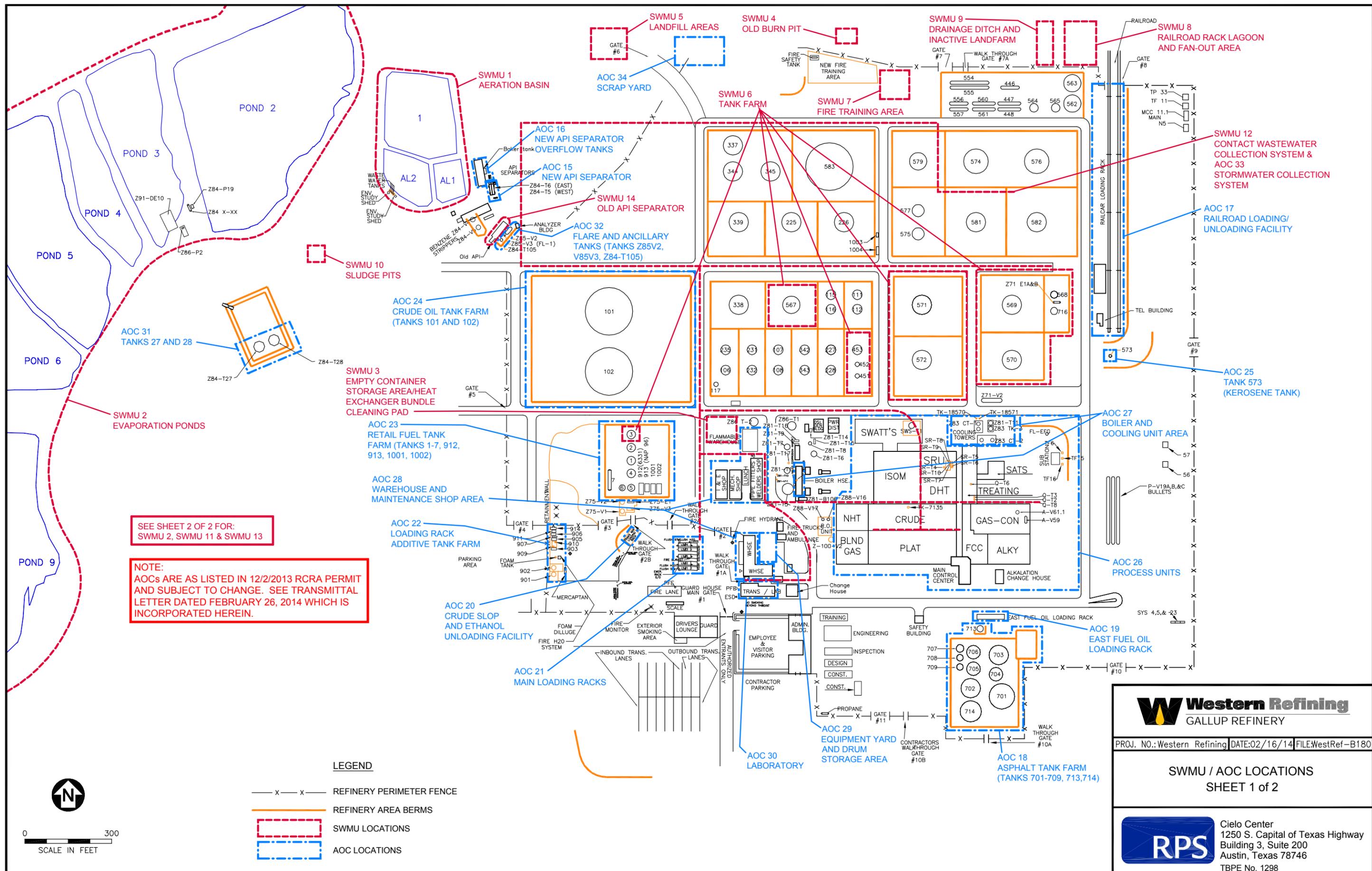
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



Mr. William C. McClain Jr.
Refinery Manager
Western Refining Southwest, Inc. – Gallup Refinery

cc D. Cobrain NMED HWB without enclosure
K. Van Horn, NMED HWB without enclosure
C. Chavez, OCD
A. Allen, Western El Paso



SEE SHEET 2 OF 2 FOR:
SWMU 2, SWMU 11 & SWMU 13

NOTE:
AOCs ARE AS LISTED IN 12/2/2013 RCRA PERMIT
AND SUBJECT TO CHANGE. SEE TRANSMITTAL
LETTER DATED FEBRUARY 26, 2014 WHICH IS
INCORPORATED HEREIN.

- LEGEND**
- x — x — REFINERY PERIMETER FENCE
 - — — REFINERY AREA BERMS
 - SWMU LOCATIONS
 - AOC LOCATIONS



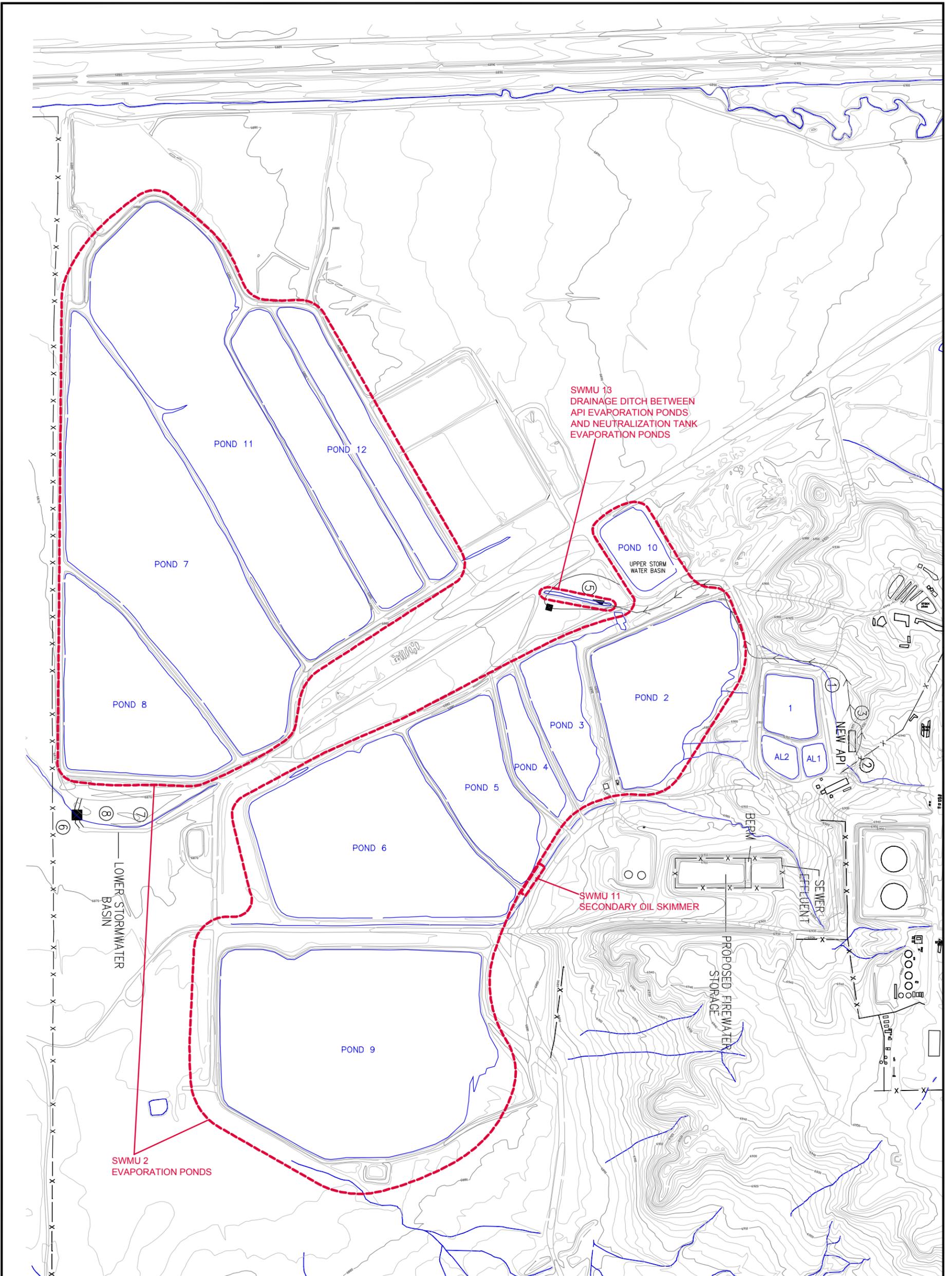
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PROJ. NO.: Western Refining | DATE: 02/16/14 | FILE: WestRef-B180

SWMU / AOC LOCATIONS
SHEET 1 of 2

Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



LEGEND

 SWMU LOCATIONS



PROJ. NO.: Western Refining | DATE: 02/17/14 | FILE: WestRef-B181

**SWMU / AOC LOCATIONS
SHEET 2 of 2**



Cielo Center
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**INVESTIGATION WORK PLAN
SWMU No. 3 Empty Container Storage Area /
Heat Exchanger Bundle Cleaning Pad**

**Gallup Refinery
Western Refining Southwest, Inc.
Gallup, New Mexico
EPA ID# NMD000333211**

February 2014

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List of Acronyms

American Society of Testing and Materials (ASTM)
areas of concern (AOCs)
benzene, toluene, ethylbenzene, and xylene (BTEX)
Code of Federal Regulations (CFR)
Contract Laboratory Program (CLP)
Data Quality Objectives (DQOs)
Environmental Protection Agency (EPA)
Hazardous and Solid Waste Act (HSWA)
hollow-stem augering (HSA)
investigation derived waste (IDW)
maximum contaminant level (MCL)
monitoring well (MW)
New Mexico Administrative Code (NMAC)
New Mexico Environment Department (NMED)
New Mexico Surveying Act (NMSA)
photoionization detector (PID)
Quality Assurance/Quality Control (QA/QC)
Resource Conservation and Recovery Act (RCRA)
RCRA Facility Investigation (RFI)
Solid Waste Management Units (SWMUs)
total petroleum hydrocarbon (TPH)
toxicity characteristic leaching procedure (TCLP)
unified soil classification system (USCS)
volatile organic constituent (VOC)
Water Quality Control Commission (WQCC)

Executive Summary

The Gallup Refinery, which is located 17 miles east of Gallup, New Mexico, has been in operation since the 1950s. Past inspections by State [New Mexico Environment Department (NMED)] 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). Pursuant to the terms and conditions of the facility Resource Conservation and Recovery Act (RCRA) Post-Closure Care Permit and 20.4.1.500 New Mexico Administrative Code, this Investigation Work Plan has been prepared for the Empty Container Storage Area and Heat Exchanger Bundle Cleaning Pad. Attachment G of the facility's Post-Closure Care Permit provides a list of designated SWMUs and Areas of Concern (AOCs), and the Empty Container Storage Area and Heat Exchanger Bundle Cleaning Pad are listed as SWMU No. 3. In most historical site documentation, only the Empty Container Storage Area was referred to as SWMU 3, although there are a few references to the Empty Container Storage Area as being SWMU No. 5. The Heat Exchanger Bundle Cleaning Pad was only recently identified as a SWMU by the NMED during the 2010-2013 RCRA Permit renewal and subsequently combined with the Empty Container Storage Area to form SWMU No. 3.

The Empty Container Storage Area occupied a small area of approximately 50 feet by 80 feet, which was located approximately 100 feet north of the Maintenance Buildings. A RCRA Facility Investigation (RFI) was conducted in the area in early 1990s with the finding that the area did not have significant environmental impacts. Giant Refining Company recommended No Further Action and the United States Environmental Protection Agency (EPA) concurred in 1994. A site inspection conducted in March 1998 determined that the area was no longer being used to store empty containers, but had been paved with concrete and was being used to clean heat exchanger bundles. The area continues to be used to clean heat exchanger bundles.

The planned investigation activities include collection of soil samples, which will be analyzed for potential site-related constituents. The analyses will include both volatile and semi-volatile organic constituents, total petroleum hydrocarbons, and Skinner List metals. Soil borings will be drilled around the perimeter of the concrete pad currently used for cleaning heat exchanger bundles, which also corresponds with the same area previously used for storage of empty containers. The specific sampling locations and sample collection procedures are discussed in more detail in Section 5.

Section 1

Introduction

The Gallup Refinery is located approximately 17 miles east of Gallup, New Mexico along the north side of Interstate Highway I-40 in McKinley County. The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Gallup Refinery is located on 810 acres. Figure 1 presents the refinery location and the regional vicinity, which is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.

The Gallup Refinery is a crude oil refinery currently owned and operated by Western Refining Southwest, Inc. ("Western"), formerly known as Giant Industries Arizona, Inc. and formerly doing business as Giant Refining Company Ciniza Refinery, an Arizona corporation. The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck.

Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

On October 31, 2013, the NMED issued a RCRA Post-Closure Care Permit ("Permit") to Western. The Permit authorizes post-closure care at a hazardous waste land treatment unit and also includes corrective action provisions. Section IV.H.5.a.i requires the Permittee to prepare and submit RCRA Facility Investigation Work Plans to the NMED in accordance with the schedule set forth in Permit Attachment E. The Investigation Work Plan for SWMU No. 3 is due March 1, 2014.

The location of the SWMU No. 3 is shown on Figure 2. Photographs of the SWMU and the surrounding area are included in Appendix A.

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 will be conducted in accordance with Section IV.H.5 of the Post-Closure Care Permit.

Section 2 Background

This section presents background information for SWMU No. 3 including a review of historical waste management activities to identify the following:

- Type and characteristics of all waste and all contaminants handled in the SWMU;
- Known and possible sources of contamination;
- History of releases; and
- Known extent of contamination.

2.1 Empty Container Storage Area

The Empty Container Storage Area was originally included as a SWMU in the 1988 Hazardous and Solid Waste Act (HSWA) permit and subsequently included for investigation in the 1990 RFI Work Plan. The Empty Container Storage Area was put into service in 1979. It covered an area of approximately 50 feet by 80 feet and the surface was covered by gravel (Figure 2). Empty drums, which would have originally contained chemicals used in support of refining operations (e.g., solvents, antifreeze, and lubricating oils), were placed in this area pending off-site disposal/recycling. The historical records do not include any specific notations of known releases from the empty containers, but rather the area was identified due to the potential for impacts to soils. The empty drums were removed from the area in the early 1990s in conjunction with the RFI investigation and the use of the area for container storage was discontinued.

In 1992, during the Phase III RFI four soil borings (0301V, 0302V, 0303V, and 0304V) were completed to depths of five feet using a hand auger (Figure 3). Soil samples were collected from depths of 0.0 feet, 3.0 feet, and 4.5 feet at each of the four soil borings. The soil samples were analyzed for priority pollutant volatile organic compounds (VOCs) and the results are presented in Table 1. For comparison the NMED soil screening levels (*Risk Assessment Guidance for Site Investigation and Remediation*, dated February 2012), Water Quality Control Criteria (WQCC), and EPA Regional Screening Levels are also included in Table 1.

The VOCs detected in the 12 samples were only present in surface soil samples, with most of the detections occurring in sample RFI0301 V0.0. Six VOCs (1,1-Dichloroethene, benzene, ethylbenzene, tetrachloroethene, trichloroethene, and total xylenes) were detected at concentrations above the soil screening levels developed to protect groundwater, but all reported concentrations were less than the residential soil screening level for direct contact. The soil

samples were also screened in the field with a photo ionization detector (PID). The highest reading of 3.2 ppm was measured in sample RIF0301 V0.0, which corresponds to the highest concentration of VOCs reported by the laboratory. Only one other soil sample recording a PID reading above 0; RFI0302 V0.0 indicated a reading of 1.2 ppm. The field data sheets are included in Appendix B.

Based on the limited impacts to surface soils discovered during the Phase III RFI, the EPA concurred with Giant Industries' recommendation for No Further Action on January 7, 1994 contingent upon submittal of a survey plat for the unit. The survey plat was subsequently submitted to EPA in 1995.

During the week of March 23, 1998, an on-site inspection was conducted by Practical Environmental Services, Inc. in support of preparation of a RCRA Post-Closure Care Permit for the Gallup Refinery Land Treatment Unit. It was during this inspection that a change in land use is documented. A new concrete pad, which covers the location of the former empty container storage area, was observed. The area was noted as being used to clean heat exchanger bundles and is discussed further below.

2.2 Heat Exchanger Bundle Cleaning Pad

Since the mid 1990s, the area designated at SWMU No. 3 has been used to clean heat exchanger bundles. Heat exchanger bundles are periodically cleaned at this location to remove scale deposits using a high pressure steam cleaner. The cleaning takes place on a concrete slab, which was installed after the Phase III RFI sampling discussed above. Concrete walls were built on the south, west, and north sides of the pad area to contain the wash materials on the concrete pad. In addition, a concrete sump was installed along the western (back) wall of the pad area to collect wash fluids on the pad and prevent run-off onto adjacent areas. The sump, which is designed to collect all wash water (the concrete pad is sloped toward the sump) and any waste materials generated during cleaning operations, is approximately one and half feet wide, one foot deep and 80 feet long. A drain is present in the bottom of the sump that directs wash water to the wastewater collection system pipeline that runs along the western side of the pad area. Any scale/waste materials that collect on the pad or in the sump is removed upon completion of cleaning operations, containerized and sent off-site for disposal to comply with 90-day on-site storage regulations.

A review of site records did not identify any documented releases/spills from the concrete pad area to the environment. The likely constituents of concern are organic petroleum hydrocarbon compounds and metals, which could precipitate on the heat exchangers.

Section 3

Site Conditions

The conditions at the site, including surface and subsurface conditions that could affect the fate and transport of any contaminants, are discussed below. This information is based on recent visual observations and historical subsurface investigations.

3.1 Surface Conditions

A topographic map of the area near SWMU No. 3 is included as Figure 4. Local site topographic features include high ground in the southeast gradually decreasing to lowland fluvial plain in the northwest. Elevations on the refinery property range from 7,040 feet to 6,860 feet. The area of the site near SWNU No. 3 is at an approximate elevation of 6,957 feet above mean sea level (msl). The ground surface is nearly level in the immediate vicinity of SWMU No. 3. The pictures in Appendix A show the land surface in the immediate area.

The McKinley County soil survey identifies the soil in the area of SWMU No. 3 as the Simitarq-Celavar sandy loams. The Simitarq-Celavar soils are well drained with a conservative permeability of 0.20 in/hr and minimal salinity. Simitarq soils have nearly neutral pH values ranging from 7.2 to 7.4 standard units.

Regional surface water features include the refinery evaporation ponds and aeration lagoons and a number of small ponds. The site is located in the Rio Puerco valley, north of the Zuni Uplift with overland flows directed northward to the tributaries of the Rio Puerco. The Rio Puerco continues to the east to the confluence with the Rio Grande. The South Fork of the Puerco River is intermittent and retains flow only during and immediately following precipitation events.

3.2 Subsurface Conditions

The shallow subsurface soils consist of fluvial and alluvial deposits comprised of clay and silt with minor inter-bedded sand layers. Very low permeability bedrock (e.g., claystones and siltstones) underlie the surface soils and effectively form an aquitard. The Chinle Formation, which is Upper Triassic, crops out over a large area on the southern margin of the San Juan Basin. The uppermost recognized local member is the Petrified Forest and the Sonsela Sandstone Bed is the uppermost recognized regional aquifer. Aquifer test of the Sonsela Bed northeast of Prewitt indicated a transmissivity of greater than 100 ft²/day (Stone and others, 1983). The Sonsela Sandstone's highest point occurs southeast of the site and slopes

downward to the northwest as it passes under the refinery. The Sonsela Sandstone forms a water-bearing reservoir with artesian conditions throughout the central and western portions of the refinery property. Groundwater within the Sonsela Sandstone flows downdip to the northwest.

The diverse properties and complex, irregular stratigraphy of the surface soils across the site cause a wide range of hydraulic conductivity ranging from less than 10^{-2} cm/sec for gravely sands immediately overlying the Chinle Formation to 10^{-8} cm/sec in the clay soils located near the surface (Western Refining, 2009). Generally, shallow groundwater at the refinery follows the upper contact of the Chinle Formation with prevailing flow from the southeast to the northwest, with some flow to the northeast on the northeastern portion of the refinery property.

Western provided notice of the discovery of an apparent seep of hydrocarbons to the west of Tanks 101 and 102 on June 26, 2013 and has subsequently conducted an extensive investigation of subsurface conditions throughout the area to the west of SWMU No. 3. The process sewer system (part of SWMU No. 12 – Contact Wastewater Collection System) was identified as a possible source of the hydrocarbon seep and a combination of dye tracer tests and camera surveys of the wastewater pipeline, which runs along the west side of SWMU No. 3, confirmed leaks from the pipeline to the west of SWMU No. 3. Western recently excavated the suspect portion of the pipeline on the west side of SWMU No. 3 and replaced the section of the pipeline that was corroded. Photographs of the excavation are included in Appendix A. There was significant deterioration of the wastewater pipeline and the pipeline is believed to have significantly contributed to the release of hydrocarbons discovered west of Tank 102.

To-date, twenty six temporary monitoring wells have been installed west of SWMU No. 3 to investigate the release sourced from the wastewater pipeline. Monitoring well (MKTF-16) was completed as a permanent well on the west side of SWMU No. 3. Figure 5 presents a cross section location map showing two cross sections [Figure 5A (A-A') and Figure 5B (B-B')] that both include MKTF-16 and depict the subsurface stratigraphy in the area of SWMU No. 3.

The uppermost aquifer is under water table conditions and occurs sporadically within the sand and gravel deposits that overlie the Chinle Formation. The next deeper laterally persistent aquifer occurs within the Sonsela Formation, where groundwater is present under artesian conditions. The potentiometric surface as measured in August 2009 is presented as Figure 6 and shows the shallow groundwater flowing to the west-northwest. The water level data used to prepare Figure 6 is included in Table 2.

Groundwater samples were collected from SB-32/MKTF-16 on November 19, 2013 and analyzed for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX). The analytical results, which are included in Table 3, show the hydrocarbon impacts to groundwater that occurred as the result of leaks from the nearby wastewater pipeline. Another groundwater sample was collected on December 31, 2013 in this area during excavation of the leaking wastewater pipeline. This sample (Bundle Pad Hole), which was collected directly from the excavation, was analyzed for VOCs, TPH, metals, and water quality parameters (e.g., calcium, magnesium, and fluoride). The analytical results are included in Table 3 and also show impacts from petroleum hydrocarbon as evidenced by elevated concentrations of BTEX constituents, TPH, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. None of the chlorinated solvents detected in the surface soils during the Phase III RFI (1,1-dichloroethane, tetrachloroethene, 1,1,1-trichloroethane, and trichloroethene) were detected. The laboratory analytical reports are included in Appendix C.

Section 4

Scope of Activities

4.1 Anticipated Activities

Pursuant to Section IV.J.2 of the Post-Closure Care Permit, a scope of activities was developed to determine the nature and extent of contamination and the potential pathways of contaminant releases to the air, soil, surface water, and groundwater. To accomplish this objective, soil samples will be collected at SWMU No. 3. The following activities will be completed:

- Six soil borings will be installed to a minimum depth of ten feet and soil samples will be collected from the intervals shown below in accordance with the procedures discussed in Section 5.2:
 - 0.0' - 0.5' (all borings);
 - 1.5' - 2.0' (all borings);
 - from the 6" interval at the top of saturation, if encountered;
 - the sample from each boring with the greatest apparent degree of contamination, based on field observations and field screening;
 - the 6" interval at the bottom of the boring, unless groundwater is encountered, in which case the aforementioned sample from the 6" interval at the top of saturation will be collected instead; and
 - any additional intervals as determined based on field screening results.
- If evidence of impacts in soils extends below ten feet, then soil borings will be drilled to a depth of five feet below the deepest evidence of impacts or to the top of saturation, whichever is encountered first.
- The soil samples will be analyzed for volatile and semi-volatile organic constituents, TPH, and Skinner List metals.

4.2 Background Information Research

Documents containing the results of previous investigations that explored the subsurface geology and groundwater monitoring data from monitoring wells in the general area were reviewed to facilitate development of this work plan (Giant Refining, 2001, Western Refining, 2011, and Western Refining, 2012). The previously collected data provides information on the overall subsurface conditions, including hydrogeology and contaminant distribution within groundwater on a site-wide basis, as well as, chemical analyses for soil and groundwater

samples collected at or near SWMU No.3. The data collected under this scope of activities will supplement the existing soil and groundwater information and provide site-specific information regarding contaminant occurrence and distribution within soils.

4.3 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 will be contained and characterized using methods based on the boring location, boring depth, drilling method, and type of contaminants suspected or encountered. Liquids may be disposed in the Refinery's wastewater treatment system, upstream of the API Separator. An IDW management plan is included as Appendix D.

4.4 Surveys

The horizontal coordinates and elevation of the ground surface at the soil boring locations, and the locations of all other pertinent structures will be 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)). Alternate survey methods may be proposed in site-specific work plans. Any proposed survey method must be approved by the Department prior to implementation. The surveys will be 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 will be measured to the nearest 0.1-ft and vertical elevations will be measured to the nearest 0.01-ft.

Section 5

Investigation Methods

The purpose of the site investigation is to determine and evaluate the presence, nature, and extent of releases of contaminants. Guidance on selecting and developing sampling plans as provided in *Guidance for Choosing a Sampling Design for Environmental Data Collection* (EPA, 2000) was utilized to select the appropriate sampling strategy.

5.1 Drilling Activities

Soil borings will be drilled using hollow-stem augers. The drilling equipment will be properly decontaminated before drilling each boring. Shallow soil samples (e.g., 0'.0 – 2.0') may be collected at some locations using a hand auger.

The NMED will be notified as early as practicable if conditions arise or are encountered that do not allow the advancement of borings to the specified depths or at planned sampling locations. Appropriate actions (e.g., installation of protective surface casing or relocation of borings to a less threatening location) will be taken to minimize any negative impacts from investigative borings. Soil samples will be collected continuously and logged by a qualified geologist or engineer.

The drilling and sampling will be accomplished under the direction of a qualified engineer or geologist who will maintain a detailed log of the materials and conditions encountered in each boring. Both sample information and visual observations of the cuttings and core samples will be recorded on the boring log. Known site features and/or site survey grid markers will be used as references to locate each boring prior to surveying the location as described in Section 4.4. The boring locations will be measured to the nearest foot, and locations will be recorded on a scaled site map upon completion of each boring.

5.2 Soil Sampling

As there are known locations at which to target sample collection, a judgmental sampling design was selected for the sample locations (EPA, 2000). The greatest potential for releases from the historical operations at SWMU No. 3 (e.g., storage of empty drums on the land surface and cleaning of heat exchanger bundles on the concrete pad) is to surface soils, thus surface (0' - 0.5') and shallow subsurface (1.5' - 2.0') samples will be collected and analyzed from each soil boring. The concentration of contaminants near the land surface was shown in the historical soil samples discussed above in Section 2.1. In addition, since installation of the concrete pad

in the mid 1990s, the greatest potential to contaminants to reach soils should be at the edge of the concrete pad where the concrete retaining walls are not present. Soil borings are located immediately off the concrete pad to the north, east, and south of the pad to evaluate for releases leaving the concrete pad (Figure 7). A soil boring is also located just west of the pad area along the back side of the sump and near the drain line that runs from the sump to the main wastewater collection line. No new borings are located directly beneath the concrete pad, as this area was previously investigated and concentrations of contaminants were found that would exceed the current screening levels to be protective of contaminants leaching from soil to groundwater. The concrete pad will remain in place to allow continued use of the area as a bundle cleaning pad and the concrete will minimize any potential infiltration to ensure that any residual impacts from earlier operations as a container storage area do not migrate to groundwater.

The soil borings will be drilled to a minimum depth of ten feet, or five feet below the deepest detected impacted media or waste material, whichever is deeper. A decontaminated split-barrel sampler or continuous five-foot core barrel will be used to obtain samples during the drilling of each boring. Surface samples may be collected using decontaminated, hand-held stainless steel sampling device, shelly tube, or thin-wall sampler, or a pre-cleaned disposable sampling device. A portion of the sample will be placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. The use of an Encore® Sampler or other similar device will be used during collection of soil samples for VOC analysis. The remaining portions of the sample will be used for logging and field screening as discussed in Section 5.2.1. Sample handling and chain-of-custody procedures will be in accordance with the procedures presented below in Section 5.3.

Discrete soil samples will be collected for laboratory analyses at the following intervals:

- 0.0' - 0.5' (all borings);
- 1.5' - 2.0' (all borings);
- From the 6" interval at the top of saturation, if encountered;
- The sample from each boring with the greatest apparent degree of contamination, based on field observations and field screening;
- From the 6" interval at the bottom of the boring, unless groundwater is encountered, in which case the aforementioned sample from the 6" interval at the top of saturation will be collected instead; and
- Any additional intervals as determined based on field screening results.

Quality Assurance/Quality Control (QA/QC) samples will be collected to monitor the validity of the soil sample collection procedures as follows:

- Field duplicates will be collected at a rate of 10 percent;
- Equipment blanks will be collected from all sampling apparatus at a frequency of 10 percent or one per day if disposable sampling equipment is used; and
- Field blanks will be collected at a frequency of one per day.

5.2.1 Soil Sample Field Screening and Logging

Samples obtained from the borings will be screened in the field on 2.0 foot intervals for evidence of impacts. Field screening results will be recorded on the exploratory boring logs. Field screening results will be 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. Additional screening for site- or release-specific characteristics such as pH or for specific compounds using field test kits may be conducted where appropriate.

Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds or other substances that may cause staining of natural soils such as elemental sulfur or cyanide compounds. Headspace vapor screening targets volatile organic compounds and involves placing a soil sample in a plastic sample bag or a foil sealed container allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest for a minimum of 5 minutes while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag or through the foil. The maximum value and the ambient air temperature will be recorded on the field boring or test pit log for each sample.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation. A photo-ionization detector (PID) equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator will be used for VOC field screening. Field screening results may be site- and boring-specific and the results may vary with instrument type, the media screened, weather conditions, moisture content, soil type, and type of contaminant, therefore, all conditions capable of influencing the results of field screening will be recorded on the field logs.

The physical characteristics of the samples (such as mineralogy, ASTM soil classification, moisture content, texture, color, presence of stains or odors, and/or field screening results), depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by a qualified geologist or engineer. Detailed logs of each boring will be completed in the field by a qualified engineer or geologist. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will be recorded on the logs.

5.3 Sample Handling

At a minimum, the following procedures will be used at all times when collecting samples during investigation, corrective action, and monitoring activities:

1. Neoprene, nitrile, or other protective gloves will be worn when collecting samples. New disposable gloves will be used to collect each sample;
2. All samples collected of each medium for chemical analysis will be transferred into clean sample containers supplied by the project analytical laboratory with the exception of soil, rock, and sediment samples obtained in Encore® samplers. Sample container volumes and preservation methods will be in accordance with the most recent standard EPA and industry accepted practices for use by accredited analytical laboratories. Sufficient sample volume will be obtained for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis; and
3. Sample labels and documentation will be completed for each sample following procedures discussed below. Immediately after the samples are collected, they will be stored in a cooler with ice or other appropriate storage method until they are delivered to the analytical laboratory. Standard chain-of-custody procedures, as described below, will be followed for all samples collected. All samples will be submitted to the laboratory soon enough to allow the laboratory to conduct the analyses within the method holding times. At a minimum, all samples will be submitted to the laboratory within 48 hours after their collection.

Chain-of-custody and shipment procedures will include the following:

1. Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.
2. Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice or other suitable coolant or other EPA or industry-wide accepted method. The drainage hole at the bottom of the cooler will be sealed and secured in case of sample container leakage. Temperature blanks will be included with each shipping container.
3. Each cooler or other container will be delivered directly to the analytical laboratory.
4. Glass bottles will be separated in the shipping container by cushioning material to prevent breakage.

5. Plastic containers will be protected from possible puncture during shipping using cushioning material.
6. The chain-of-custody form and sample request form will be shipped inside the sealed storage container to be delivered to the laboratory.
7. Chain-of-custody seals will be used to seal the sample-shipping container in conformance with EPA protocol.
8. Signed and dated chain-of-custody seals will be applied to each cooler prior to transport of samples from the site.
9. Upon receipt of the samples at the laboratory, the custody seals will be broken, the chain-of-custody form will be signed as received by the laboratory, and the conditions of the samples will be recorded on the form. The original chain-of-custody form will remain with the laboratory and copies will be returned to the relinquishing party.
10. Copies of all chain-of-custody forms generated as part of sampling activities will be maintained on-site.

5.4 Decontamination Procedures

The objective of the decontamination procedures is to minimize the potential for cross-contamination. A designated decontamination area will be established for decontamination of drilling equipment, reusable sampling equipment and well materials, if any. The drilling rig will be decontaminated prior to entering the site or unit. Drilling equipment or other exploration equipment that may come in contact with the borehole will be decontaminated by high pressure washing prior to drilling each new boring.

Sampling or measurement equipment, including but not limited to, stainless steel sampling tools, split-barrel or core samplers, etc. will be decontaminated in accordance with the following procedures or other methods approved by the Department before each sampling attempt or measurement:

1. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter;
2. Rinse with potable tap water;
3. Wash with nonphosphate detergent or other detergent approved by the Department (examples include Fantastik™, Liqui-Nox®);
4. Rinse with potable tap water; and
5. Double rinse with deionized water.

All decontamination solutions will be collected and stored temporarily as described in Section 4.3. Decontamination procedures and the cleaning agents used will be documented in the daily field log.

5.5 Field Equipment Calibration Procedures

Field equipment requiring calibration will be calibrated to known standards, in accordance with the manufacturers' recommended schedules and procedures. At a minimum, calibration checks will be conducted daily, or at other intervals approved by the Department, and the instruments will be recalibrated, if necessary. Calibration measurements will be recorded in the daily field logs. If field equipment becomes inoperable, its use will be discontinued until the necessary repairs are made. In the interim, a properly calibrated replacement instrument will be used.

5.6 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded in a field log book. The original field forms will be maintained at the Facility. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

1. Site or unit designation;
2. Date;
3. Time of arrival and departure;
4. Field investigation team members including subcontractors and visitors;
5. Weather conditions;
6. Daily activities and times conducted;
7. Observations;
8. Record of samples collected with sample designations and locations specified;
9. Photographic log, as appropriate;
10. Field monitoring data, including health and safety monitoring;
11. Equipment used and calibration records, if appropriate;
12. List of additional data sheets and maps completed;
13. An inventory of the waste generated and the method of storage or disposal; and
14. Signature of personnel completing the field record.

5.7 Chemical Analyses

All samples collected for laboratory analysis will be submitted to an accredited laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be

performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

Soil samples will be analyzed by the following methods:

- SW-846 Method 8260 - volatile organic compounds;
- SW-846 Method 8270 - semi-volatile organic compounds; and
- SW-846 Method 8015B - TPH [gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics].

Soil samples will also be analyzed for the following Skinner List 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 335.4/335.2 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

5.8 Data Quality Objectives

The Data Quality Objectives (DQOs) were developed to ensure that newly collected data are of sufficient quality and quantity to address the projects goals, including Quality Assurance/Quality Control (QA/QC) issues (EPA, 2006). The project goals are to determine and evaluate the presence, nature, and extent of releases of contaminants. The type of data required to meet the project goals includes chemical analyses of soil to determine if there has been a release of contaminants.

The quantity of data is based on the historical operations at SWMU No. 3. The quality of data that is required is consistent across samplings locations and in general, method detection limits should be 20% or less of the applicable background levels, cleanup standards and screening levels.

Additional DQOs include precision, accuracy, representativeness, completeness, and comparability. Precision is a measurement of the reproducibility of measurements under a given set of circumstances and is commonly stated in terms of standard deviation or coefficient of variation (EPA, 1987). Precision is also specific to sampling activities and analytical performance. Sampling precision will be evaluated through the analyses of duplicate field samples and laboratory replicates will be utilized to assess laboratory precision.

Accuracy is a measurement in the bias of a measurement system and may include many sources of potential error, including the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and analysis techniques (EPA, 1987). An evaluation of the accuracy will be performed by reviewing the results of field/trip blanks, matrix spikes, and laboratory QC samples.

Representativeness is an expression of the degree to which the data accurately and precisely represent the true environmental conditions. Sample locations and the number of samples have been selected to ensure the data is representative of actual environmental conditions. Based on SWMU specific conditions, this may include either biased (i.e., judgmental) locations/depths or unbiased (systematic grid samples) locations, as discussed in Section 5.2.

Completeness is defined as the percentage of measurements taken that are actually valid measurements, considering field QA and laboratory QC problems. EPA Contract Laboratory Program (CLP) data has been found to be 80-85% complete on a nationwide basis and this has been extrapolated to indicate that Level III, IV, and V analytical techniques will generate data that are approximately 80% complete (EPA, 1987). As an overall project goal, the completeness goal is 85%; however, some samples may be critical base on location or field screening results and thus a sample-by-sample evaluation will be performed to determine if the completeness goals have been obtained.

Comparability is a qualitative parameter, which expresses the confidence with which one data set can be compared to another. Industry standard sample collection techniques and routine EPA analytical methods will be utilized to help ensure data are comparable to historical and

future data. Analytical results will be reported in appropriate units for comparison to historical data and cleanup levels.

Section 6 Schedule

This Work Plan will be implemented within 90 days of NMED approval. The estimated timeframes for each of the planned activities are shown below:

- Field work (inclusive of all soil sampling) – two weeks;
- Laboratory analyses – six weeks;
- Data reduction and validation – two weeks;
- Data gap analysis – three weeks; and
- Survey sample locations – one week.

Completion of the survey will complete all activities conducted under this Investigation Work Plan. Western will then prepare an Investigation Report pursuant to Section VI.H.B.5 of the Permit. The Investigation Report will be submitted to the NMED within 120 calendar days of the completion of the site survey.

Section 7

References

EPA, 1987, Data Quality Objectives for Remedial Response Activities; United States Environmental Protection Agency, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, OSWER Directive 9355.0-7B, 85p

EPA, 2000, Guidance on Choosing a Sampling Design for Environmental Data Collection, EPA/240/R-02/005, EPA QA/G-5S, 168 p.

EPA, 2006, Guidance on Systematic Planning Using the Data Quality Objectives Process, United States Environmental Protection Agency, Office of Environmental Information; EPA/240/B-06/001, p. 111.

Giant Refining, 2001, Ciniza Refinery No Further Action Report, August 2001.

Western Refining, 2012, Annual Ground Water Monitoring Report Gallup Refinery - 2012

Western Refining, 2011, Facility-Wide Groundwater Monitoring Work Plan, Western Refining Company Southwest, Inc.

Tables

Table 1
 SWMU 3 - Historical Soil Analytical Data
 Western Refining Southwest, Inc. - Gallup Refinery

Sample ID		RFI0301 V0.0	RFI0301 V3.0	RFI0301 V4.5	RFI0302 V0.0	RFI0302 V3.0	RFI0302 V4.5	RFI0303 V0.0	RFI0303 V3.0	RFI0303 V4.5	RFI0304 V0.0	RFI0304 V3.0
Sample Depth (ft)		0	3	4.5	0	3	4.5	0	3	4.5	0	3
Analyte	Sample Date	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992
1,1,1-Trichloroethane	mg/kg	0.160	<0.5	<0.5	1.800	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	mg/kg	0.340	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	mg/kg	0.070	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-Hexanone	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	mg/kg	<5.0	<5.0	<5.0	0.980	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzene	mg/kg	0.340	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dichloromethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.490	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl ethyl ketone	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl isobutyl ketone	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Styrene	mg/kg	0.170	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethylvinyl Ether [Bis(2-chloroethyl) ether]	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	mg/kg	0.071	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,3-Dichloropropylene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trans-1,3-Dichloropropylene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 1
 SWMU 3 - Historical Soil Analytical Data
 Western Refining Southwest, Inc. - Gallup Refinery

Sample ID		RFI0301 V0.0	RFI0301 V3.0	RFI0301 V4.5	RFI0302 V0.0	RFI0302 V3.0	RFI0302 V4.5	RFI0303 V0.0	RFI0303 V3.0	RFI0303 V4.5	RFI0304 V0.0	RFI0304 V3.0
Sample Depth (ft)		0	3	4.5	0	3	4.5	0	3	4.5	0	3
Analyte	Sample Date	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992	5/6/1992
Total xylenes	mg/kg	8.600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.210	<0.5
Acrolein	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acrylonitrile	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Carbon disulfide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cis-1,4-Dichloro-2-butene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trans-1,4-Dichloro-2-butene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethanol	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethylmethacrylate	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Iodomethane (Methyliodide)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl acetate	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Bolded Value - concentration exceeds screening level

NA - Screening level not available

DAF - Dilution attenuation factor

Table 1
 SWMU 3 - Historical Soil Analytical Data
 Western Refining Southwest, Inc. - Gallup Refinery

Sample ID RFI0304 V4.5		NMED Soil Screening Levels					EPA Regional Soil Screening Levels				
Analyte	Sample Depth (ft)	4.5	Residential Soil (mg/kg)	Industrial/Occupational Soil (mg/kg)	Construction Worker Soil (mg/kg)	Risk-based SSL for a DAF of 1 (mg/kg)	Risk-based SSL for a DAF of 20 (mg/kg)	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Groundwater Protection Risk-based (mg/kg)	Groundwater Protection MCL-based (mg/kg)
	Sample Date	5/6/1992									
1,1,1-Trichloroethane	mg/kg	<0.5	1.56E+04	7.89E+04	1.48E+04	2.91E+00	5.82E+01				
1,1,2,2-Tetrachloroethane	mg/kg	<0.5	8.02E+00	4.35E+01	2.21E+02	2.13E-04	4.26E-03				
Tetrachloroethene (PCE)	mg/kg	<0.5	7.02E+00	3.66E+01	2.12E+02	4.30E-04	8.61E-03				
1,1,2-Trichloroethane	mg/kg	<0.5	2.81E+00	1.33E+01	4.72E+02	1.12E-04	2.23E-03				
1,1-Dichloroethane	mg/kg	<0.5	6.45E+01	3.59E+02	1.70E+03	5.98E-03	1.20E-01				
1,1-Dichloroethene	mg/kg	<0.5	4.49E+02	2.29E+03	4.32E+02	1.16E-01	2.32E+00				
1,2,3-Trichloropropane	mg/kg	<0.5	4.97E-02	3.76E+01	7.23E+00	2.50E-06	5.00E-05				
1,2-Dichloroethane	mg/kg	<0.5	7.89E+00	4.35E+01	5.87E+01	3.56E-04	7.11E-03				
1,2-Dichloropropane	mg/kg	<0.5	1.52E+01	8.44E+01	2.50E+01	1.07E-03	2.14E-02				
2-Hexanone	mg/kg	<1.0	NA	NA	NA	NA	NA	2.1E+02	1.4E+03	7.9E-03	
Acetone	mg/kg	<5.0	6.66E+04	8.68E+05	2.21E+05	3.86E+00	7.71E+01				
Benzene	mg/kg	<0.5	1.54E+01	8.47E+01	1.38E+02	1.73E-03	3.45E-02				
Bromodichloromethane	mg/kg	<0.5	5.41E+00	3.01E+01	1.43E+02	2.71E-04	5.41E-03				
Bromoform	mg/kg	<0.5	NA	NA	NA	NA	NA	6.2E+01	2.2E+02	2.1E-03	2.1E-02
Bromomethane	mg/kg	<1.0	1.65E+01	8.65E+01	1.64E+01	1.92E-03	3.85E-02				
Carbon tetrachloride	mg/kg	<0.5	1.08E+01	5.98E+01	2.26E+02	1.60E-03	3.21E-02				
Chlorobenzene	mg/kg	<0.5	3.76E+02	2.12E+03	4.06E+02	4.92E-02	9.84E-01				
Chloroethane	mg/kg	<1.0	2.98E+04	1.41E+05	2.61E+04	5.37E+00	1.07E+02				
Chloroform	mg/kg	<0.5	5.86E+00	3.27E+01	1.54E+02	4.59E-04	9.18E-03				
Chloromethane	mg/kg	<1.0	2.75E+02	1.29E+03	2.41E+02	4.40E-02	8.79E-01				
Dibromochloromethane	mg/kg	<0.5	1.21E+01	6.24E+01	3.32E+02	3.31E-04	6.61E-03				
Dibromomethane	mg/kg	<0.5	5.88E-01	3.22E+00	1.60E+01	1.54E-05	3.08E-04				
Dichlorodifluoromethane	mg/kg	<2.0	1.68E+02	7.98E+02	1.49E+02	3.72E-01	7.43E+00				
Dichloromethane	mg/kg	<0.5	5.16E+01	2.54E+02	3.10E+03	1.71E-03	3.42E-02				
Ethylbenzene	mg/kg	<0.5	6.84E+01	3.78E+02	1.83E+03	1.30E-02	2.60E-01				
Methyl ethyl ketone	mg/kg	<1.0	3.71E+04	3.75E+05	8.43E+04	1.27E+00	2.55E+01				
Methyl isobutyl ketone	mg/kg	<1.0	5.82E+03	7.38E+04	1.85E+04	3.84E-01	7.68E+00				
Styrene	mg/kg	<0.5	7.28E+03	5.00E+04	9.99E+03	1.39E+00	2.77E+01				
Toluene	mg/kg	<0.5	5.27E+03	5.77E+04	1.34E+04	1.27E+00	2.53E+01				
Chloroethylvinyl Ether [Bis(2-chloroethyl) ether]	mg/kg	<1.0	2.68E+00	1.42E+01	7.78E+01	2.63E-05	5.27E-04				
trans-1,2-Dichloroethene	mg/kg	<0.5	2.70E+02	1.44E+03	2.73E+02	2.69E-02	5.38E-01				
Trichloroethene	mg/kg	<0.5	8.77E+00	4.13E+01	7.68E+00	1.05E-03	2.11E-02				
Trichlorofluoromethane	mg/kg	<0.5	1.41E+03	6.94E+03	1.30E+03	8.89E-01	1.78E+01				
Vinyl chloride	mg/kg	<1.0	7.28E-01	2.61E+01	1.49E+02	5.42E-05	1.08E-03				
Cis-1,3-Dichloropropylene	mg/kg	<0.5	3.37E+01	1.77E+02	2.09E+02	1.24E-03	2.48E-02				
Trans-1,3-Dichloropropylene	mg/kg	<0.5	3.37E+01	1.77E+02	2.09E+02	1.24E-03	2.48E-02				

Table 1
 SWMU 3 - Historical Soil Analytical Data
 Western Refining Southwest, Inc. - Gallup Refinery

Sample ID		RFI0304 V4.5	NMED Soil Screening Levels					EPA Regional Soil Screening Levels			
Sample Depth (ft)		4.5	Residential Soil (mg/kg)	Industrial/ Occupational Soil (mg/kg)	Construction Worker Soil (mg/kg)	Risk-based SSL for a DAF of 1 (mg/kg)	Risk-based SSL for a DAF of 20 (mg/kg)	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Groundwater Protection Risk-based (mg/kg)	Groundwater Protection MCL-based (mg/kg)
Analyte	Sample Date	5/6/1992									
Total xylenes	mg/kg	<0.5	8.14E+02	3.98E+03	7.43E+02	1.56E-01	3.13E+00				
Acrolein	mg/kg	<10.0	4.04E-01	1.92E+00	3.56E-01	7.30E-06	1.46E-04				
Acrylonitrile	mg/kg	<10.0	4.55E+00	2.43E+01	3.76E+01	8.48E-05	1.70E-03				
Carbon disulfide	mg/kg	<0.5	1.53E+03	8.33E+03	1.58E+03	2.83E-01	5.65E+00				
Cis-1,4-Dichloro-2-butene	mg/kg	<0.5	9.73E-02	5.45E-01	2.53E+00	4.33E-06	8.66E-05				
Trans-1,4-Dichloro-2-butene	mg/kg	<0.5	9.73E-02	5.45E-01	2.53E+00	4.33E-06	8.66E-05				
Ethanol	mg/kg	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylmethacrylate	mg/kg	<1.0	4.55E+03	3.80E+04	2.79E+04	1.04E-01	2.09E+00				
Iodomethane (Methyliodide)	mg/kg	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl acetate	mg/kg	<1.0	2.56E+03	1.23E+04	2.30E+03	7.59E-02	1.52E+00				

Bolded Value - concentration exceeds screening level
 NA - Screening level not available
 DAF - Dilution attenuation factor

Table 2
Water Level Measurements
Western Refining Southwest, Inc. - Gallup Refinery

Boring ID	Well ID	Top of Casing (msl)	DATE	TOTAL DEPTH (BTOC) ft BGL	DEPTH TO PSH (ft BGL)	DEPTH TO GW (ft BGL)	PSH THICKNESS (feet)	Water Level Elevation (msl)	COMMENTS
HA1	MKTF-01	6920.67	01/13/14	17.28	7.90	8.34	0.44	6911.99	Odor detected
HA3	MKTF-02	6917.45	01/13/14	20.50	ND	7.49	0.00	6909.96	Clear - slight odor detected
SB01	MKTF-03	6931.31	01/15/14	18.58	8.1	9.4	1.30	6920.91	Odor detected
SB03	MKTF-04	6933.57	01/15/14	22.4	ND	10.28	0.00	6923.29	Slight odor detected
SB06	MKTF-05	6942.22	01/13/14	17.75	15.04	15.1	0.06	6927.07	Odor detected
SB08	MKTF-06	6946.81	01/13/14	23.8	18.14	18.31	0.17	6928.37	Odor detected
SB10	MKTF-07	6947.18	01/13/14	17.65	11.91	13.01	1.10	6933.32	Odor detected
SB11	MKTF-08	6947.09	01/13/14	22.00	14.2	14.62	0.42	6932.15	Odor detected
SB13	MKTF-09	6946.5	01/13/14	22.74	ND	14.78	0.00	6931.72	Slight odor detected
SB16	MKTF-10	6937.16	01/13/14	15.89	ND	8.75	0.00	6928.41	Slight odor detected
SB17	MKTF-11	6931.34	01/15/14	18.5	ND	8.49	0.00	6922.85	Slight odor detected
SB19	MKTF-12	6942.11	01/13/14	25.50	19.26	19.53	0.27	6922.37	Odor detected
SB20	MKTF-13	6935.18	01/13/14	20.30	12.8	13.1	0.30	6921.85	Odor detected
SB22	MKTF-14	6928.02	01/13/14	17.50	7.38	8.99	1.61	6917.79	Odor detected
SB31	MKTF-15	6943.48	01/13/14	22.75	ND	13.88	0.00	6929.60	Slight odor detected
SB32	MKTF-16	6950.58	01/13/14	14.10	ND	9.45	0.00	6941.13	Slight odor detected
SB33	MKTF-17	6945.76	01/13/14	27.50	ND	8.81	0.00	6936.95	Slight odor detected
SB34	MKTF-18	6950.65	01/13/14	25.52	ND	8.33	0.00	6942.32	Slight odor detected

ND - not detected

Table 3
Groundwater Analytical Results
Western Refining Southwest, Inc. - Gallup Refinery

Analytes	New Mexico WQCC Standards _ug/L	NMED Tap Water_ug/l	NMED Tap W_key	EPA Screening Levels.Tap Water_ug/L	EPA TapW_key	MCL_ugL	Screening Levels	Source	Units	SB32	Bundle Pad Hole
Sample Date	(1)	(3)		(4)		(2)				11/19/2013	12/31/2013
Metals											
Antimony	-	14.6	n	6	n	6	0.006	(2)	mg/L		
Arsenic	100	0.448	c	0.045	c	10	0.01	(2)	mg/L		<0.02
Barium	1000	7300	n	2900	n	2000	1	(1)	mg/L		4
Beryllium	-	73	n	16	n	4	0.004	(2)	mg/L		
Cadmium	10	18.25	n	6.9	n	5	0.005	(2)	mg/L		<0.002
Chromium	50	54750	n	16000	n	-	0.05	(1)	mg/L		0.0094
Cobalt	50	-	-	4.7	n	-	0.05	(1)	mg/L		
Cyanide, Total	200	21.9	n	1.4	n	200	0.2	(1)	mg/L		
Iron, Total	1000	25550	n	11000	n	-	1	(1)	mg/L		
Lead	50	-	-	-	L	15	0.015	(2)	mg/L		0.06
Manganese	200	876	n	320	n	-	0.2	(1)	mg/L		
Mercury	2	0.62571429	n	0.63	n	2	0.002	(1)	mg/L		<0.001
Nickel	200	730	n	300	n	-	0.2	(1)	mg/L		
Selenium	50	182.5	n	78	n	50	0.05	(1)	mg/L		<0.05
Silver	50	182.5	n	71	n	-	0.05	(1)	mg/L		<0.005
Vanadium	-	182.5	n	63	n	-	0.1825	(3)	mg/L		
Zinc	10000	10950	n	4700	n	-	10	(1)	mg/L		
Fluoride	-	-	-	-	-	-	-		mg/L		<0.5
Magnesium	-	-	-	-	-	-	-		mg/L		26
Potassium	-	-	-	-	-	-	-		mg/L		4
Sodium	-	-	-	-	-	-	-		mg/L		210
Volatile Organic Compounds - (EPA Method 8260B)											
1,1,1,2-Tetrachloroethane	-	5.24202143	c	0.5	c	-	5.242	(3)	ug/L		<100
1,1,1-Trichloroethane	60	9125	n	7500	n	200	60	(1)	ug/L		<100
1,1,2,2-Tetrachloroethane	10	0.67133777	c	0.066	c	-	10	(1)	ug/L		<200
1,1,2-Trichloroethane	10	0.41595442	n	0.24	c**	5	5	(2)	ug/L		<100
1,1-Dichloroethane	25	24.175986	c	2.4	c	-	25	(1)	ug/L		<100
1,1-Dichloroethene	5	339.534884	n	260	n	7	5	(1)	ug/L		<100
1,1-Dichloropropene	-	-	-	-	-	-	-		ug/L		<100
1,2,3-Trichlorobenzene	-	-	-	5.2	n	-	5.2	(4)	ug/L		<100
1,2,3-Trichloropropane	-	0.00717797	c	0.00065	c	-	0.00718	(3)	ug/L		<200
1,2,4-Trichlorobenzene	-	4.12429379	n	0.99	c**	70	70	(2)	ug/L		<100
1,2,4-Trimethylbenzene	-	-	-	15	n	-	15	(4)	ug/L		1000
1,2-Dibromo-3-chloropropane	-	0.00316412	c	0.00032	c	0.2	0.2	(2)	ug/L		<200
1,2-Dibromoethane (EDB)	0.1	0.0653311	c	0.0065	c	0.05	0.05	(2)	ug/L		<100
1,2-Dichlorobenzene	-	370.140845	n	280	n	600	600	(2)	ug/L		<100
1,2-Dichloroethane (EDC)	10	1.49312468	c	0.15	c*	5	5	(2)	ug/L		<100

Table 3
Groundwater Analytical Results
Western Refining Southwest, Inc. - Gallup Refinery

Analytes	New Mexico WQCC Standards _ug/L	NMED Tap Water_ug/l	NMED Tap W_key	EPA Screening Levels.Tap Water_ug/L	EPA TapW_key	MCL_ugL	Screening Levels	Source	Units	SB32	Bundle Pad Hole
Sample Date	(1)	(3)		(4)		(2)				11/19/2013	12/31/2013
1,2-Dichloropropane	-	3.85982606	c	0.38	c*	5	5	(2)	ug/L		<100
1,3,5-Trimethylbenzene	-	-	-	87	n	-	87	(4)	ug/L		250
1,3-Dichlorobenzene	-	-	-	-	-	-	-		ug/L		<100
1,3-Dichloropropane	-	-	-	290	n	-	290	(4)	ug/L		<100
1,4-Dichlorobenzene	-	4.27178682	c	0.42	c	75	75	(2)	ug/L		<100
1-Methylnaphthalene	-	-	-	0.97	c	-	9.7	(4)	ug/L		<400
2,2-Dichloropropane	-	-	-	-	-	-	-		ug/L		<200
2-Butanone	-	7064.51613	n	4900	n	-	7064.516	(3)	ug/L		<1000
2-Chlorotoluene	-	730	n	180	n	-	730	(3)	ug/L		<100
2-Hexanone	-	-	-	34	n	-	34		ug/L		<1000
2-Methylnaphthalene	-	-	-	27	n	-	27	(4)	ug/L		<400
4-Chlorotoluene	-	-	-	190	n	-	190	(4)	ug/L		<100
4-Isopropyltoluene	-	-	-	-	-	-	-		ug/L		<100
4-Methyl-2-pentanone	-	1990.90909	n	1000	n	-	1990.91	(3)	ug/L		<1000
Acetone	-	21782.8877	n	12000	n	-	21782.89	(3)	ug/L		<1000
Benzene	10	4.1298223	c	0.39	c*	5	5	(2)	ug/L	9900	8700
Bromobenzene	-	-	-	54	n	-	54	(4)	ug/L		<100
Bromodichloromethane	-	1.17282787	c	0.12	c	80	80	(2)	ug/L		<100
Bromoform	-	85.0632911	c	7.9	c*	80	80	(2)	ug/L		<100
Bromomethane	-	8.66101695	n	7	n	-	8.6610	(3)	ug/L		<300
Carbon disulfide	-	1042.85714	n	720	n	-	1042.8571	(3)	ug/L		<1000
Carbon Tetrachloride	10	4.39616036	c	0.39	c	5	5	(2)	ug/L		<100
Chlorobenzene	-	91.25	n	72	n	100	100	(2)	ug/L		<100
Chloroethane	-	20857.1429	n	21000	n	-	20857.14	(3)	ug/L		<200
Chloroform	100	1.92753085	c	0.19	c	80	80	(2)	ug/L		<100
Chloromethane	-	187.714286	n	190	n	-	187.714	(3)	ug/L		<300
cis-1,2-DCE	-	73	n	28	n	70	70	(2)	ug/L		<100
cis-1,3-Dichloropropene	-	-	-	-	-	-	-		ug/L		<100
Dibromochloromethane	-	1.47086828	c	0.15	c	80	80	(2)	ug/L		<100
Dibromomethane	-	8.15642458	n	7.9	n	-	8.156	(3)	ug/L		<100
Dichlorodifluoromethane	-	202.777778	n	190	n	-	202.778	(3)	ug/L		<100
Ethylbenzene	750	14.7610303	c	1.3	c	700	700	(2)	ug/L	1900	1600
Hexachlorobutadiene	-	8.61538462	c	0.26	c*	-	8.6154	(3)	ug/L		<100
Isopropylbenzene (Cumene)	-	679.069767	n	390	n	-	679.0698	(3)	ug/L		<100
Methyl tert-butyl ether (MTBE)	-	124.66078	c	12	c	-	124.6608	(3)	ug/L		<100
Methylene Chloride	100	186.382979	n	9.9	c**	5	5	(2)	ug/L		<300
Naphthalene	-	1.43117647	c	0.14	c*	-	1.431	(3)	ug/L		<200
n-Butylbenzene	-	-	-	780	n	-	780	(4)	ug/L		<300

Table 3
Groundwater Analytical Results
Western Refining Southwest, Inc. - Gallup Refinery

Analytes	New Mexico WQCC Standards _ug/L	NMED Tap Water_ug/l	NMED Tap W_key	EPA Screening Levels.Tap Water_ug/L	EPA TapW_key	MCL_ugL	Screening Levels	Source	Units	SB32	Bundle Pad Hole
Sample Date	(1)	(3)		(4)		(2)				11/19/2013	12/31/2013
n-Propylbenzene	-	-	-	530	n	-	530	(4)	ug/L		140
sec-Butylbenzene	-	-	-	1600	n	-	1600	(4)	ug/L		<100
Styrene	-	1622.22222	n	1100	n	100	100	(2)	ug/L		<100
tert-Butylbenzene	-	-	-	510	n	-	510	(4)	ug/L		<100
Tetrachloroethene (PCE)	20	1.08129042	c	9.7	c**	5	5	(2)	ug/L		<100
Toluene	750	2281.25	n	860	n	1000	750	(1)	ug/L	8200	17000
trans-1,2-DCE	-	106.829268	n	86	n	100	100	(2)	ug/L		<100
trans-1,3-Dichloropropene	-	-	-	-	-	-	-		ug/L		<100
Trichloroethene (TCE)	100	3.39534884	n	0.44	c**	5	5	(2)	ug/L		<100
Trichlorofluoromethane	-	1288.23529	n	1100	n	-	1288.235	(3)	ug/L		<100
Vinyl chloride	1	0.16177214	c	0.015	c	2	1	(1)	ug/L		<100
Xylenes, Total	620	202.777778	n	190	n	10000	620	(1)	ug/L	9800	7300
Petroleum Hydrocarbons, (method 418.1)											3000
Diesel Range Organics (DRO)	-	-	-	-	-	-	0.2	(5)	mg/L	4.2	
Gasoline Range Organics (GRO)	-	-	-	-	-	-			mg/L	68	
Motor Oil Range Organics (MRO)	-	-	-	-	-	-	0.2	(5)	mg/L	<5.0	

- No screening level or analytical result available

450 - bolded value exceeds screening level

(1) 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

(2) EPA - Regional Screening Levels (Nov 2013) - MCL

(3) NMED Tap Water - Risk Assessment Guidance for Site Investigations and Remediation (Feb. 2012)

(4) EPA - Regional Screening Levels (Nov 2013) - EPA Screening Levels.Tap Water

(5) NMED TPH Screening Guidelines (Feb. 2012) - unknown oil

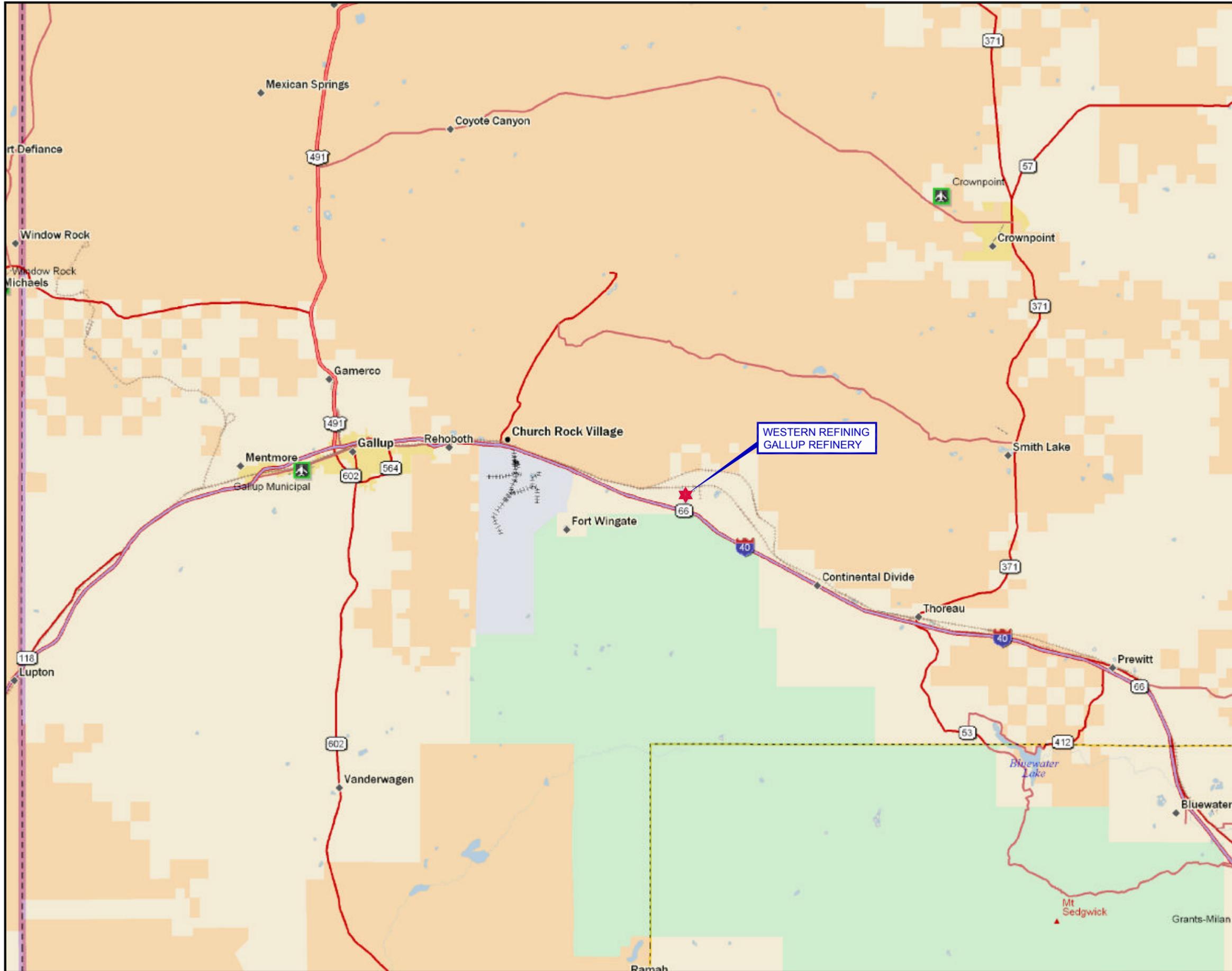
c - carcinogen

c* - n screening level < 100 times c screening level

c** - n screening level < 10 times c screening level

n- noncarcinogenic

Figures



0 5
SCALE IN MILES

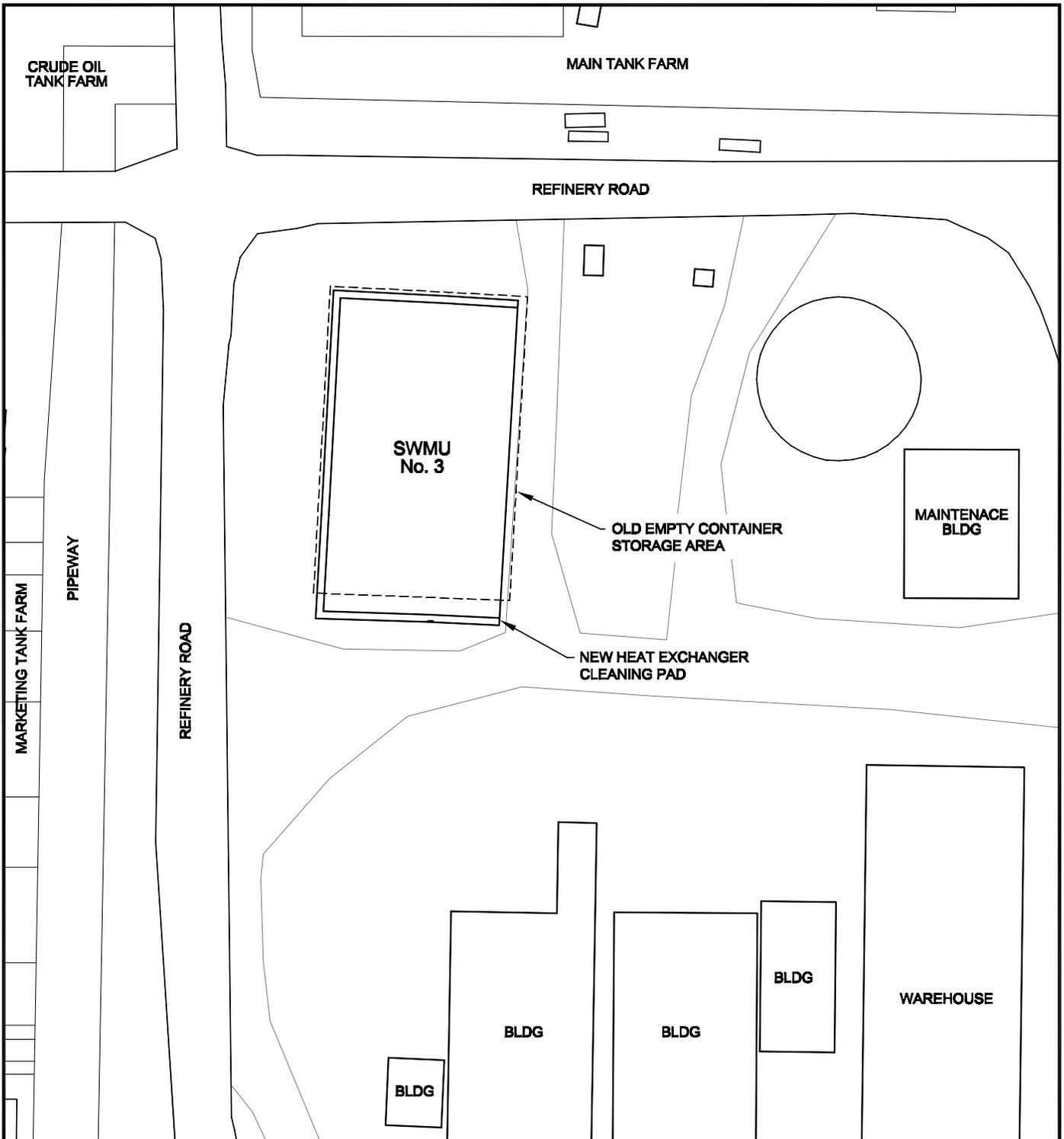


PROJ. NO.: Western Refining | DATE: 01/31/13 | FILE: WestRef-B165

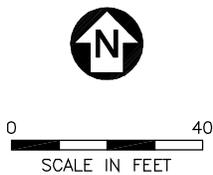
FIGURE 1
SITE LOCATION MAP
GALLUP REFINERY



Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



Map Source: Compiled by Photogrammetric Methods from Photography Acquired on March 1, 1998.

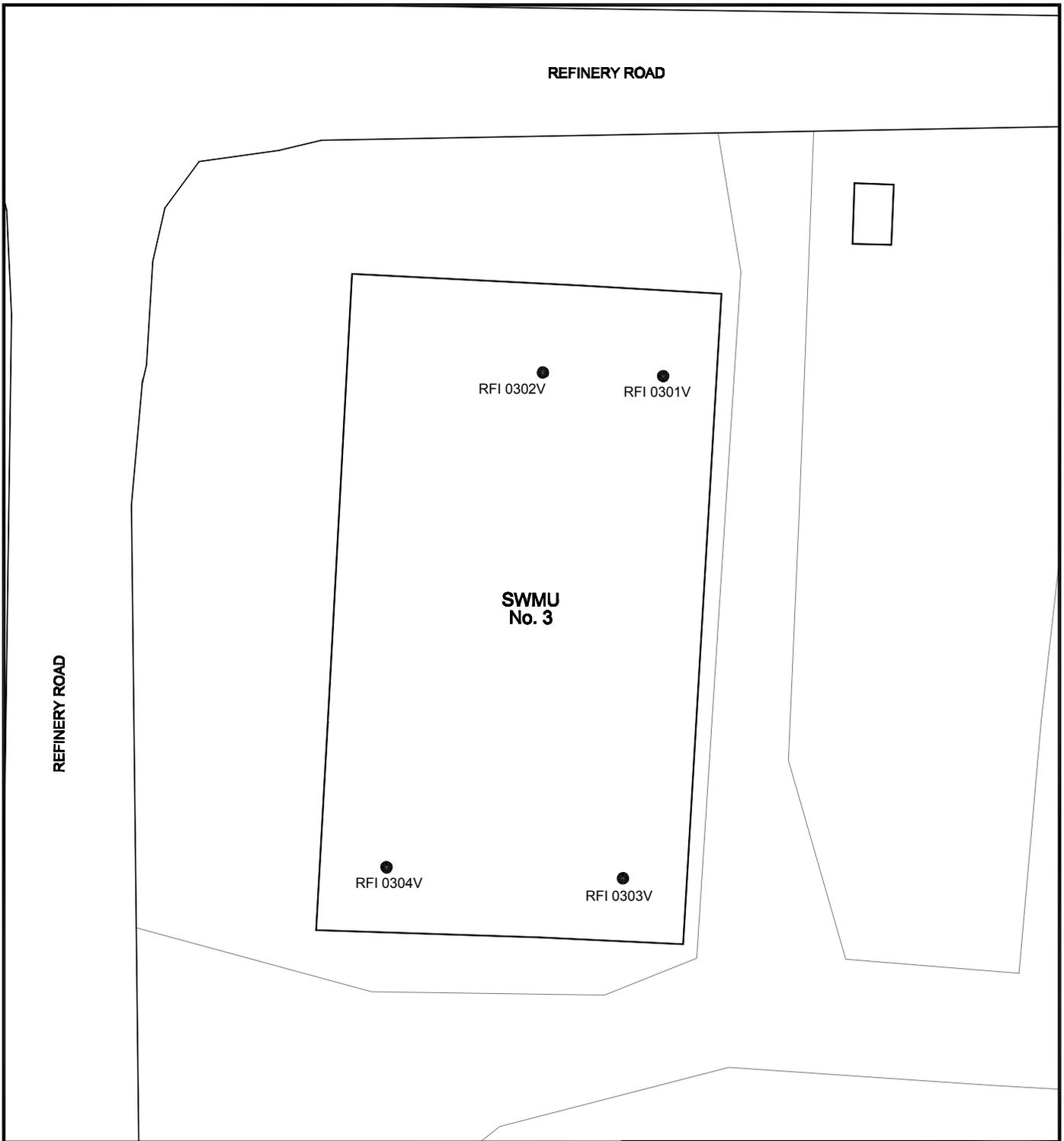


PROJ. NO.: Western Refining | DATE: 02/22/14 | FILE: WestRef-A174

FIGURE 2
SWMU No. 3 LOCATION MAP



Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



Map Source: Compiled by Photogrammetric Methods from Photography Acquired on March 1, 1998; 1992 RFI Sample Locations from Applied Environmental.



PROJ. NO.: Western Refining | DATE: 02/22/14 | FILE: WestRef-A175

FIGURE 3
SWMU No. 3
1992 RFI SAMPLE LOCATIONS



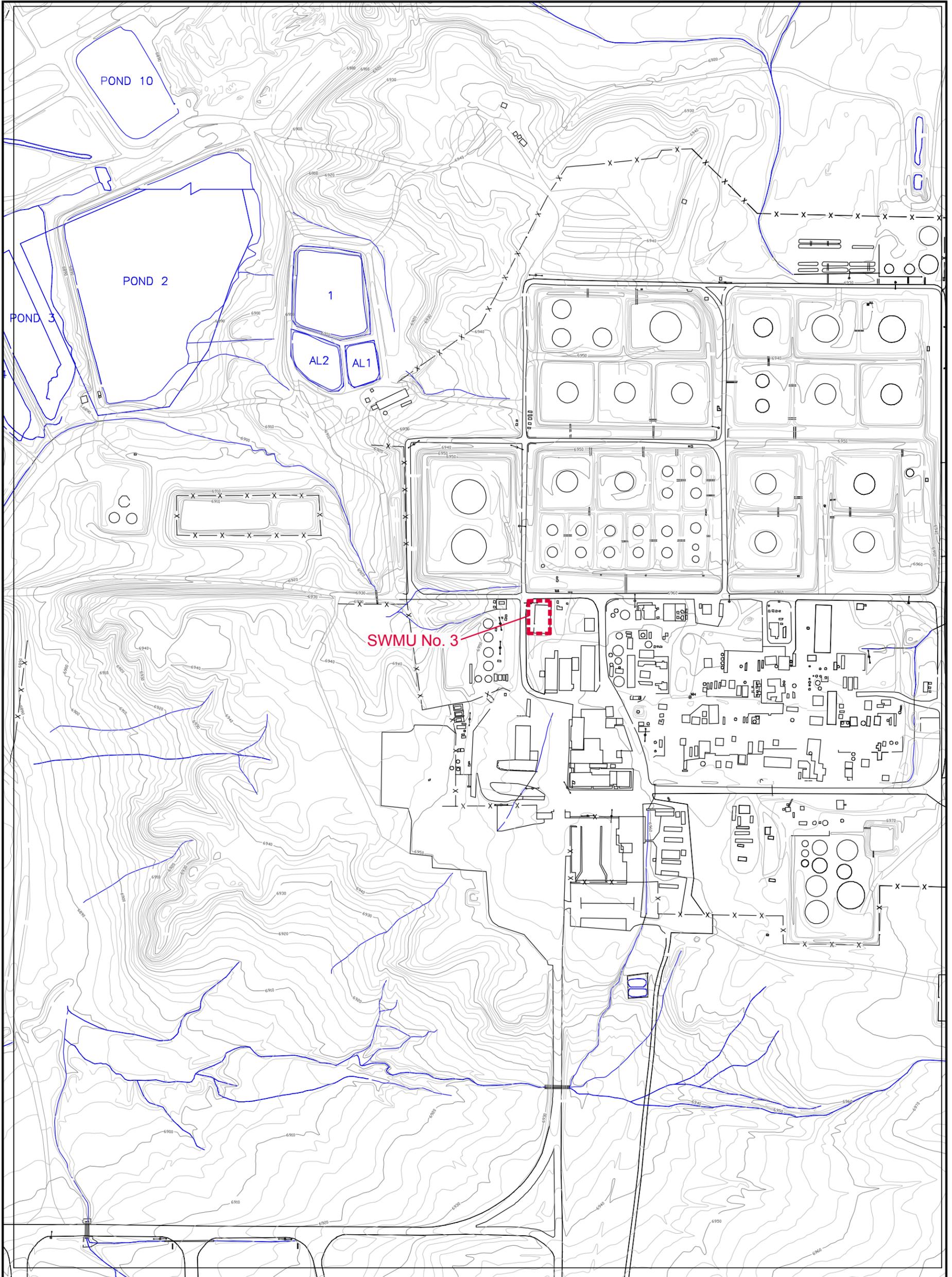
0 20
SCALE IN FEET

LEGEND

RFI 0301V ● SOIL BORING LOCATION AND IDENTIFICATION NUMBER



Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



0 300
SCALE IN FEET

LEGEND

 SWMU No. 3 LOCATION

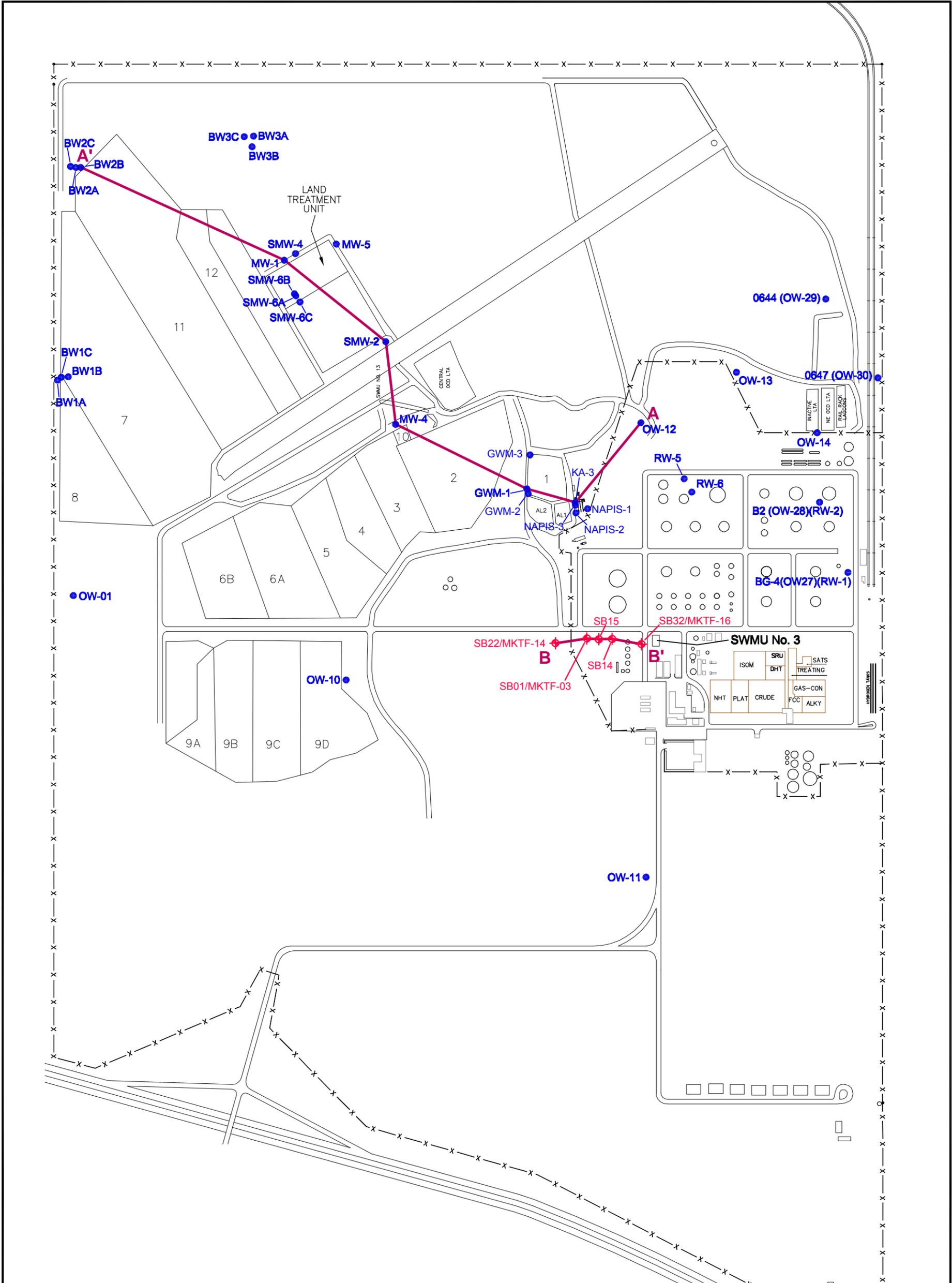


PROJ. NO.: Western Refining | DATE: 02/23/14 | FILE: WestRef-B182

FIGURE 4
TOPOGRAPHIC MAP



Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



LEGEND

- GWM-1 ● MONITORING WELL LOCATION
- SB01/MKTF-03 ◆ SOIL BORING / TEMPORARY WELL LOCATION
- A — A' LINE OF CROSS SECTION

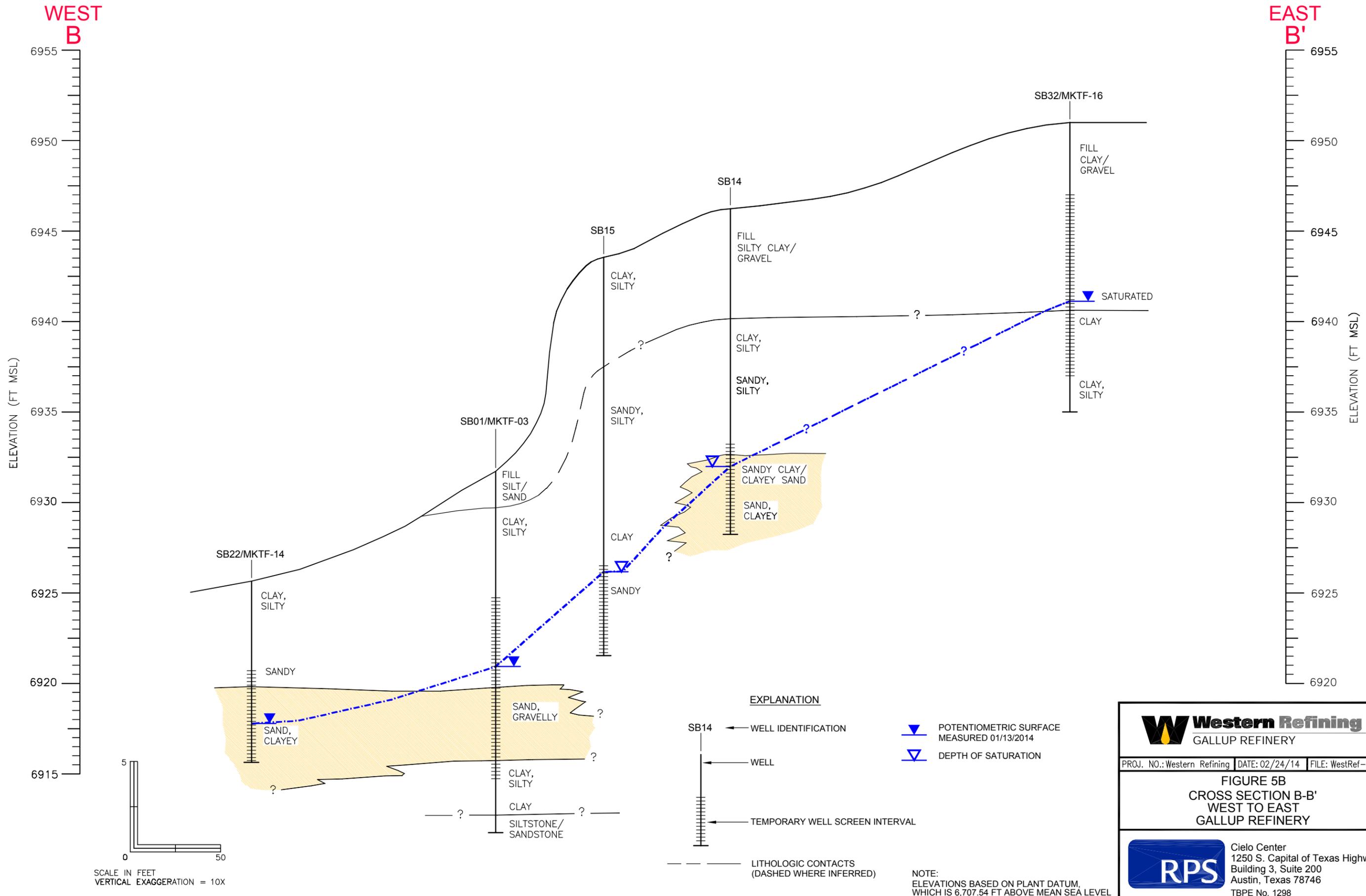


PROJ. NO.:Western Refining | DATE:02/23/14 | FILE:WestRef-B183

FIGURE 5
CROSS SECTION LOCATION MAP
GALLUP REFINERY



Cielo Center
 1250 S. Capital of Texas Highway
 Building 3, Suite 200
 Austin, Texas 78746
 TBPE No. 1298



SCALE IN FEET
VERTICAL EXAGGERATION = 10X

- EXPLANATION**
- SB14 ← WELL IDENTIFICATION
 - ← WELL
 - ← TEMPORARY WELL SCREEN INTERVAL
 - LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)
 - ▼ POTENTIOMETRIC SURFACE MEASURED 01/13/2014
 - ▽ DEPTH OF SATURATION

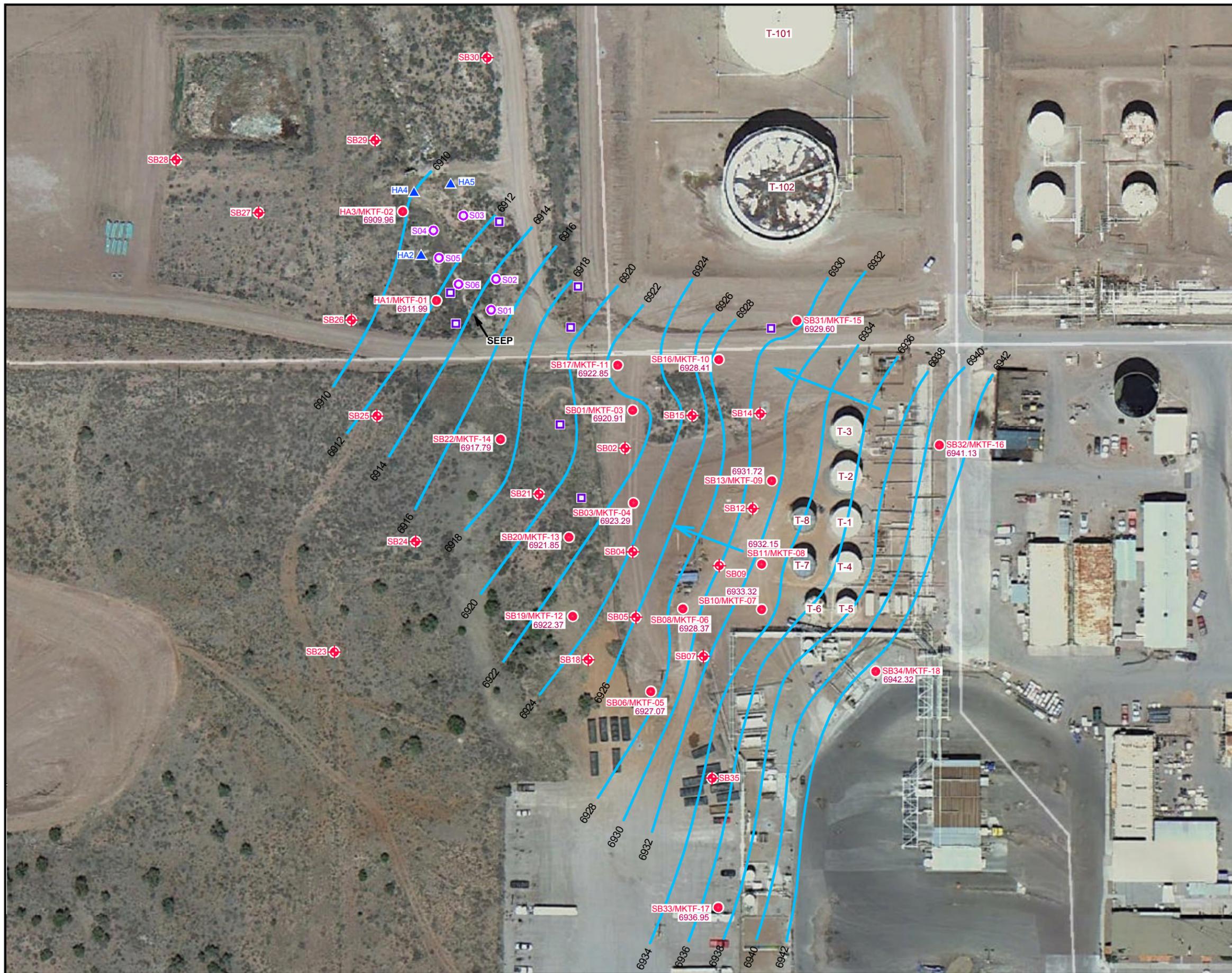
NOTE:
ELEVATIONS BASED ON PLANT DATUM,
WHICH IS 6,707.54 FT ABOVE MEAN SEA LEVEL

Western Refining
GALLUP REFINERY

PROJ. NO.: Western Refining | DATE: 02/24/14 | FILE: WestRef-B186

FIGURE 5B
CROSS SECTION B-B'
WEST TO EAST
GALLUP REFINERY

Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



QUADRANGLE LOCATION

LEGEND

- SB01 SOIL BORING / TEMPORARY WELL LOCATION
- HA1 HAND AUGER LOCATION
- EXCAVATION LOCATION
- S01 TEMPORARY SUMP
- MONITORING WELL LOCATION
- 6930 POTENTIOMETRIC CONTOUR (FT) (2 FT INTERVAL)
- GROUNDWATER FLOW DIRECTION
- 6941.13 GROUNDWATER ELEVATION (FT) MEASURED ON JANUARY 13, 2014



PROJ. NO.: Western Refining | DATE: 02/23/14 | FILE: WestRef-B184

FIGURE 6
POTENTIOMETRIC SURFACE MAP



Cielo Center
 1250 S. Capital of Texas Highway
 Building 3, Suite 200
 Austin, Texas 78746
 TBPE No. 1298



Map Source: Google map, 05/03/12.



PROJ. NO.: Western Refining | DATE: 02/22/14 | FILE: WestRef-A176

FIGURE 7
PROPOSED SOIL BORING LOCATIONS



0 20
 SCALE IN FEET

LEGEND

 PROPOSED SOIL BORING LOCATION



Cielo Center
 1250 S. Capital of Texas Highway
 Building 3, Suite 200
 Austin, Texas 78746
 TBPE No. 1298

Appendix A

Photographs



Map Source: Google map, 05/03/12.



PROJ. NO.: Western Refining | DATE: 02/22/14 | FILE: WestRef-A177

APPENDIX A
PHOTOGRAPH LOCATIONS



0 20
SCALE IN FEET

LEGEND

 PHOTO LOCATION AND DIRECTION



Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



Photo 1 – Looking north at sound end of SWMU No. 3, with new concrete covering recent excavation and repair of SWMU No. 12 Wastewater Collection System.



Photo 2 – Looking north at southwest corner of SWMU No. 3 with fresh concrete over recent excavation and repair to SWMU No. 12.



Photo taken from similar location as Photo 2, showing the recent (Dec. 2013 – Jan. 2014) excavation of SWMU No. 12.



Photo 3 – Looking northwest from southeast corner of SWMU No. 3. Heat exchanger bundles shown on pad.



Photo 4 – Looking north from southeast corner of SWMU No. 3.



Photo 5 – Looking west at back wall of SWMU No. 3, which contains overspray on pad area.



Photo 6 – Looking at south wall of SWMU No. 3, which contains overspray on the pad area and the sump that runs along the back (west) wall of the pad.



Photo 7 – Looking south at west wall (at right) and south wall (in background) of SWMU No. 3 and sump.



Photo 8 – Looking north at sump that runs full length of western edge of SWMU No. 3.



Photo 9 – Looking northwest from center of pad.



Photo 10 – Looking west from northeast corner of SWMU No. 3.



Photo 11 – Looking at drain located in bottom of sump, near the center of the pad area. The drain line goes to SWMU No. 12 (wastewater collection system), which is located just west of SWMU No. 3.



Photo 12 – Looking north on west side of SWMU No. 3.

Appendix B

Soil Boring/Monitoring Well Completion Logs

DATA MANAGEMENT

Sample Location: SWMU #3

Sample Date: 5-6-72

Sample Type: SOIL

Team Leader: L. SHELTON

Sample Personnel: M. BARNEY, T. ROGERS

Sampling Method: AUGER

Sample No. RF10301V0 Sample Time/Description: 8:20 AM SOIL
PID - 3.2

Sample No. RF10301V3 Sample Time/Description: 8:45 AM SOIL
PID - \emptyset

Sample No. RF10301V4.5 Sample Time/Description: 9:00 AM SOIL
PID - \emptyset

Sample No. _____ Sample Time/Description: _____

Sample No. _____ Sample Time/Description: _____

Surface Terrain: FLAT GRAVEL & SOIL, BARREN

Weather Conditions: PARTLY SUNNY, 50°F, ESE WIND @ 5 MPH

General Field Observations: AUGERING VERY DIFFICULT FOR FIRST 14"

Boring Lithology: 0-1" - UNCONSOLIDATED SOIL SAND & GRAVEL,
DARK BROWN W/ SOME LIGHTER MIXTURE 1" TO 14" - DISCOLORED
SOIL 14" TO 31" LIGHTER MIXED OR STRAINED SOIL, 31" TO 51"
RED CLAY W/ SOME WHITE SPECKLES

DATA MANAGEMENT

Sample Location: SWMU # 3

Sample Date: 5-6-92

Sample Type: SOIL

Team Leader: L. SHELTON

Sample Personnel: M. BARNEY, T. ROGERS

Sampling Method: AUGER

Sample No. RF10302V2.0 Sample Time/Description: 9:10 AM DRY SOIL
PID - 1.2 (0-200 SCALE)

Sample No. RF10302V3.0 Sample Time/Description: 9:20 AM MOIST SOIL
PID - 0

Sample No. RF10302V4.5 Sample Time/Description: 9:20 AM MOIST SOIL
PID - 0

Sample No. _____ Sample Time/Description: 9:30 AM

Sample No. _____ Sample Time/Description: _____

Surface Terrain: FLAT, GRAVEL + SOIL, BARREN

Weather Conditions: MOSTLY CLOUDY, 60°F, ESE WIND @ 5mph.

General Field Observations: AUGERING VERY DIFFICULT FOR THE FIRST 14"

Boring Lithology: 0-1' - DISCOLORED MIXED SOIL / 50% GRAVEL FOR FIRST 8", 1' TO 20" DISCOLORED SOIL, SLIGHTLY MOIST, 20" TO 3' - MOIST RED/GRAY CLAY. NO VERIGATION OR SPOTTING / 25% SAND. 3' TO 5' - RED/GRAY CLAY WITH 25% SAND

DATA MANAGEMENT

Sample Location: SWMU #3

Sample Date: 5-6-92

Sample Type: SOIL

Team Leader: L. SHELTON

Sample Personnel: M. BARNEY, T. ROGERS

Sampling Method: AUGER

Sample No. RF10303V2.0 Sample Time/Description: 10:40 AM DRY SOIL
PID-Ø

Sample No. RF10303V3.0 Sample Time/Description: 10:50 AM MOIST SOIL
PID-Ø

Sample No. RF10303V4.5 Sample Time/Description: 11:00 AM MOIST SOIL
PID-

Sample No. _____ Sample Time/Description: _____

Sample No. _____ Sample Time/Description: _____

Surface Terrain: FLAT, GRAVEL & SOIL, BARREN

Weather Conditions: CLOUDY, SPRINKLES, 60°F, ESE WIND
@ 5-10 MPH

General Field Observations: VERY DIFFICULT TO AUGER TO
12".

Boring Lithology: 0-1' - GRAVEL / SOIL MIX, DISCOLORED
SOIL. 1' TO 2' - DISCOLORED CLAY / SAND MIX. 2'-3.5'
RED CLAY MIX. 3.5 TO 5.0' RED GRAY CLAY W/ SOME ROCK +
SAND (5-7%)

DATA MANAGEMENT

Sample Location: SWMU #3

Sample Date: 5-6-92

Sample Type: SOIL

Team Leader: L. SHELTON

Sample Personnel: M. BARNES, T. ROGERS

Sampling Method: AUGER

Sample No. RFI0304V0.0 Sample Time/Description: 12:35 PM DRY SOIL
PID - 0

Sample No. RFI0304V3.0 Sample Time/Description: 12:55 PM MOIST SOIL
PID - 0

Sample No. RFI0304V4.5 Sample Time/Description: 1:20 PM MOIST SOIL
PID - 0

Sample No. _____ Sample Time/Description: _____

Sample No. _____ Sample Time/Description: _____

Surface Terrain: FLAT, GRAVEL & SOIL, BARREN

Weather Conditions: PARTLY CLOUDY, 60 °F, E WIND AT
5-10 MPH.

General Field Observations: _____

Boring Lithology: 0-6" - GRAVEL / SOIL 6"-1' DISCOLORED
SAND / SOIL. 1'-1.5' - SLIGHTLY DISCOLORED SOIL. 1.5-5.0'
RED CLAY WITH SOME GREY SPECKS.

Appendix C

Analytical Reports



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 27, 2013

Cheryl Johnson
Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0231
FAX (505) 722-0210

RE: Seep West of Tank 102

OrderNo.: 1311905

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 11/20/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1311905

Date Reported: 11/27/2013

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SB32

Project: Seep West of Tank 102

Collection Date: 11/19/2013 9:30:00 AM

Lab ID: 1311905-001

Matrix: AQUEOUS

Received Date: 11/20/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	4.2	1.0		mg/L	1	11/25/2013 4:45:18 PM	10460
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/25/2013 4:45:18 PM	10460
Surr: DNOP	113	70.1-140		%REC	1	11/25/2013 4:45:18 PM	10460
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	68	2.5		mg/L	50	11/22/2013 6:09:44 PM	R15041
Surr: BFB	106	80.4-118		%REC	50	11/22/2013 6:09:44 PM	R15041
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	9900	500		µg/L	500	11/25/2013 4:03:31 PM	R15067
Toluene	8200	500		µg/L	500	11/25/2013 4:03:31 PM	R15067
Ethylbenzene	1900	50		µg/L	50	11/22/2013 6:09:44 PM	R15041
Xylenes, Total	9800	100		µg/L	50	11/22/2013 6:09:44 PM	R15041
Surr: 4-Bromofluorobenzene	117	85-136		%REC	50	11/22/2013 6:09:44 PM	R15041

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1311905

Date Reported: 11/27/2013

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SB33

Project: Seep West of Tank 102

Collection Date: 11/19/2013 10:15:00 AM

Lab ID: 1311905-002

Matrix: AQUEOUS

Received Date: 11/20/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	5.8	1.0		mg/L	1	11/25/2013 5:07:17 PM	10460
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/25/2013 5:07:17 PM	10460
Surr: DNOP	116	70.1-140		%REC	1	11/25/2013 5:07:17 PM	10460
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	17	2.5		mg/L	50	11/22/2013 6:39:50 PM	R15041
Surr: BFB	104	80.4-118		%REC	50	11/22/2013 6:39:50 PM	R15041
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	1800	50		µg/L	50	11/22/2013 6:39:50 PM	R15041
Toluene	1600	50		µg/L	50	11/22/2013 6:39:50 PM	R15041
Ethylbenzene	710	50		µg/L	50	11/22/2013 6:39:50 PM	R15041
Xylenes, Total	2700	100		µg/L	50	11/22/2013 6:39:50 PM	R15041
Surr: 4-Bromofluorobenzene	116	85-136		%REC	50	11/22/2013 6:39:50 PM	R15041

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1311905

Date Reported: 11/27/2013

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SB23

Project: Seep West of Tank 102

Collection Date: 11/19/2013 10:50:00 AM

Lab ID: 1311905-003

Matrix: AQUEOUS

Received Date: 11/20/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	2.1	1.0		mg/L	1	11/25/2013 5:29:07 PM	10460
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/25/2013 5:29:07 PM	10460
Surr: DNOP	109	70.1-140		%REC	1	11/25/2013 5:29:07 PM	10460
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	6.5	0.25		mg/L	5	11/25/2013 4:33:48 PM	R15067
Surr: BFB	107	80.4-118		%REC	5	11/25/2013 4:33:48 PM	R15067
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	1300	50		µg/L	50	11/22/2013 7:09:53 PM	R15041
Toluene	7.5	5.0		µg/L	5	11/25/2013 4:33:48 PM	R15067
Ethylbenzene	72	5.0		µg/L	5	11/25/2013 4:33:48 PM	R15067
Xylenes, Total	16	10		µg/L	5	11/25/2013 4:33:48 PM	R15067
Surr: 4-Bromofluorobenzene	113	85-136		%REC	5	11/25/2013 4:33:48 PM	R15067

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1311905

Date Reported: 11/27/2013

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SB30

Project: Seep West of Tank 102

Collection Date: 11/19/2013 12:15:00 PM

Lab ID: 1311905-004

Matrix: AQUEOUS

Received Date: 11/20/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/25/2013 5:51:04 PM	10460
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/25/2013 5:51:04 PM	10460
Surr: DNOP	114	70.1-140		%REC	1	11/25/2013 5:51:04 PM	10460
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/25/2013 5:34:09 PM	R15067
Surr: BFB	100	80.4-118		%REC	1	11/25/2013 5:34:09 PM	R15067
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	11/25/2013 5:34:09 PM	R15067
Toluene	ND	1.0		µg/L	1	11/25/2013 5:34:09 PM	R15067
Ethylbenzene	ND	1.0		µg/L	1	11/25/2013 5:34:09 PM	R15067
Xylenes, Total	ND	2.0		µg/L	1	11/25/2013 5:34:09 PM	R15067
Surr: 4-Bromofluorobenzene	108	85-136		%REC	1	11/25/2013 5:34:09 PM	R15067

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1311905

Date Reported: 11/27/2013

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SB34

Project: Seep West of Tank 102

Collection Date: 11/19/2013 1:15:00 PM

Lab ID: 1311905-005

Matrix: AQUEOUS

Received Date: 11/20/2013 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	11	1.0		mg/L	1	11/25/2013 6:12:56 PM	10460
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/25/2013 6:12:56 PM	10460
Surr: DNOP	120	70.1-140		%REC	1	11/25/2013 6:12:56 PM	10460
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	4.0	2.5		mg/L	50	11/22/2013 8:10:07 PM	R15041
Surr: BFB	102	80.4-118		%REC	50	11/22/2013 8:10:07 PM	R15041
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Benzene	330	50		µg/L	50	11/22/2013 8:10:07 PM	R15041
Toluene	370	50		µg/L	50	11/22/2013 8:10:07 PM	R15041
Ethylbenzene	130	50		µg/L	50	11/22/2013 8:10:07 PM	R15041
Xylenes, Total	470	100		µg/L	50	11/22/2013 8:10:07 PM	R15041
Surr: 4-Bromofluorobenzene	108	85-136		%REC	50	11/22/2013 8:10:07 PM	R15041

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311905

27-Nov-13

Client: Western Refining Southwest, Gallup

Project: Seep West of Tank 102

Sample ID MB-10460	SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range							
Client ID: PBW	Batch ID: 10460		RunNo: 15015							
Prep Date: 11/21/2013	Analysis Date: 11/25/2013		SeqNo: 434392		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		107	70.1	140			

Sample ID LCS-10460	SampType: LCS		TestCode: EPA Method 8015D: Diesel Range							
Client ID: LCSW	Batch ID: 10460		RunNo: 15015							
Prep Date: 11/21/2013	Analysis Date: 11/25/2013		SeqNo: 434404		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	73.3	145			
Surr: DNOP	0.52		0.5000		104	70.1	140			

Sample ID LCSD-10460	SampType: LCSD		TestCode: EPA Method 8015D: Diesel Range							
Client ID: LCSS02	Batch ID: 10460		RunNo: 15015							
Prep Date: 11/21/2013	Analysis Date: 11/25/2013		SeqNo: 434671		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.1	1.0	5.000	0	122	73.3	145	13.9	20	
Surr: DNOP	0.59		0.5000		118	70.1	140	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311905

27-Nov-13

Client: Western Refining Southwest, Gallup

Project: Seep West of Tank 102

Sample ID 5ML-RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: R15041		RunNo: 15041							
Prep Date:	Analysis Date: 11/22/2013		SeqNo: 434271		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		97.6	80.4	118			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R15041		RunNo: 15041							
Prep Date:	Analysis Date: 11/22/2013		SeqNo: 434272		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	80	120			
Surr: BFB	21		20.00		107	80.4	118			

Sample ID 5ML-RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: R15067		RunNo: 15067							
Prep Date:	Analysis Date: 11/25/2013		SeqNo: 434884		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	21		20.00		106	80.4	118			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R15067		RunNo: 15067							
Prep Date:	Analysis Date: 11/25/2013		SeqNo: 434885		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	87.1	80	120			
Surr: BFB	21		20.00		106	80.4	118			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1311905

27-Nov-13

Client: Western Refining Southwest, Gallup

Project: Seep West of Tank 102

Sample ID 5ML-RB	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBW	Batch ID: R15041		RunNo: 15041							
Prep Date:	Analysis Date: 11/22/2013		SeqNo: 434285		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		108	85	136			

Sample ID 100NG BTEX LCS	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSW	Batch ID: R15041		RunNo: 15041							
Prep Date:	Analysis Date: 11/22/2013		SeqNo: 434286		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.8	80	120			
Toluene	19	1.0	20.00	0	94.6	80	120			
Ethylbenzene	19	1.0	20.00	0	95.1	80	120			
Xylenes, Total	58	2.0	60.00	0	96.0	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		112	85	136			

Sample ID 5ML-RB	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBW	Batch ID: R15067		RunNo: 15067							
Prep Date:	Analysis Date: 11/25/2013		SeqNo: 434905		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	24		20.00		118	85	136			

Sample ID 100NG BTEX LCS	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSW	Batch ID: R15067		RunNo: 15067							
Prep Date:	Analysis Date: 11/25/2013		SeqNo: 434906		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	80	120			
Toluene	19	1.0	20.00	0	95.2	80	120			
Ethylbenzene	19	1.0	20.00	0	94.0	80	120			
Xylenes, Total	58	2.0	60.00	0	96.5	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		110	85	136			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1311905

RcptNo: 1

Received by/date: LM 11/20/13

Logged By: Anne Thorne 11/20/2013 9:40:00 AM

Anne Thorne

Completed By: Anne Thorne 11/20/2013

Anne Thorne

Reviewed By: IO 11/21/2013

Chain of Custody

- 1. Custody seals intact on sample bottles? Yes No Not Present
- 2. Is Chain of Custody complete? Yes No Not Present
- 3. How was the sample delivered? Client

Log In

- 4. Was an attempt made to cool the samples? Yes No NA
- 5. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA
- 6. Sample(s) in proper container(s)? Yes No
- 7. Sufficient sample volume for indicated test(s)? Yes No
- 8. Are samples (except VOA and ONG) properly preserved? Yes No
- 9. Was preservative added to bottles? Yes No NA
- 10. VOA vials have zero headspace? Yes No No VOA Vials
- 11. Were any sample containers received broken? Yes No
- 12. Does paperwork match bottle labels? Yes No
(Note discrepancies on chain of custody)
- 13. Are matrices correctly identified on Chain of Custody? Yes No
- 14. Is it clear what analyses were requested? Yes No
- 15. Were all holding times able to be met? Yes No
(If no, notify customer for authorization.)

of preserved bottles checked for pH: _____
 (<2 or >12 unless noted)
 Adjusted? _____
 Checked by: _____

Special Handling (if applicable)

- 16. Was client notified of all discrepancies with this order? Yes No NA

Person Notified: _____ Date: _____
 By Whom: _____ Via: eMail Phone Fax In Person
 Regarding: _____
 Client Instructions: _____

17. Additional remarks:

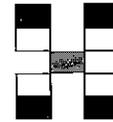
18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: **WESTERN REFINING SW**
GALLUP REFINERY
 Mailing Address: **ROUTE 3 BOX 7**
JAMESTOWN, NM 87301
 Phone #: **505-722-3833**
 email or Fax#: **CHERYL JOHNSON, WNR**

Turn-Around Time:
 Standard Rush
 Project Name: **SEEP WEST OF TANK 102**
 Project #:
 Contact Manager: **CEM**



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

QA/QC Package:
 Standard Level 4 (Full Validation)
 Accreditation
 NELAP Other
 EDD (Type)

Sampler: **CHERYL JOHNSON**
J. PAYNE
 On Ice: Yes No
 Sample Temperature: **1.0**

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
11/19/13	0930	GW	SB32 SB32	4 40ML VOA	HCL & NEAT	1311905			X										
	1015		SB33			001			X										
	1050		SB23			003			X										
	1215		SB30			004			X										
	1315		SB34			005			X										

Date: **11/20/13** Time: **0940** Relinquished by:
 Received by: Date: **11/20/13** Time: **0940**

Remarks:



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 09, 2014

Beck Larsen

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0258
FAX (505) 722-0210

RE: Bundle Pad Hole

OrderNo.: 1401101

Dear Beck Larsen:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/3/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401101

Date Reported: 1/9/2014

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Bundle Pad Hole

Project: Bundle Pad Hole

Collection Date: 12/31/2013 1:45:00 PM

Lab ID: 1401101-001

Matrix: AQUEOUS

Received Date: 1/3/2014 4:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	ND	0.50		mg/L	5	1/6/2014 11:53:41 PM	R15918
EPA METHOD 7470: MERCURY							Analyst: JML
Mercury	ND	0.0010		mg/L	5	1/7/2014 1:00:41 PM	11091
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: ELS
Arsenic	ND	0.020		mg/L	1	1/9/2014 10:39:30 AM	11099
Barium	4.0	0.10		mg/L	5	1/9/2014 10:41:00 AM	11099
Cadmium	ND	0.0020		mg/L	1	1/9/2014 10:39:30 AM	11099
Calcium	190	5.0		mg/L	5	1/9/2014 10:41:00 AM	11099
Chromium	0.0094	0.0060		mg/L	1	1/9/2014 10:39:30 AM	11099
Lead	0.060	0.0050		mg/L	1	1/9/2014 10:39:30 AM	11099
Magnesium	26	1.0		mg/L	1	1/9/2014 10:39:30 AM	11099
Potassium	4.0	1.0		mg/L	1	1/9/2014 10:39:30 AM	11099
Selenium	ND	0.050		mg/L	1	1/9/2014 10:39:30 AM	11099
Silver	ND	0.0050		mg/L	1	1/9/2014 10:39:30 AM	11099
Sodium	210	5.0		mg/L	5	1/9/2014 10:41:00 AM	11099
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Benzene	8700	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Toluene	17000	500		µg/L	500	1/8/2014 1:41:50 PM	R15972
Ethylbenzene	1600	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Methyl tert-butyl ether (MTBE)	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2,4-Trimethylbenzene	1000	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,3,5-Trimethylbenzene	250	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2-Dichloroethane (EDC)	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2-Dibromoethane (EDB)	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Naphthalene	ND	200		µg/L	100	1/8/2014 2:10:46 PM	R15972
1-Methylnaphthalene	ND	400		µg/L	100	1/8/2014 2:10:46 PM	R15972
2-Methylnaphthalene	ND	400		µg/L	100	1/8/2014 2:10:46 PM	R15972
Acetone	ND	1000		µg/L	100	1/8/2014 2:10:46 PM	R15972
Bromobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Bromodichloromethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Bromoform	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Bromomethane	ND	300		µg/L	100	1/8/2014 2:10:46 PM	R15972
2-Butanone	ND	1000		µg/L	100	1/8/2014 2:10:46 PM	R15972
Carbon disulfide	ND	1000		µg/L	100	1/8/2014 2:10:46 PM	R15972
Carbon Tetrachloride	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Chlorobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Chloroethane	ND	200		µg/L	100	1/8/2014 2:10:46 PM	R15972
Chloroform	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401101

Date Reported: 1/9/2014

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Bundle Pad Hole

Project: Bundle Pad Hole

Collection Date: 12/31/2013 1:45:00 PM

Lab ID: 1401101-001

Matrix: AQUEOUS

Received Date: 1/3/2014 4:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Chloromethane	ND	300		µg/L	100	1/8/2014 2:10:46 PM	R15972
2-Chlorotoluene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
4-Chlorotoluene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
cis-1,2-DCE	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
cis-1,3-Dichloropropene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2-Dibromo-3-chloropropane	ND	200		µg/L	100	1/8/2014 2:10:46 PM	R15972
Dibromochloromethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Dibromomethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2-Dichlorobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,3-Dichlorobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,4-Dichlorobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Dichlorodifluoromethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1-Dichloroethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1-Dichloroethene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2-Dichloropropane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,3-Dichloropropane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
2,2-Dichloropropane	ND	200		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1-Dichloropropene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Hexachlorobutadiene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
2-Hexanone	ND	1000		µg/L	100	1/8/2014 2:10:46 PM	R15972
Isopropylbenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
4-Isopropyltoluene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
4-Methyl-2-pentanone	ND	1000		µg/L	100	1/8/2014 2:10:46 PM	R15972
Methylene Chloride	ND	300		µg/L	100	1/8/2014 2:10:46 PM	R15972
n-Butylbenzene	ND	300		µg/L	100	1/8/2014 2:10:46 PM	R15972
n-Propylbenzene	140	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
sec-Butylbenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Styrene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
tert-Butylbenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1,1,2-Tetrachloroethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1,2,2-Tetrachloroethane	ND	200		µg/L	100	1/8/2014 2:10:46 PM	R15972
Tetrachloroethene (PCE)	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
trans-1,2-DCE	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
trans-1,3-Dichloropropene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2,3-Trichlorobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2,4-Trichlorobenzene	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1,1-Trichloroethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,1,2-Trichloroethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Trichloroethene (TCE)	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1401101

Date Reported: 1/9/2014

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Bundle Pad Hole

Project: Bundle Pad Hole

Collection Date: 12/31/2013 1:45:00 PM

Lab ID: 1401101-001

Matrix: AQUEOUS

Received Date: 1/3/2014 4:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Trichlorofluoromethane	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
1,2,3-Trichloropropane	ND	200		µg/L	100	1/8/2014 2:10:46 PM	R15972
Vinyl chloride	ND	100		µg/L	100	1/8/2014 2:10:46 PM	R15972
Xylenes, Total	7300	150		µg/L	100	1/8/2014 2:10:46 PM	R15972
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	100	1/8/2014 2:10:46 PM	R15972
Surr: 4-Bromofluorobenzene	107	70-130		%REC	100	1/8/2014 2:10:46 PM	R15972
Surr: Dibromofluoromethane	106	70-130		%REC	100	1/8/2014 2:10:46 PM	R15972
Surr: Toluene-d8	91.9	70-130		%REC	100	1/8/2014 2:10:46 PM	R15972
EPA METHOD 418.1: TPH							Analyst: JME
Petroleum Hydrocarbons, TR	3000	100		mg/L	100	1/6/2014	11088

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458984		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.10	2.400	0	100	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458992		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.96	0.10	1.000	0	96.4	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458994		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								

Sample ID LCS-b	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458997		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.1	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 459004		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.10	1.600	0	101	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 459017		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	100	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 459029		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.7	0.10	1.600	0	105	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 459042		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	103	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15918		RunNo: 15918							
Prep Date:	Analysis Date: 1/7/2014		SeqNo: 459054		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.7	0.10	1.600	0	103	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID	MB-11088	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBW	Batch ID:	11088	RunNo:	15905					
Prep Date:	1/6/2014	Analysis Date:	1/6/2014	SeqNo:	458585	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	1.0								

Sample ID	LCS-11088	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSW	Batch ID:	11088	RunNo:	15905					
Prep Date:	1/6/2014	Analysis Date:	1/6/2014	SeqNo:	458586	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.3	1.0	5.000	0	86.0	80	120			

Sample ID	LCSD-11088	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	11088	RunNo:	15905					
Prep Date:	1/6/2014	Analysis Date:	1/6/2014	SeqNo:	458587	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	4.4	1.0	5.000	0	87.2	80	120	1.39	20	

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID 5mL rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R15914		RunNo: 15914							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458886		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	12		10.00		116	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID 100ng lcs 3	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R15914		RunNo: 15914							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458888		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.5	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		112	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID b8	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R15914		RunNo: 15914							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458925		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.0		10.00		90.1	70	130			

Sample ID 100ng lcs 4	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R15914		RunNo: 15914							
Prep Date:	Analysis Date: 1/6/2014		SeqNo: 458927		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.9		10.00		98.7	70	130			

Sample ID 5mL rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R15930		RunNo: 15930							
Prep Date:	Analysis Date: 1/7/2014		SeqNo: 459221		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID 5mL rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R15930		RunNo: 15930							
Prep Date:	Analysis Date: 1/7/2014		SeqNo: 459221		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		112	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.3		10.00		93.3	70	130			

Sample ID 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R15930		RunNo: 15930							
Prep Date:	Analysis Date: 1/7/2014		SeqNo: 459223		Units: %REC					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID 5mL rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R15972		RunNo: 15972							
Prep Date:	Analysis Date: 1/8/2014		SeqNo: 460191		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID: 5mL rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES
Client ID: PBW	Batch ID: R15972	RunNo: 15972
Prep Date:	Analysis Date: 1/8/2014	SeqNo: 460191 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R15972	RunNo:	15972					
Prep Date:		Analysis Date:	1/8/2014	SeqNo:	460191	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.5		10.00		95.5	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R15972	RunNo:	15972					
Prep Date:		Analysis Date:	1/8/2014	SeqNo:	460193	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.7	70	130			
Toluene	17	1.0	20.00	0	86.8	82.2	124			
Chlorobenzene	17	1.0	20.00	0	82.9	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	116	83.5	155			
Trichloroethene (TCE)	17	1.0	20.00	0	86.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.1	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		120	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	8.9		10.00		88.9	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID	MB-11091	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	11091	RunNo:	15929					
Prep Date:	1/6/2014	Analysis Date:	1/7/2014	SeqNo:	459623	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-11091	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	11091	RunNo:	15929					
Prep Date:	1/6/2014	Analysis Date:	1/7/2014	SeqNo:	459624	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	103	80	120			

Sample ID	1401101-001CMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	Bundle Pad Hole	Batch ID:	11091	RunNo:	15929					
Prep Date:	1/6/2014	Analysis Date:	1/7/2014	SeqNo:	459629	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.0010	0.005000	0	102	75	125			

Sample ID	1401101-001CMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	Bundle Pad Hole	Batch ID:	11091	RunNo:	15929					
Prep Date:	1/6/2014	Analysis Date:	1/7/2014	SeqNo:	459630	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.0010	0.005000	0	101	75	125	0.769	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1401101

09-Jan-14

Client: Western Refining Southwest, Gallup

Project: Bundle Pad Hole

Sample ID	MB-11099	SampType:	MBLK	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID:	11099	RunNo:	15981					
Prep Date:	1/7/2014	Analysis Date:	1/9/2014	SeqNo:	460419	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS-11099	SampType:	LCS	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW	Batch ID:	11099	RunNo:	15981					
Prep Date:	1/7/2014	Analysis Date:	1/9/2014	SeqNo:	460420	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	99.0	80	120			
Barium	0.49	0.020	0.5000	0	97.1	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.1	80	120			
Calcium	49	1.0	50.00	0	97.2	80	120			
Chromium	0.49	0.0060	0.5000	0	97.0	80	120			
Lead	0.48	0.0050	0.5000	0	95.8	80	120			
Magnesium	49	1.0	50.00	0	98.0	80	120			
Potassium	47	1.0	50.00	0	94.4	80	120			
Selenium	0.46	0.050	0.5000	0	91.9	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			
Sodium	49	1.0	50.00	0	97.1	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1401101

RcptNo: 1

Received by/date: AT 01/03/14

Logged By: **Lindsay Mangin** 1/3/2014 4:15:00 PM *Lindsay Mangin*

Completed By: **Lindsay Mangin** 1/6/2014 8:46:10 AM *Lindsay Mangin*

Reviewed By: *[Signature]* 01/06/14

Chain of Custody

- 1. Custody seals intact on sample bottles? Yes No Not Present
- 2. Is Chain of Custody complete? Yes No Not Present
- 3. How was the sample delivered? Client

Log In

- 4. Was an attempt made to cool the samples? Yes No NA
- 5. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA
- 6. Sample(s) in proper container(s)? Yes No
- 7. Sufficient sample volume for indicated test(s)? Yes No
- 8. Are samples (except VOA and ONG) properly preserved? Yes No
- 9. Was preservative added to bottles? Yes No NA
See Remark
- 10. VOA vials have zero headspace? Yes No No VOA Vials
- 11. Were any sample containers received broken? Yes No
- 12. Does paperwork match bottle labels? Yes No
(Note discrepancies on chain of custody)
- 13. Are matrices correctly identified on Chain of Custody? Yes No
- 14. Is it clear what analyses were requested? Yes No
- 15. Were all holding times able to be met? Yes No
(If no, notify customer for authorization.)

of preserved bottles checked for pH: 2
 (2 or >12 unless noted)
 Adjusted? yes
 Checked by: mg

Special Handling (if applicable)

- 16. Was client notified of all discrepancies with this order? Yes No NA

Person Notified: _____ Date: _____
 By Whom: _____ Via: eMail Phone Fax In Person
 Regarding: _____
 Client Instructions: _____

17. Additional remarks: Added 2 mL HNO₃ to COIC for acceptable pH. Added 3 mL HCl to COID for acceptable pH. 12-01/04

18. Cooler Information

Cooler No	Temp. °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western - Refining

Gallup Refinery

Mailing Address: 92 GIANT CROSSING ROAD
Gallup NM 87301

Phone #: 505 722 3833
email or Fax#: 505 863 0930

QA/QC Package:
 Standard Level 4 (Full Validation)
 Other _____
 EDD (Type) _____

Standard Rush

Project Name: _____

Bundle Pad Hole

Project #: _____

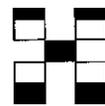
Bundle Pad Hole

Project Manager: Beck Larsen

Sampler: CTI

On Ice: Yes No

Sample Temperature: 1.0



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)B	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 12 Total Metals	Anions (F)	8081 Pesticides / 8082 PCB's	8260B (VOA) TOTAL	8270 (Semi-VOA) TCLP	RCI	TCLP Metals RCRA 8	Cations	TPH Sulfur	Air Bubbles (Y or N)	
12/31/2013	13:45	water	Bundle Pad Hole	3-250ml	None	1401101 -001				X			X	X							X		
12/31/2013	13:45	water	Bundle Pad Hole	3-40ml	HCL	-001										X							

Date: 01-03-14 Time: 12:00 Relinquished by: *[Signature]* Received by: *[Signature]* Date: 1-3-14 Time: 12:30

Date: 01/03/14 Time: 16:15 Relinquished by: *[Signature]* Received by: *[Signature]* Date: 01/03/14 Time: 16:15

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this

Appendix D

Investigation Derived Waste (IDW) Management Plan

IDW Management Plan

All IDW will be properly characterized and disposed of in accordance with all federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. The IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste.

A dedicated decontamination area will be setup prior to any sample collection activities. The decontamination pad will be constructed so as to capture and contain all decontamination fluids (e.g., wash water and rinse water) and foreign materials washed off the sampling equipment. The fluids will be pumped directly into suitable storage containers (e.g., labeled 55-gallon drums), which will be located at satellite accumulation areas until the fluids are disposed in the refinery wastewater treatment system upstream of the API separator. The solids captured in the decontamination pad will be shoveled into 55-gallon drums and stored at the designated satellite accumulation area pending proper waste characterization for off-site disposal.

Drill cuttings generated during installation of soil borings will be placed directly into 55-gallon drums and staged in the satellite accumulation area pending results of the waste characterization sampling. The portion of soil cores, which are not retained for analytical testing, will be placed into the same 55-gallon drums used to store the associated drill cuttings. Soils generated from the surface and very shallow depths will be segregated and stored separately because of the potential for listed hazardous waste (K050 – heat exchanger bundle cleaning sludge) to be present at or near the land surface. The hazardous constituent for which K050 wastes are listed is hexavalent chromium.

The solids (e.g., drill cuttings and used soil cores) will be characterized by testing to determine if there are any hazardous characteristics in accordance with 40 Code of Federal Regulations (CFR) Part 261. This includes tests for ignitability, corrosivity, reactivity, and toxicity. If the materials are not characteristically hazardous, then further testing will be performed pursuant to the requirements of the facility to which the materials will be transported. In addition, the materials segregated due to the potential for K050 listed waste to be present will be analyzed for hexavalent chromium to determine if these materials must be managed as a listed hazardous waste.

Depending upon the results of analyses for individual investigation soil samples, additional analyses may include TPH and polynuclear aromatic hydrocarbons. All miscellaneous waste materials (e.g., discarded gloves, packing materials, etc.) will be placed into the refinery's solid waste storage containers for off-site disposal.